



**C E N T E N N I A L**

at **TEJON**  **RANCH**

## **Centennial Project**

# **Draft Environmental Impact Report**

**State Clearinghouse No. 2004031072**

**County Project No. 02-232**

**General Plan Amendment No. 02-232**

**Zone Change No. 02-232**

**Vesting Tentative Parcel Map No. 060022**

**Conditional Use Permit No. 02-232**

**Development Agreement No. RPPL2016003940**

Lead Agency:

County of Los Angeles  
Department of Regional Planning  
Hall of Records, 13th Floor, Room 1348  
320 West Temple Street  
Los Angeles, California 90012

May 2017

---

**TABLE OF CONTENTS**

<b><u>Section</u></b>	<b><u>Page</u></b>
<b>1.0 Executive Summary .....</b>	<b>1-1</b>
1.1 General Introduction .....	1-1
1.2 Purpose and Scope of This Environmental Impact Report.....	1-1
1.3 Project Setting .....	1-2
1.3.1 Project Location.....	1-2
1.3.2 Physical Setting.....	1-3
1.4 Project Description.....	1-4
1.4.3 Land Use Overview .....	1-4
1.4.4 Public Services and Infrastructure.....	1-6
1.4.5 Off-site Project Features .....	1-7
1.5 Project Objectives .....	1-8
1.6 Summary of the Environmental Analysis .....	1-9
1.6.1 Geotechnical.....	1-9
1.6.2 Hydrology and Flood.....	1-9
1.6.3 Hazards and Fire Safety .....	1-10
1.6.4 Water Quality .....	1-11
1.6.5 Land Resources.....	1-11
1.6.6 Cultural and Tribal Resources.....	1-12
1.6.7 Biological Resources.....	1-13
1.6.8 Land Use, Entitlements, and Planning.....	1-14
1.6.9 Population, Housing, and Employment.....	1-16
1.6.10 Traffic, AccEss, and Circulation .....	1-17
1.6.11 Air Resources.....	1-18
1.6.12 Noise.....	1-20
1.6.13 Visual Resources .....	1-21
1.6.14 Parks and Recreation .....	1-22
1.6.15 Education .....	1-23
1.6.16 Fire and Law Enforcement Services .....	1-23
1.6.17 Other Public Services .....	1-24
1.6.18 Water Resources .....	1-25
1.6.19 Wastewater Collection .....	1-26
1.6.20 Dry Utilities .....	1-26



<b><u>Section</u></b>	<b><u>Page</u></b>
1.6.21 Climate Change .....	1-27
1.7 Growth-Inducing Impacts.....	1-28
1.8 Cumulative Impacts.....	1-28
1.9 Summary of Impacts .....	1-29
1.10 Alternatives.....	1-97
1.11 Areas of Controversy .....	1-97
1.12 Referenced Documents and Availability of Studies and Reports .....	1-98
1.13 References .....	1-99
<b>2.0 Introduction .....</b>	<b>2-1</b>
2.1 Purpose of the Environmental Impact Report .....	2-1
2.2 Type of Environmental Impact Report .....	2-1
2.2.1 Standards of Adequacy for Environmental Impact Reports Under the California Environmental Quality Act.....	2-2
2.2.2 Review of an Environmental Impact Report.....	2-3
2.3 Scope of the Environmental Impact Report .....	2-3
2.3.1 2004 Notice of Preparation and Scoping Process.....	2-3
2.3.2 2015 Notice of Preparation and Scoping Process.....	2-4
2.3.3 Scope of this Environmental Impact Report.....	2-5
2.4 Planning Context .....	2-2
2.4.1 County General Plan .....	2-2
2.4.2 Antelope Valley Area Plan.....	2-3
2.5 Project Sponsors and Contact Persons .....	2-3
2.6 Environmental Impact Report Review .....	2-3
2.7 Organization of the Environmental Impact Report.....	2-4
2.7.1 The Document as a Whole .....	2-4
2.7.2 Environmental Analysis Sections (Section 5.1–5.21) .....	2-6
2.8 References .....	2-7
<b>3.0 Environmental Setting.....</b>	<b>3-1</b>
3.1 Physical Setting.....	3-1
3.1.1 Project Location and Surrounding Land Uses.....	3-1
3.1.2 Climate, Topographic, Geologic, and Visual Setting.....	3-2
3.1.3 Cultural and Historic Setting.....	3-3
3.1.4 Biological Setting .....	3-4

<b><u>Section</u></b>	<b><u>Page</u></b>
3.1.5 Hydrology and Drainage Characteristics.....	3-5
3.1.6 Water Quality Setting.....	3-6
3.1.7 Water Resources Setting .....	3-7
3.1.8 Air Resources.....	3-8
3.2 Existing Land Uses.....	3-9
3.2.1 Existing Operations.....	3-9
3.2.2 Existing Public Facilities and Infrastructure.....	3-9
3.3 Land Use Designations and Zoning .....	3-11
3.4 Regional Planning Context.....	3-12
3.4.1 Population and Housing.....	3-12
3.4.2 Employment.....	3-13
3.4.3 Jobs and Housing Balance .....	3-13
3.5 Constraints and Opportunities.....	3-13
3.5.1 Constraints.....	3-13
3.5.2 Opportunities .....	3-17
3.6 References.....	3-22
<b>4.0 Project Description.....</b>	<b>4-1</b>
4.1 Section Organization.....	4-1
4.2 Project Location.....	4-2
4.3 Project Objectives .....	4-3
4.3.1 Purpose .....	4-3
4.3.2 Objectives of the Project.....	4-4
4.4 Project Overview .....	4-5
4.4.3 Land Use Plans .....	4-7
4.4.4 Zoning.....	4-10
4.4.5 Centennial Specific Plan.....	4-12
4.5 Centennial Project Components .....	4-16
4.5.1 Project Design Features.....	4-16
4.5.2 Conceptual Land Use Plan.....	4-16
4.5.3 Vesting Tentative Parcel Map.....	4-17
4.5.4 Conceptual Land Use Plan and Development Standards.....	4-17
4.5.5 Mobility Plan.....	4-30
4.5.6 Parks/Recreation.....	4-42

<b><u>Section</u></b>	<b><u>Page</u></b>
4.5.7	Natural Resources/Open Space..... 4-43
4.5.8	Integrated Water Resources Management Approach..... 4-46
4.5.9	Water-Related Utilities and Infrastructure ..... 4-55
4.5.10	Dry Utilities ..... 4-63
4.5.11	Green Development Program..... 4-70
4.5.12	Public Services/Facilities ..... 4-75
4.5.13	Landscape, Fuel Modification, and Lighting..... 4-80
4.5.14	Solid Waste Management Plan..... 4-85
4.5.15	Communication Based Technology Plan ..... 4-88
4.5.16	Affordable Housing Program..... 4-89
4.5.17	Grading and Construction ..... 4-90
4.6	Phasing and Implementation ..... 4-91
4.6.1	Land Use Phasing..... 4-91
4.6.2	Fiscal Implementation..... 4-92
4.6.3	First Phase Of Development..... 4-92
4.7	Off-site Project Features..... 4-96
4.7.1	Roadway Improvements ..... 4-96
4.7.2	Aqueduct Crossings and Water Infrastructure..... 4-98
4.7.3	Connections to Existing Off-site Dry Utilities ..... 4-99
4.7.4	Mitigation Areas ..... 4-101
4.8	Intended Use of the EIR..... 4-102
4.8.1	County of Los Angeles..... 4-102
4.8.2	Responsible and Trustee Agencies..... 4-107
4.9	References ..... 4-110
<b>5.0</b>	<b>Regulatory and Environmental Setting, Impacts, and Mitigation..... 5-1</b>
5.0.1	Introduction ..... 5-1
5.0.2	Thresholds of Significance..... 5-1
5.0.3	Environmental Impacts and Mitigation ..... 5-1
5.0.4	References..... 5-3
5.1	Geotechnical ..... 5.1-1
5.1.1	Introduction ..... 5.1-1
5.1.2	Relevant Plans, Policies, and Regulations ..... 5.1-3
5.1.3	Environmental Setting..... 5.1-6

<b><u>Section</u></b>	<b><u>Page</u></b>
5.1.4	Project Design Features ..... 5.1-13
5.1.5	Threshold Criteria ..... 5.1-14
5.1.6	Environmental Impacts..... 5.1-15
5.1.7	Mitigation Measures ..... 5.1-26
5.1.8	Level of Significance after Mitigation..... 5.1-26
5.1.9	References..... 5.1-27
5.2	Hydrology and Flood ..... 5.2-1
5.2.1	Purpose ..... 5.2-1
5.2.2	Relevant Plans, Policies, and Regulations ..... 5.2-4
5.2.3	Environmental Setting..... 5.2-15
5.2.4	Project Design Features ..... 5.2-21
5.2.5	Threshold Criteria ..... 5.2-22
5.2.6	Environmental Impacts..... 5.2-23
5.2.7	Mitigation Measures ..... 5.2-49
5.2.8	Level of Significance After Mitigation ..... 5.2-50
5.2.9	References..... 5.2-50
5.3	Hazards and Fire Safety..... 5.3-1
5.3.1	Introduction ..... 5.3-1
5.3.2	Hazards and Hazardous Materials ..... 5.3-3
5.3.3	Fire Safety ..... 5.3-28
5.3.4	References..... 5.3-39
5.4	Water Quality..... 5.4-1
5.4.1	Introduction ..... 5.4-1
5.2.1	Relevant Plans, Policies, and Regulations ..... 5.4-3
5.2.2	Environmental Setting..... 5.4-18
5.2.3	Project Design Features ..... 5.4-29
5.2.4	Water Quality Assessment Methodology ..... 5.4-31
5.2.5	Threshold Criteria ..... 5.4-50
5.2.6	Environmental Impacts..... 5.4-52
5.2.7	Mitigation Measures ..... 5.4-90
5.2.8	Level of Significance After Mitigation ..... 5.4-91
5.2.9	References..... 5.4-91
5.5	Land Resources..... 5.5-1

<b><u>Section</u></b>	<b><u>Page</u></b>
5.5.1	Introduction ..... 5.5-1
5.5.2	Agricultural and Forest Resources..... 5.5-3
5.5.3	Mineral Resources..... 5.5-19
5.5.4	References..... 5.5-21
5.6	Cultural and Tribal Resources ..... 5.6-1
5.6.1	Introduction ..... 5.6-1
5.6.2	Relevant Plans, Policies and Regulations ..... 5.6-4
5.6.3	Environmental Setting..... 5.6-6
5.6.1	Project Design Features ..... 5.6-44
5.6.2	Threshold Criteria ..... 5.6-45
5.6.3	Environmental Impacts..... 5.6-46
5.6.4	Mitigation Measures ..... 5.6-54
5.6.4	Level of Significance After Mitigation ..... 5.6-61
5.6.5	References..... 5.6-61
5.7	Biological Resources ..... 5.7-1
5.7.1	Introduction ..... 5.7-1
5.7.2	Relevant Plans, Policies and Regulations ..... 5.7-3
5.7.3	Environmental Setting..... 5.7-10
5.7.4	Project Design Features ..... 5.7-135
5.7.5	Threshold Criteria ..... 5.7-140
5.7.6	Environmental Impacts..... 5.7-141
5.7.7	Mitigation Measures ..... 5.7-173
5.7.8	Level of Significance After Mitigation ..... 5.7-195
5.7.9	References..... 5.7-195
5.8	Land Use, Entitlements, and Planning..... 5.8-1
5.8.1	Introduction ..... 5.8-1
5.8.2	Relevant Plans, Policies, and Regulations ..... 5.8-4
5.8.3	Environmental Setting..... 5.8-13
5.8.4	Project Design Feature ..... 5.8-18
5.8.5	Threshold Criteria ..... 5.8-18
5.8.6	Environmental Impacts..... 5.8-18
5.8.7	Mitigation Measures ..... 5.8-78
5.8.8	Level of Significance After Mitigation ..... 5.8-79

<b><u>Section</u></b>	<b><u>Page</u></b>
5.8.9	References..... 5.8-79
5.9	Population, Housing, and Employment ..... 5.9-1
5.9.1	Introduction ..... 5.9-1
5.9.2	Relevant Plans, Policies, and Regulations ..... 5.9-4
5.9.3	Environmental Setting..... 5.9-7
5.9.4	Project Design Features ..... 5.9-22
5.9.5	Threshold Criteria ..... 5.9-23
5.9.6	Environmental Impacts..... 5.9-23
5.9.7	Mitigation Measures ..... 5.9-33
5.9.8	Level of Significance After Mitigation ..... 5.9-33
5.9.9	References..... 5.9-34
5.10	Traffic, Access, and Circulation ..... 5.10-1
5.10.1	Introduction ..... 5.10-1
5.10.2	Relevant Plans, Policies, and Regulations ..... 5.10-5
5.10.3	Environmental Setting..... 5.10-15
5.10.4	Project Design Features ..... 5.10-36
5.10.5	Threshold Criteria ..... 5.10-38
5.10.6	Environmental Impacts..... 5.10-48
5.10.7	Mitigation Measures ..... 5.10-144
5.10.8	Level of Significance After Mitigation ..... 5.10-157
5.10.9	References..... 5.10-157
5.11	Air Resources ..... 5.11-1
5.11.1	Introduction ..... 5.11-1
5.11.2	Relevant Plans, Policies, and Regulations ..... 5.11-11
5.11.3	Methodology ..... 5.11-18
5.11.4	Environmental Setting..... 5.11-22
5.11.5	Project Design Features ..... 5.11-30
5.11.6	Threshold Criteria ..... 5.11-36
5.11.7	Environmental Impacts..... 5.11-40
5.11.8	Mitigation Measures ..... 5.11-78
5.11.9	Level of Significance After Mitigation ..... 5.11-83
5.11.10	References..... 5.11-83

<b><u>Section</u></b>	<b><u>Page</u></b>
5.12 Noise .....	5.12-1
5.12.1 Introduction .....	5.12-1
5.12.2 Relevant Plans, Policies, and Regulations .....	5.12-3
5.12.3 Environmental Setting.....	5.12-9
5.12.4 Project Design Features .....	5.12-20
5.12.5 Threshold Criteria .....	5.12-20
5.12.6 Environmental Impacts.....	5.12-21
5.12.7 Mitigation Measures .....	5.12-48
5.12.8 Level of Significance After Mitigation .....	5.12-51
5.12.9 References.....	5.12-51
5.13 Visual Resources.....	5.13-1
5.13.1 Introduction .....	5.13-1
5.13.2 Viewsheds and Visual Distance Zones.....	5.13-3
5.13.3 Relevant Plans, Policies, and Regulations .....	5.13-4
5.13.4 Environmental Setting.....	5.13-7
5.13.5 Project Design Features .....	5.13-11
5.13.6 Threshold Criteria .....	5.13-13
5.13.7 Environmental Impacts.....	5.13-14
5.13.8 Mitigation Measures .....	5.13-29
5.13.9 Level of Significance After Mitigation .....	5.13-32
5.13.10 References.....	5.13-32
5.14 Parks and Recreation.....	5.14-1
5.14.1 Introduction .....	5.14-1
5.14.2 Relevant Plans, Policies, and Regulations .....	5.14-3
5.14.1 Environmental Setting.....	5.14-8
5.14.2 Project Design Features .....	5.14-15
5.14.3 Environmental Impacts.....	5.14-17
5.14.4 Mitigation Measures .....	5.14-27
5.14.5 Level of Significance After Mitigation .....	5.14-29
5.14.6 References.....	5.14-29
5.15 Education.....	5.15-1
5.15.1 Introduction .....	5.15-1
5.15.2 Relevant Plans, Policies, and Regulations .....	5.15-3

<b><u>Section</u></b>	<b><u>Page</u></b>
5.15.3 Environmental Setting.....	5.15-6
5.15.4 Project Design Features .....	5.15-13
5.15.5 Threshold Criteria .....	5.15-13
5.15.6 Environmental Impacts.....	5.15-14
5.15.7 Mitigation Measures .....	5.15-21
5.15.8 Level of Significance After Mitigation.....	5.15-21
5.15.9 References.....	5.15-22
5.16 Fire and Law Enforcement Services.....	5.16-1
5.16.1 Introduction .....	5.16-1
5.16.2 Fire Services.....	5.16-3
5.16.3 Law Enforcement Services .....	5.16-17
5.16.4 References.....	5.16-25
5.17 Other Public Services.....	5.17-1
5.17.1 Introduction .....	5.17-1
5.17.2 Library Services.....	5.17-5
5.17.3 Solid Waste Services.....	5.17-14
5.17.4 Other Public Facilities.....	5.17-35
5.17.5 References.....	5.17-38
5.18 Water Resources.....	5.18-1
5.18.1 Introduction .....	5.18-1
5.18.2 Relevant Plans, Policies, and Regulations .....	5.18-5
5.18.3 Environmental Setting.....	5.18-17
5.18.4 Project Design Features .....	5.18-39
5.18.5 Threshold Criteria .....	5.18-40
5.18.6 Environmental Impacts.....	5.18-40
5.18.7 Mitigation Measures .....	5.18-75
5.18.8 Level of Significance after Mitigation.....	5.18-76
5.18.9 References.....	5.18-76
5.19 Wastewater Collection.....	5.19-1
5.19.1 Introduction .....	5.19-1
5.19.2 Relevant Plans, Policies, and Regulations .....	5.19-3
5.19.3 Environmental Setting.....	5.19-7
5.19.4 Project Design Features .....	5.19-8



<b><u>Section</u></b>	<b><u>Page</u></b>
5.19.5	Threshold Criteria ..... 5.19-9
5.19.6	Environmental Impacts..... 5.19-9
5.19.7	Mitigation Measures .....5.19-14
5.19.8	Level of Significance after Mitigation.....5.19-15
5.19.9	References.....5.19-15
<b>5.20</b>	<b>Dry Utilities..... 5.20-1</b>
5.20.1	Introduction ..... 5.20-1
5.20.2	Electricity ..... 5.20-4
5.20.3	Fossil Fuels (Natural Gas and Petroleum) .....5.20-14
5.20.4	Telephone Service .....5.20-23
5.20.5	Cable Television .....5.20-27
5.20.6	References.....5.20-30
<b>5.21</b>	<b>Climate Change..... 5.21-1</b>
5.21.1	Introduction ..... 5.21-1
5.21.2	Relevant Plans, Policies, and Regulations ..... 5.21-6
5.21.3	Environmental Setting.....5.21-37
5.21.4	Project Design Features .....5.21-40
5.21.5	Threshold Criteria .....5.21-46
5.21.6	Environmental Impacts.....5.21-48
5.21.7	Mitigation Measures .....5.21-87
5.21.8	Level of Significance After Mitigation .....5.21-94
5.21.9	References.....5.21-94
<b>6.0</b>	<b>Growth-Inducing Impacts..... 6-1</b>
6.1	Introduction..... 6-1
6.1.1	Definition of Growth Inducement..... 6-1
6.1.2	Summary ..... 6-1
6.1.3	Section Format..... 6-2
6.1.4	References..... 6-3
6.2	Existing Regional Trends ..... 6-3
6.3	Growth Constraints Near the Project ..... 6-4
6.4	Growth Inducement Potential ..... 6-5
6.5	Potential Growth-Inducing Impacts..... 6-6
6.6	Project Impacts ..... 6-9

<b><u>Section</u></b>	<b><u>Page</u></b>
6.7	References ..... 6-10
<b>7.0</b>	<b>Cumulative Impacts..... 7-1</b>
7.1	Introduction..... 7-1
7.1.1	Section Format..... 7-2
7.2	Approach to Cumulative Impact Analysis ..... 7-2
7.2.1	Regional Growth..... 7-3
7.2.2	Related Projects..... 7-5
7.3	Cumulative Impact Analysis ..... 7-9
7.3.1	Geotechnical..... 7-9
7.3.2	Hydrology And Flood ..... 7-10
7.3.3	Hazards and Fire Safety ..... 7-11
7.3.4	Water Quality ..... 7-12
7.3.5	Land Resources..... 7-13
7.3.6	Cultural Resources ..... 7-14
7.3.7	Biological Resources..... 7-15
7.3.8	Land Use, Entitlements, and Planning ..... 7-17
7.3.9	Population, Housing, and Employment..... 7-18
7.3.10	Traffic, Access and Circulation..... 7-19
7.3.11	Air Resources..... 7-20
7.3.12	Noise..... 7-20
7.3.13	Visual Resources ..... 7-22
7.3.14	Parks and Recreation ..... 7-23
7.3.15	Education ..... 7-23
7.3.16	Fire and Law Enforcement Services ..... 7-24
7.3.17	Other Public Services ..... 7-25
7.3.18	Water Resources ..... 7-26
7.3.19	Wastewater ..... 7-28
7.3.20	Dry Utilities ..... 7-28
7.3.21	Climate Change ..... 7-30
7.4	Conclusion ..... 7-30
7.5	References..... 7-32

<b><u>Section</u></b>	<b><u>Page</u></b>
<b>8.0 Alternatives to the Proposed Project.....</b>	<b>8-1</b>
8.1 Introduced.....	8-1
8.1.1 Purpose .....	8-1
8.1.2 Summary .....	8-1
8.1.3 Section Format.....	8-2
8.1.4 References.....	8-2
8.2 Summary of the Proposed Project.....	8-2
8.2.1 Summary of Proposed Project Impacts.....	8-3
8.3 Project History.....	8-9
8.4 Alternatives to the Proposed Project.....	8-10
8.4.1 Alternatives Considered but Not Carried Forward.....	8-12
8.4.2 Alternatives Analyzed.....	8-14
8.4.3 Comparison of Alternatives.....	8-18
8.4.4 Alternative A: No Project.....	8-27
8.4.5 Alternative B: Previously Proposed Project.....	8-30
8.4.6 Alternative C: Additional Drainage Avoidance .....	8-37
8.4.7 Alternative D: Infrastructure Relocation.....	8-44
8.4.8 Alternative E: Density Clustering/East of Aqueduct.....	8-52
8.4.9 Alternative F: Central Economic Opportunity Area Development.....	8-60
8.5 Ability of Alternatives to Meet Objectives.....	8-69
8.6 Environmentally Superior Alternative .....	8-71
8.7 References.....	8-73
<b>9.0 CEQA Mandated Sections.....</b>	<b>9-1</b>
9.1 Irreversible Changes Due To The Project.....	9-1
9.1.1 Topography .....	9-1
9.1.2 Site Character and Loss of Open Space.....	9-1
9.1.3 Non-renewable Resources.....	9-2
9.2 Summary of Project Impacts .....	9-2
9.2.1 Less than Significant Impacts.....	9-2
9.2.2 Less than Significant Impacts with Mitigation.....	9-2
9.2.3 Significant and Unavoidable Impacts.....	9-3
9.2.4 Cumulatively Significant Impacts .....	9-4

---

<b><u>Section</u></b>	<b><u>Page</u></b>
9.3 Mitigation Outside the Authority of the Lead Agency .....	9-5
<b>10.0 Document Preparers.....</b>	<b>10-1</b>
10.1 EIR Preparers.....	10-1
10.1.1 BonTerra Psomas (EIR Preparation) .....	10-1
10.1.2 Report Contributors .....	10-1
<b>11.0 List of Acronyms and Abbreviations .....</b>	<b>11-1</b>
<b>12.0 Glossary .....</b>	<b>12-1</b>
12.1 References.....	12-91

## TABLES

<b><u>Table</u></b>	<b><u>Page</u></b>
1-1	Centennial Specific Plan Impact Summary ..... 1-29
1-2	Centennial Specific Plan Mitigation Summary ..... 1-37
4-1	Centennial Project Overview ..... 4-7
4-2	Centennial Specific Plan Statistical Table..... 4-13
4-3	Summary of Residential Development ..... 4-21
4-4	Centennial Project Roadway Standards ..... 4-33
4-5	Centennial Substation Equipment Specifications ..... 4-66
5.1-1	Dominant Faults in the Vicinity of the Project Site (DSHA)..... 5.1-11
5.1-2	Probabilistic Seismic Hazard Parameters (EZ-FRISK)..... 5.1-12
5.1-3	Probabilistic Seismic Hazard Parameters (CGS) ..... 5.1-12
5.2-1	Existing Drainage Areas and Associated Tributary Systems Within the Project Site ..... 5.2-16
5.2-2	Existing Conditions Peak Discharge Rates and Volumes, 50-Year Storm Event, Existing Cross Sections Along Project Boundaries ..... 5.2-21
5.2-3	Receiving Channels of Concern for Hydromodification ..... 5.2-25
5.2-4	Summary of Regional Retention and Detention for Hydromodification Control ..... 5.2-29
5.2-5	Summary of Hydrology Data Sources ..... 5.2-35
5.2-6	Summary of Regional Retention and Detention Basins for Flood Control..... 5.2-38
5.2-7	Summary of Pre- And Post-Development Peak Discharge Rates for the 50- Year Storm Event ..... 5.2-39
5.2-8	Summary of Pre- And Post-Development Runoff Volumes for the 50-Year Storm Event ..... 5.2-40
5.3-1	Pesticides Used on the Centennial Project Site <sup>a</sup> ..... 5.3-13
5.4-1	Summary of Monitoring Data In Piru Creek..... 5.4-25
5.4-2	2007 Groundwater Monitoring Data for the Project Area ..... 5.4-27
5.4-3	2010 Groundwater Monitoring Data for the Project Area ..... 5.4-28
5.4-4	Low Impact Development Standards Manual Source Control Requirements and Project Best Management Practices ..... 5.4-41
5.4-5	Summary of Regional Retention and Detention for Water Quality Control ..... 5.4-48
5.4-6	Predicted Average Annual Pollutant Loads ..... 5.4-58
5.4-7	Predicted Average Annual Pollutant Concentrations..... 5.4-59
5.4-8	Comparison of Predicted Total Suspended Solids Concentrations With Water Quality Criteria for the Project..... 5.4-60
5.4-9	Comparison of Nutrient Concentrations With Water Quality Criteria for the Project..... 5.4-62
5.4-10	Comparison of Predicted Metals Concentrations With Water Quality Criteria for the Project..... 5.4-64
5.4-11	Comparison of Predicted Chloride Concentrations With Water Quality Criteria for the Project..... 5.4-65
5.4-12	Comparison of Nitrate-N and Chloride Concentrations With GroundWater Quality Objectives for the Project Site ..... 5.4-69
5.5-1	Los Angeles County Agricultural Acres Per Crop 1970–2013..... 5.5-8

<b><u>Table</u></b>	<b><u>Page</u></b>
5.5-2 Farmland Mapping and Monitoring Program Resources in Los Angeles County 2000–2014.....	5.5-9
5.5-3 Agricultural Lands Committed to Non-Agricultural Use in Los Angeles County 2002–2010.....	5.5-10
5.5-4 Farmland Mapping and Monitoring Program Designations and Acreages on the Centennial Project Site .....	5.5-11
5.6-1 Archaeological and Historic Resources Within the Project Site Boundaries ....	5.6-20
5.6-2 Geologic Formations and Paleontological Sensitivity Within the Project Site Boundaries .....	5.6-42
5.6-3 Mitigation Measures for Resources in Development Footprint.....	5.6-49
5.6-4 Mitigation Measures for Resources Within Open Space Areas .....	5.6-51
5.7-1 Soil Types and Their Hydrological Characteristics .....	5.7-12
5.7-2 Biological Surveys Conducted on the Project SITE (1999–2015).....	5.7-19
5.7-3 Vegetation Type Acreages.....	5.7-33
5.7-4 Summary of Results of 2003–2004 Grassland Study .....	5.7-43
5.7-5 Special Status Plant Species.....	5.7-68
5.7-6 Estimated Number of Oaks on the Project Site .....	5.7-87
5.7-7 Estimated Number of Oaks by Size Class on the Project Site.....	5.7-87
5.7-8 Special Status Wildlife Species .....	5.7-89
5.7-9 Other L.A. Audubon Sensitive Bird Species .....	5.7-100
5.7-10 Jurisdictional Wetlands and Waters Summary.....	5.7-134
5.7-11 Impacts to Vegetation Types.....	5.7-155
5.7-12 Primary Biological Resources Within the Impact Areas and the On-site and Off-site Preserve System .....	5.7-158
5.7-13 Impacts to Jurisdictional Wetlands and Waters .....	5.7-162
5.8-1 Antelope Valley Area Plan Consistency Analysis .....	5.8-24
5.9-1 SCAG Region Population Projections.....	5.9-7
5.9-2 Los Angeles County Population .....	5.9-8
5.9-3 Los Angeles County Population Projections.....	5.9-9
5.9-4 Population Projections for the Antelope Valley.....	5.9-10
5.9-5 Population Projections for TAZs .....	5.9-11
5.9-6 Kern County Population Projections .....	5.9-11
5.9-7 SCAG Region Household Projections .....	5.9-12
5.9-8 Los Angeles County Housing Stock .....	5.9-13
5.9-9 Los Angeles County Household Projections.....	5.9-13
5.9-10 Los Angeles County 2016 Housing Units by Type .....	5.9-14
5.9-11 Los Angeles County Income Limits (2016).....	5.9-15
5.9-12 Future Housing Needs: 2014–2021 .....	5.9-16
5.9-13 Antelope Valley Housing Stock .....	5.9-16
5.9-14 Household Projections for Traffic Analysis Zones.....	5.9-17
5.9-15 Kern County Housing Projections.....	5.9-17
5.9-16 Kern County Future Housing Need: 2013–2023 .....	5.9-18
5.9-17 SCAG Region Employment Projections.....	5.9-18
5.9-18 Los Angeles County Employment Base .....	5.9-19
5.9-19 Los Angeles County Employment Projections.....	5.9-20

<b><u>Table</u></b>	<b><u>Page</u></b>
5.9-20 Employment Projections for TAZs .....	5.9-21
5.9-21 Unemployment Rates .....	5.9-21
5.9-22 Kern County Employment Projections .....	5.9-22
5.10-1 RTP/SCS Performance Measures .....	5.10-7
5.10-2 Capacities for Freeways and Expressways – Existing Conditions .....	5.10-17
5.10-3 ICU and LOS Summary – Existing (2014 and 2015) Conditions.....	5.10-21
5.10-4 Existing (2014 and 2015) Freeway Peak Hour Volumes and V/C Summary – Northbound and Eastbound .....	5.10-24
5.10-5 Existing (2014 and 2015) Freeway Peak Hour Volumes and V/C Summary – Southbound and Westbound.....	5.10-28
5.10-6 Ramp Peak Hour Volumes and V/C Summary – Existing (2014 and 2015) Conditions .....	5.10-32
5.10-7 Level of Service Descriptions.....	5.10-39
5.10-8 Volume/Capacity Ratio Level of Service Ranges.....	5.10-41
5.10-9 Los Criteria For Basic Freeway Segments.....	5.10-42
5.10-10 Freeway Mainline Performance Criteria .....	5.10-43
5.10-11 Freeway Ramp Performance Criteria.....	5.10-44
5.10-12 Arterial Intersection Performance Criteria .....	5.10-45
5.10-13 LOS Criteria for Two-Lane Rural Highways .....	5.10-46
5.10-14 Two-Lane Rural State Highway Performance Criteria .....	5.10-46
5.10-15 LOS Criteria for Multiple Lane Rural Highways.....	5.10-47
5.10-16 Multiple Lane Rural Highway Performance Criteria .....	5.10-48
5.10-17 Project Area SCAG TAZ Socioeconomic Data Summary .....	5.10-49
5.10-18 Internal/External Tripends.....	5.10-50
5.10-19 Trip End and Trip Summary .....	5.10-50
5.10-20 SR-138 Two-Lane Highway Impact Summary – Existing Plus Project Conditions .....	5.10-54
5.10-21 Freeway/Expressway Volume and Capacity Summary – Existing (2014 and 2015) Plus Project with Existing Lanes.....	5.10-57
5.10-22 Ramp Peak Hour Volumes and V/C Summary – Existing (2014 and 2015) Plus Project.....	5.10-68
5.10-23 ICU and LOS Summary – Existing (2014 and 2015) Plus Project Conditions.	5.10-81
5.10-24 SR-138 Cumulative (2035) Conditions Two-Lane Highway Impact Analysis .....	5.10-89
5.10-25 Freeway Volume and Capacity Summary – Cumulative (2035 and 2040) Conditions With and Without the Project.....	5.10-93
5.10-26 Volume and Capacity Summary – 2035 and 2040 Freeway Conditions With Mitigation .....	5.10-105
5.10-27 Ramp Peak Hour Volumes and V/C Summary –Cumulative (2035 and 2040) Conditions.....	5.10-108
5.10-28 ICU and LOS Summary – Cumulative (2035) No Project and With Project Comparison.....	5.10-121
5.10-29 ICU and LOS Summary – Existing (2014 & 2015) Conditions and Cumulative (2035) With Project Comparison (Los Angeles County SR-138 Intersections).....	5.10-124

<b><u>Table</u></b>	<b><u>Page</u></b>
5.10-30 Cumulative Impact Summary for SR-138 With Improvements.....	5.10-128
5.10-31 Project Impact Summary with Mitigation .....	5.10-129
5.10-32 Project Impact Summary .....	5.10-131
5.10-33 Mitigation Summary .....	5.10-132
5.10-34 CMP Analysis Locations.....	5.10-136
5.10-35 Transit Trip Summary .....	5.10-137
5.11-1 California and National Ambient Air Quality Standards .....	5.11-4
5.11-2 Designations of Criteria Pollutants In The Antelope Valley Portion of The Mojave Desert Air Basin.....	5.11-24
5.11-3 Designations of Criteria Pollutants in the South Coast Air Basin.....	5.11-25
5.11-4 Air Quality Levels Measured at The Lancaster and Santa Clarita Monitoring Stations .....	5.11-26
5.11-5 Stationary Source Types, Size Limits, and Quantity Estimates .....	5.11-32
5.11-6 Antelope Valley Air Quality Management District Criteria Pollutant Significance Thresholds .....	5.11-38
5.11-7 South Coast Air Quality Management District Thresholds of Significance .....	5.11-39
5.11-8 Grading, Building, Paving, and Architectural Coating equipment for Average Year Emissions Estimates .....	5.11-41
5.11-9 Average Year Estimated Annual Construction Emissions (AVAQMD Thresholds) .....	5.11-44
5.11-10 Average Year Estimated Daily Construction Emissions (SCAQMD Thresholds) .....	5.11-45
5.11-11 Grading Equipment for Peak Grading Year.....	5.11-46
5.11-12 Estimated Annual Construction Emissions for the Peak Grading Year (Antelope Valley Air Quality Management District Thresholds).....	5.11-47
5.11-13 Estimated Daily Construction Emissions for the Peak Grading Year (South Coast Air Quality Management District Thresholds).....	5.11-47
5.11-14 Estimated Annual Construction Emissions With Implementation of Mitigation (Tier 4 Final Equipment, if Available) for the Average Year (AVAQMD Thresholds) .....	5.11-48
5.11-15 Estimated Daily Construction Emissions With Implementation of Mitigation (Tier 4 Final Equipment, if Available) for the Average Year (SCAQMD Thresholds).....	5.11-49
5.11-16 Estimated Annual Construction Emissions With Implementation of Mitigation (Tier 4 Final Equipment, if Available) for the Peak Grading Year (AVAQMD Thresholds) .....	5.11-50
5.11-17 Estimated Daily Construction Emissions With Implementation of Mitigation (Tier 4 Final Equipment, if Available) for the Peak Grading Year (SCAQMD Thresholds).....	5.11-50
5.11-18 Estimated Annual Operational Emissions (AVAQMD Thresholds).....	5.11-52
5.11-19 Estimated Maximum Daily Operational Emissions (SCAQMD Thresholds)....	5.11-53
5.11-20 Estimated Annual Combined Emissions (AVAQMD Thresholds) .....	5.11-55
5.11-21 Estimated Annual Mid-Project Combined Emissions (SCAQMD Units [lbs/day]) .....	5.11-56
5.11-22 Aggregate Emissions from Stationary Sources .....	5.11-58



<b><u>Table</u></b>	<b><u>Page</u></b>
5.11-23 Ambient Concentrations at Sensitive Receptors During Phase Two, Three, and Four Construction.....	5.11-59
5.11-24 Incremental Health Risks From Diesel Particulate Matter to Existing Residences.....	5.11-74
5.12-1 California Land Use Compatibility Guidelines.....	5.12-5
5.12-2 Los Angeles County Exterior Noise Standards for Stationary Noise Sources...	5.12-6
5.12-3 Los Angeles County Construction Noise Limits.....	5.12-8
5.12-4 Noise Levels for Common Activities.....	5.12-11
5.12-5 Existing Measured Noise Levels.....	5.12-15
5.12-6 Existing Traffic Noise Levels.....	5.12-16
5.12-7 Estimated Noise Levels From Community Use Area Activities.....	5.12-25
5.12-8 Typical Maximum Construction Noise Levels.....	5.12-31
5.12-9 Estimated Grading Construction Noise Levels.....	5.12-32
5.12-10 Vibration Levels for Construction Equipment.....	5.12-36
5.12-11 Existing Plus Project Traffic Noise Levels.....	5.12-38
5.12-12 2035 Traffic Noise Levels.....	5.12-42
5.14-1 Quimby Act/Parkland Dedication Ordinance Requirement for the Centennial Project.....	5.14-24
5.14-2 General Plan Parkland Standard for the Centennial Project.....	5.14-25
5.15-1 Gorman Joint School District Facilities, Enrollment, and Capacity.....	5.15-8
5.15-2 Westside Union Elementary District School Enrollment and Capacity.....	5.15-10
5.15-3 Antelope Valley Union High School District School Enrollment and Capacity.....	5.15-12
5.15-4 Centennial Buildout Demand for Gorman District Facilities Based on the School Facilities and Funding Agreement.....	5.15-15
5.15-5 Centennial Buildout Demand for WUSD Facilities Based on WUSD Rates.....	5.15-17
5.15-6 K-8 School Locations/Acres.....	5.15-18
5.15-7 Centennial Buildout Demand for High Schools Based on AVUHSD Rates.....	5.15-19
5.16-1 Closest County of Los Angeles Fire Stations.....	5.16-7
5.16-2 Closest Kern County Fire Stations.....	5.16-9
5.16-3 Fire History On and Near Centennial Project Site.....	5.16-10
5.17-1 Area Libraries.....	5.17-7
5.17-2 2015 Los Angeles County Solid Waste Disposal.....	5.17-21
5.17-3 Major Landfills in Los Angeles County Serving the Project Area.....	5.17-23
5.17-4 Area Learning Centers.....	5.17-24
5.17-5 Annual Solid Waste Generation.....	5.17-31
5.18-1 Antelope Valley Integrated Regional Water Management Plan Population Projections.....	5.18-31
5.18-2 Antelope Valley Integrated Regional Water Management Plan Projected Water Supply and Demand (acre-feet) Comparison for an Average Water Year.....	5.18-32
5.18-3 Antelope Valley Integrated Regional Water Management Plan Projected Water Supply and Demand (acre-feet) Comparison for a Single-Dry Water Year.....	5.18-33

<b><u>Table</u></b>	<b><u>Page</u></b>
5.18-4 Antelope Valley Integrated Regional Water Management Plan Projected Water Supply and Demand (acre-feet) Comparison for a Multiple-Dry Water Year .....	5.18-34
5.18-5 Antelope Valley Integrated Regional Water Management Plan Estimated 2010 Per Capita Urban Water Use in the Antelope Valley .....	5.18-35
5.18-6 Residential Indoor Water Use Rates in U.S. Environmental Protection Agency and California Department of Water Resources National and California Studies .....	5.18-43
5.18-7 Centennial Land Use and Water Demand at Project Buildout.....	5.18-45
5.18-8 Summary of Project Buildout Demand and Per Capita Water Use .....	5.18-49
5.18-9 Construction Water Demand by Phase and Year .....	5.18-51
5.18-10 Average Year Supplies and Demand, Years 1–20 to Project Buildout and Years 21–25 After Buildout .....	5.18-55
5.18-11 Water Supplies and Demand in a Single-Dry Year, Project Years 5, 10, 15, and 20 (Full Buildout).....	5.18-57
5.18-12 Water Supplies and Demand in a Multiple-Dry Year Period Starting in Year 3, Year 8, Year 13, and Year 18 to Full Buildout .....	5.18-58
5.20-1 SCE Estimate of Centennial Peak Electrical Demand .....	5.20-9
5.20-2 SoCalGas Estimate of Centennial’s Monthly Natural Gas Demand .....	5.20-19
5.21-1 Operational and Total GHG Emissions.....	5.21-2
5.21-2 Comparison of Worldwide GHG Emissions .....	5.21-38
5.21-3 Grading, Building, Paving, and Architectural Coating Equipment for Average Year Emissions Estimates .....	5.21-51
5.21-4 Vegetation Change Greenhouse Gas Emissions .....	5.21-54
5.21-5 Area Source Greenhouse Gas Emissions .....	5.21-56
5.21-6 Energy Use and Greenhouse Gas Emissions.....	5.21-57
5.21-7 Water Use and Greenhouse Gas Emissions.....	5.21-60
5.21-8 Solid Waste Generation and Greenhouse Gas Emissions .....	5.21-63
5.21-9 Mobile Source Vehicle Miles Traveled and Greenhouse Gas Emissions .....	5.21-64
5.21-10 Operational and Total GHG Emissions.....	5.21-70
5.21-11 Centennial Project Compliance With the Los Angeles County Community Climate Action Plan .....	5.21-73
7-1 North Los Angeles County and Kern County Growth Projections .....	7-4
7-2 Related Project Development Summary .....	7-6
7-3 Significant and Unavoidable Cumulative Impacts .....	7-31
8-1 Centennial Specific Plan Alternatives Comparison .....	8-15
8-2 Comparison of Alternatives’ Impacts to the Centennial Project.....	8-19
8-3 Ability of Each Alternative to Meet the Project Objectives .....	8-69

## EXHIBITS

<b><u>Exhibit</u></b>	<b><u>Follows Page</u></b>
3-1	Regional Location ..... 3-1
3-2	Project Vicinity Map..... 3-1
3-3	Aerial Photograph..... 3-2
3-4	Local Area Constraints..... 3-13
4-1	Centennial Specific Plan – Land Use Plan..... 4-5
4-2a	Antelope Valley Area Plan Land Use Designations..... 4-9
4-2b	Antelope Valley Area Plan Zoning ..... 4-11
4-3	Centennial Project – Villages and Core Areas ..... 4-16
4-4	Centennial Project – Vesting Tentative Parcel Map No. 060022..... 4-17
4-5	Centennial Project – Safety Zones..... 4-28
4-6	Centennial Project – Significant Ecological Area Zone ..... 4-29
4-7	Centennial Project – Circulation Plan..... 4-32
4-8	Centennial Project – Conceptual Bicycle Plan ..... 4-35
4-9	Centennial Project – Conceptual Transit Plan ..... 4-37
4-10a	Centennial Project – Recreation and Trails Plan..... 4-38
4-10b	Centennial Project – Greenway Trails..... 4-38
4-10c	Centennial Project – Typical Community Trail ..... 4-39
4-11	Centennial Project – On-Site Open Space/Mitigation Area..... 4-43
4-12	Centennial Project – Off-Site Mitigation Preserve ..... 4-44
4-13	Centennial Project – Conceptual Domestic Water System..... 4-55
4-14	Centennial Project – Conceptual Wastewater System ..... 4-59
4-15	Centennial Project – Conceptual Recycled Water System..... 4-61
4-16	Centennial Project – Conceptual Drainage and Flood Control System..... 4-62
4-17	Centennial Project – Dry Utilities Plan..... 4-63
4-18	Known Major Utilities in Project Area ..... 4-67
4-19a	Centennial Project – Slope Analysis..... 4-91
4-19b	Centennial Project – Conceptual Grading Plan..... 4-91
4-20	Centennial Project – Conceptual Phasing Plan..... 4-91
4-21	Centennial Project – Off-Site Project Components ..... 4-96
5.1-1	Regional Faults..... 5.1-9
5.1-2	Geologic Hazards..... 5.1-10
5.2-1	Regional Water Quality Control Board Boundaries ..... 5.2-15
5.2-2	Drainage Areas on the Project Site..... 5.2-16
5.2-3	Existing Watershed and Drainage Nodes ..... 5.2-16
5.2-4	Proposed Infiltration Basin Locations ..... 5.2-17
5.2-5	Receiving Channels of Concern and 100-Year Floodplain ..... 5.2-17
5.2-6	Location and Designation of Storm Water Runoff Discharge Cross Sections with Project ..... 5.2-39
5.3-1	Locations of Phase I Findings ..... 5.3-6
5.4-1	Groundwater Basins in the Project Area ..... 5.4-22
5.4-2	Low Impact Development (LID) Drainage Areas with Project..... 5.4-40
5.5-1	Important Farmland (FMMP Designations) ..... 5.5-11
5.5-2	Current On-site Agricultural Uses..... 5.5-11

<b><u>Exhibit</u></b>	<b><u>Follows Page</u></b>
5.6-1 Geological Formations .....	5.6-41
5.7-1 Grouped Vegetation Types.....	5.7-31
5.7-2 Grassland Field Sampling Point Selection .....	5.7-46
5.7-3 Grassland Category Map .....	5.7-46
5.7-4 Grassland Sampling Points .....	5.7-46
5.7-5 Points With Predicted Native Perennial Bunchgrass (NPBG) Cover .....	5.7-46
5.7-6 Regional Wildlife Movement.....	5.7-56
5.7-7 Special Status Species.....	5.7-74
5.7-8 Oak Trees within Study Area .....	5.7-86
5.7-7b Special Status Wildlife Species Observations .....	5.7-88
5.7-9 Jurisdictional Drainage Features.....	5.7-133
5.7-10 Mitigation Preserve.....	5.7-135
5.7-11a Special Status Plant Species Observation with Impact Boundary .....	5.7-142
5.7-11b Special Status Species Impacts.....	5.7-142
5.7-12 Vegetation Type Impacts .....	5.7-158
5.7-13 Jurisdictional Drainage Feature Impacts .....	5.7-162
5.7-14 Oak Tree Impacts .....	5.7-171
5.7-15 Significant Ecological Areas.....	5.7-172
5.7-16 Oak Tree/Oak Woodland Restoration/Creation Areas .....	5.7-183
5.7-17 Detailed Vegetation Map.....	5.7-195
5.9-1 Traffic Analysis Zones .....	5.9-10
5.10-1 Project Site Location and Vicinity .....	5.10-16
5.10-2 Study Area Highway System - Existing (2014 and 2015) Conditions.....	5.10-16
5.10-3 Average Daily Traffic Volumes – Existing Conditions .....	5.10-22
5.10-4 AM Peak Hour Intersection Volume Counts on SR-138 (Existing Conditions) .....	5.10-22
5.10-5 PM Peak Hour Intersection Volume Counts on SR-138 (Existing Conditions) .....	5.10-22
5.10-6 SCAG Traffic Analysis Zones.....	5.10-49
5.10-7 Project Trip Distribution at Buildout .....	5.10-51
5.10-8 On-site Average Daily Traffic Volumes.....	5.10-51
5.10-9 Average Daily Traffic Volumes - Project Only.....	5.10-53
5.10-10 Average Daily Traffic Volumes – Existing (2014 and 2015) Plus Project .....	5.10-53
5.10-11 Year 2035 Plus Project ADT Volumes .....	5.10-88
5.11-1 Air District Boundaries .....	5.11-13
5.12-1 Common CNEL Noise Exposure Levels at Various Locations .....	5.12-12
5.12-2 Noise Measurement Locations .....	5.12-14
5.12-3 On-Site Circulation System, Average Daily Traffic (ADT) Volumes, and Speeds .....	5.12-22
5.13-1 Viewpoint 1 – Cement Plant Road Realignment Simulation .....	5.13-9
5.13-2 Viewpoint 2 – Project Entrance Simulation.....	5.13-9
5.13-3 Viewpoint 3 – Town Center Entrance Simulation .....	5.13-9
5.13-4 Viewpoint 4 – Business Park Simulation .....	5.13-10
5.13-5 Viewpoint 5 – 300 <sup>th</sup> Street Simulation.....	5.13-10
5.14-1 Existing Open Space and Recreation Areas .....	5.14-8

<b><u>Exhibit</u></b>	<b><u>Follows Page</u></b>
5.14-2 Existing and Proposed Trails in the Project Vicinity .....	5.14-8
5.15-1 Local School Districts .....	5.15-6
5.16-1 Existing Fire Station Locations.....	5.16-7
5.16-2 Existing Law Enforcement Station Locations .....	5.16-18
5.18-1 Primary Features in the Antelope Valley Groundwater Basin .....	5.18-17
5.18-2 Groundwater Sub-basins in the Antelope Valley Groundwater Basin.....	5.18-18
5.18-3 Antelope Valley Adjudication Area.....	5.18-19
5.18-4 Project Site and Tejon Ranch Company Land Ownership within the Antelope Valley Adjudication Area.....	5.18-19
5.18-5 Location of Study Area, Tejon Ranch Company Land, and the Project Site .....	5.18-19
5.18-6 Project Site and Tejon Ranch Company Land Ownership within the AVEK Service Area.....	5.18-29
5.18-7 Preliminary Water Storage and Distribution System.....	5.18-52
5.19-1 Preliminary Wastewater Collection System.....	5.19-10
5.19-2 Treatment Methods at Project Wastewater Reclamation Facilities (WRF) ....	5.19-11
5.19-3 Preliminary Recycled Water, Storage, and Distribution System .....	5.19-11
5.20-1 Known Major Utilities in Project Area .....	5.20-7
5.20-2 Centennial Project – Dry Utility Improvements .....	5.20-7
7-1 Los Angeles County Cumulative Impact Area.....	7-3
8-1 Alternative B – Previously Proposed Project.....	8-9
8-2 Alternative Site Location Within Tejon Ranch .....	8-12
8-3 Public Input Alternative .....	8-13
8-4 Alternative C – Additional Drainage Avoidance .....	8-17
8-5 Alternative D – Infrastructure Relocation Alternative .....	8-17
8-6 Alternative E – Density Clustering/East of Aqueduct.....	8-18
8-7 Alternative F – Central Economic Opportunity Area Development.....	8-18

**LIST OF APPENDICES  
(On Accompanying CDs)**

**Appendix**

**2.0 Notice of Preparation, Initial Study and NOP Comment Letters**

2.0-A 2015 Notice of Preparation, Initial Study, and Comment Letters Received on the NOP.

2.0-B 2004 Notice of Preparation, Initial Study, and Comment Letters Received on the NOP.

2.0-C Mitigation Monitoring and Reporting Program

**4.0 Project Description**

4.0-A Centennial Specific Plan, prepared by Placeworks, May 2017.

**5.1 Geotechnical Reports**

5.1-A *Preliminary Geotechnical Summary Report; Centennial – Tejon Ranch, Los Angeles County, California*, prepared by Geocon, August 2015

**5.2 Hydrology, Flood, and Drainage Reports**

5.2-A *Centennial Master Plan Hydrology*, prepared by Psomas, April 2017

5.2-B *Centennial Project Hydromodification Technical Report*, prepared by Geosyntec, March 2016

**5.3 Environmental Safety and Man-Made Hazards**

5.3-A *Phase I Environmental Site Assessment Report: Assessor's Parcel Numbers 3275-007-014, 3275-006-006 and 3275-008-001, Los Angeles County, California*, prepared by Converse Consultants, August 2015

5.3-B *Memorandum of Clarification, Centennial Project Area, Los Angeles County, California*, prepared by Converse Consultants, August 2015

5.3-C *Mitigation Measures, Centennial Project Area, Los Angeles County, California*, prepared by Converse Consultants, August 2015

5.3-D *Limited Phase II Environmental Site Assessment – Drum Sampling; Centennial Park Site, Lot 1760, VTTM 60023, State Highway 138 and Quail Lake, Los Angeles County, California*, prepared by Converse Consultants, November 2008.

## **5.4 Water Quality**

5.4-A *Centennial Project Water Quality Technical Report*, prepared by Geosyntec Consultants, February 2016

## **5.6 Cultural Resource Reports**

5.6-A *Phase I Archaeological Survey of the Centennial Study Area, Northern Los Angeles County, California*, prepared by W&S Consultants, May 2002.

5.6-B *Phase II Test Excavations and Determinations of Significance at 12 Sites in the Centennial Project Area, Northern Los Angeles County, California*, prepared by W&S Consultants, September 2004.

5.6-C *Addendum Phase II Test Excavations and Determinations of Significance Within the Centennial Study Area, Northern Los Angeles County, California*, prepared by W&S Consultants, April 2007.

5.6-D *Phase I Survey of 768 Acres and Phase II Test Excavation of 20 Archaeological Sites, Centennial Project, Los Angeles County, California*, prepared by ASM Affiliates, September 2015

5.6-E1 *Paleontological Resources for the Proposed CentFou J001: Centennial Specific Plan, Los Angeles County, Project Area*, prepared by the Natural History Museum of Los Angeles County, November 2006

5.6-E2 *Adequacy of the Paleontology portions of the EIR’s Cultural Resources Section*, prepared by the Natural History Museum of Los Angeles County, August 2009.

5.6-F *Paleontologic Resource Inventory and Impact Assessment Technical Report Prepared in Support of Centennial Specific Plan, Western Antelope Valley, Northern Los Angeles County, California*, prepared by Paleo Environmental Associates, April 2009.

## **5.7 Biological Resource Report**

5.7-A *Plant and Wildlife Compendia*

5.7-B *Compilation of Biological Resources Surveys.*

5.7-C *Mitigation Preserve Review*

**5.8 Land Use, Planning, and Entitlements**

5.8-A Antelope Valley Areawide General Plan Consistency Table and Exhibits

**5.10 Traffic, Access, and Circulation Report**

5.10-A Centennial Specific Plan Traffic Study, prepared by Stantec, Inc., May 2017

5.10-B Correspondence regarding: Centennial Traffic Study – February 2006, Methodology and Modeling, prepared by Caltrans, June 2007.

**5.11 Air Resource Reports**

5.11-A CalEEMod Data

5.11-B *Air Quality Analysis for Stationary Sources Allowed by the Centennial Specific Plan*, prepared by ENVIRON International, September 2009

5.11-C *Centennial Supplemental Air Quality Analysis*, prepared by ENVIRON International, June 2009

5.11-D SCAQMD Rule 403, Tables 1 and 2

**5.12 Noise Reports**

5.12-A *Environmental Noise Study for the Proposed Centennial Specific Plan and Phase I Implementation in the County of Los Angeles*, prepared by Wieland Acoustics, May 2011.

5.12-B Noise Measurement Data

**5.15 Education**

5.15-A Letter from J.L. Fisher, Sr., Superintendent/President (Antelope Valley College) to S. Dea, Supervisor of Regional Planning, October 2009

5.15-B School Facilities and Funding Agreement by and between Gorman Elementary School District and Centennial Founders, LLC, July 2009

5.15-C School Facilities and Funding Agreement, AVUHSD, February 2009

**5.18 Water Services**

5.18-A *Centennial Specific Plan Water Supply Assessment*, prepared by the Golden Valley Municipal Water District, May 2011



- 5.18-B *Centennial Specific Plan Development Impacts on Infiltration and Groundwater Recharge*, prepared by Psomas, February 2017
- 5.18-C State Water Project Delivery Capability Report 2015 (a Memorandum from E. Reyes (Chief, Central Valley Modeling Section), F. Chung (Chief, Modeling Support Branch), and P.A. Marshall (Chief, Bay-Delta Office) to S. Darabzand, Central Valley Modeling Section, Department of Water Resources), prepared by the California Natural Resources Agency, July 2015
- 5.18-D Antelope Valley Groundwater Cases [Proposed] Judgement and Physical Solution, California Superior Court, December 2015
- 5.18-E Agreement Between Antelope Valley – East Kern Water Agency and Tejon Ranchcorp Providing for Importation of Additional SWP Table A Amounts, October 2012
- 5.18-F *2015 Urban Water Management Plan*, prepared by the Antelope Valley – East Kern Water Agency, June 2016
- 5.18-G *Peer Review of the Water Supply and Demand Assessment for the Proposed Centennial Specific Plan Development*, prepared by Kennedy/Jenks Consultants, January 2017

## **5.19 Wastewater Collection Reports**

- 5.19-A *Potable Water, Wastewater and Recycled Water Demands and System Plan*, prepared by Psomas, February 2017
- 5.19-B *Wastewater Treatment Report, Centennial Project*, prepared by Psomas, April 2017
- 5.19-C *Peer Review of the Wastewater Treatment Report for the Proposed Centennial Specific Plan Development*, prepared by Kennedy/Jenks Consultants, April 2017.

## **5.20 Dry Utilities Reports**

- 5.20-A *Dry Utilities Analysis: Centennial*, prepared by BJ Palmer & Associates Inc., August 2015.

## **7.0 Cumulative**

- 7.0-A Development summaries provided by the County of Los Angeles, Regional Planning Department; Kern County Planning and Community Development Department; the City of Lancaster Planning Department, the City of Palmdale Planning Division, and the City of Santa Clarita Planning Division

## 1.0 EXECUTIVE SUMMARY

### 1.1 GENERAL INTRODUCTION

The environmental impact report (EIR) process, as defined by the California Environmental Quality Act (CEQA), requires the preparation of an objective, full-disclosure document. This EIR provides a comprehensive evaluation of the reasonably anticipated scope of the Project and evaluates the potential impacts of its construction and long-term operation. It is intended to serve as an informational document for public agency decision makers and the general public regarding (1) the objectives and components of the Project; (2) any potentially significant environmental impacts (individual and cumulative) that may be associated with the planning, construction, and operation of the Project; and (3) appropriate and feasible mitigation measures and alternatives that may be adopted to reduce or eliminate these significant impacts. The Project's Mitigation Monitoring and Reporting Program (MMRP) is provided in Appendix 2.0-C of this Draft EIR.

This EIR provides project-level detail pursuant to Section 15161 of the State CEQA Guidelines, including specific infrastructure components needed to implement the Project, which state that a project EIR "examines the environmental impacts of a specific development project. This type of EIR should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project including planning, construction, and operation" (California Code of Regulations [CCR], Title 14, Section 15161).

### 1.2 PURPOSE AND SCOPE OF THIS ENVIRONMENTAL IMPACT REPORT

This EIR has been prepared to evaluate the potential environmental impacts associated with the construction and operation of the Centennial Project. This EIR has been prepared in conformance with the California Environmental Quality Act (CEQA; *California Public Resources Code* [PRC], Sections 21000 et seq.) and the State CEQA Guidelines (14 CCR Sections 15000 et seq.). This EIR addresses the potential environmental impacts associated with developing all of the land uses and implementing the associated actions identified in the Project's Conceptual Land Use Plan through buildout.

The scope of this EIR includes issues identified in consultation with the County during the Notice of Preparation (NOP) comment periods, as well as environmental issues raised by agencies and the general public in response to the scoping process and circulation of the NOP. The environmental topics to be addressed (with the respective EIR section numbers) include the following:

- Geotechnical (Section 5.1)
- Hydrology and Flood (Section 5.2)
- Hazards and Fire Safety (Section 5.3)
- Water Quality (Section 5.4)

- Land Resources (Agricultural, Forestry, and Mineral Resources) (Section 5.5)
- Cultural and Tribal Resources (Section 5.6)
- Biological Resources (Section 5.7)
- Land Use, Entitlements, and Planning (Section 5.8)
- Population, Housing, and Employment (Section 5.9)
- Traffic, Access, and Circulation (Section 5.10)
- Air Resources (Section 5.11)
- Noise (Section 5.12)
- Visual Resources (Section 5.13)
- Parks and Recreation (Section 5.14)
- Education (Section 5.15)
- Fire and Law Enforcement Services (Section 5.16)
- Other Public Services (Library, Solid Waste, and Other Public Facilities) (Section 5.17)
- Water Resources (Section 5.18)
- Wastewater Collection (Section 5.19)
- Dry Utilities (Electrical, Fossil Fuels [Natural Gas and Petroleum], Telephone, and Cable Service) (Section 5.20)
- Climate Change (Section 5.21)
- Growth-Inducing Impacts (Section 6.0)
- Cumulative Impacts (Section 7.0)
- Alternatives to the Proposed Project (Section 8.0)
- CEQA-Mandated Sections (Section 9.0)
- Document Preparers (Section 10.0)
- Acronyms (Section 11.0)
- Glossary (Section 12.0)

## 1.3 PROJECT SETTING

### 1.3.1 PROJECT LOCATION

The Project is proposed on approximately 12,323 acres (19.3 square miles) of land in the northwestern portion of the Antelope Valley in unincorporated Los Angeles County. The Project site is located approximately 35 miles north of the City of Santa Clarita in Los Angeles County; approximately 50 miles south of the City of Bakersfield in Kern County via State Route (SR) 99 and Interstate (I) 5; and approximately 36 and 43 miles west of the Cities of Lancaster and Palmdale, respectively, in Los Angeles County via SR-138. SR-138 runs through the southern portion of the Project site, which is located approximately one mile east of I-5, just south of the Kern County/Los Angeles County boundary in the vicinity of Quail Lake. The community of Gorman in Los Angeles County is adjacent to I-5 and is approximately four miles north of the I-5/SR-138 junction. The community of Neenach is located approximately 1.2 miles to the east of the Project boundary. The West Branch of the State Water Project's (SWP) California Aqueduct bisects the Project. The Project site's

physical setting is summarized below; refer to Section 3.0, Environmental Setting, for a detailed description of the Project site's existing setting.

### **1.3.2 PHYSICAL SETTING**

The Tehachapi Mountains border the northern and western perimeter of the Project site, and the San Gabriel Mountains are located to the south of the Project site. The Project site's topography is comprised largely of low rolling hills, with areas of steeper slopes and higher elevations in the western and northwestern portions of the site. Elevations range from approximately 2,975 feet above mean sea level (msl) to approximately 3,635 feet above msl. The Project site has been primarily used for livestock grazing for more than 150 years. In addition to cattle grazing, the Tejon Ranch Company owns and cultivates approximately 1,000 acres in the eastern portion of the Project site. Existing development is limited to a few paved access roads to the California Aqueduct and through the site to the National Cement Plant, which is located approximately one mile north of the Project site. There are also unpaved ranch roads, fencing, stock ponds, and a few electrical transmission lines. Further details of the physical setting are described below; please refer to the topical analyses in Section 5.0 for a complete discussion of the existing setting.

#### ***Air Resources***

The Project site is under the jurisdiction of two different air districts and lies within two different air basins. Approximately 91 percent of the site is within the boundaries of the Antelope Valley Air Quality Management District (AVAQMD), while approximately 9 percent of the southwest portion of the Project site is within the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The portion of the site under the jurisdiction of the AVAQMD lies within the Mojave Desert Air Basin (MDAB), while the portion of the Project site that is under the jurisdiction of the SCAQMD lies within the South Coast Air Basin (SoCAB).

#### ***Biological Resources***

There are a variety of vegetation types on the Project site; however, the site is dominated by grasslands. There are also riparian and wetland vegetation types on site occurring in association with drainages, springs, and seeps. Oak woodland vegetation types are dominant in the westernmost and the southern portions of the Project area as a whole. Scrub vegetation types (primarily chaparral) are generally found in the western portion of the Project site on somewhat eroded, steep slopes. In the Project site's lower elevations, rabbitbrush scrub is present. There are a number of wildlife species, including invertebrates, amphibians, reptiles, birds, and mammals, that have been identified or that would be expected to occur on the Project site. A total of 42 special status wildlife species are known to occur or potentially occur in the Project region (defined as the western Antelope Valley and its associated watersheds); of these, 33 have at least some potential to occur, albeit low in many cases, or were observed by Biologists during the course of various field surveys conducted on the Project site. The Project site is not located within any U.S. Fish and Wildlife Service-designated or proposed Critical Habitat for any of State- and/or federally listed Endangered, Threatened, or Candidate Species. In addition to the special status species

designated by the State and federal resource agencies, the Los Angeles Audubon maintains a list of Sensitive Bird Species that they consider to be at risk of decline or extirpation in Los Angeles County. These species were also analyzed for potential to occur on the Project site.

### ***Cultural and Tribal Resources***

The Tejon Ranch region, including the Project site, was a contact point between five separate ethnolinguistic groups immediately prior to the arrival of European Americans in California, and the Tejon Ranch area became a multi-ethnic, post-Mission Period refuge for many Native Americans. Two of the three rock formations identified on the Project site are considered to be sensitive for the presence of fossil resources: the marine Late Miocene Quail Lake Formation and the Late Miocene Oso Canyon Formation.

### ***Hydrology***

The Project site is located primarily within the limits of the Antelope Valley Watershed. The Santa Clara River Watershed is the adjacent watershed to the southwest. Approximately 90 percent of the Project site is located within the jurisdiction of the Lahontan Regional Water Quality Control Board (RWQCB), and approximately 10 percent is within the jurisdiction of the Los Angeles RWQCB. Local drainages on the Project site include Oso Canyon, Los Alamos Creek, Little Sycamore Canyon and Big Sycamore Canyon, Tentrock Canyon, Horsecamp Canyon, and Cow Spring Canyon.

## **1.4 PROJECT DESCRIPTION**

The Project involves the development of a new community with residential, commercial, business park, recreational/entertainment, and institutional/civic uses. The Project includes open space, parks, schools, utilities, and infrastructure to support the proposed land uses and future residents.

### **1.4.3 LAND USE OVERVIEW**

The Project site encompasses approximately 12,323 acres and would allow up to 19,333 dwelling units (du) on approximately 4,987 gross acres of land designated for residential uses. Other land uses include approximately 7,363,818 square feet (sf) of Business Park uses (office, research and development, and warehousing or light manufacturing uses) on approximately 597 gross acres and approximately 1,034,550 sf of Commercial uses on approximately 102 acres. Proposed Institutional/Civic land uses (such as schools for higher education, medical facilities, library, and other civic uses) encompass approximately 1,568,160 sf on approximately 110 acres. The primary entitlement action associated with the Project includes the adoption of the *Centennial Specific Plan* and, as described in Section 4.8, Intended Use of the EIR, additional entitlement actions include a Zone Change to Specific Plan; Amendment to the Highway Plan (Map 3.1 of the AVAP); Amendment to the Highway Plan Policy Map included in the General Plan; Development Agreement; Tentative Parcel Map; and a Conditional Use Permits (CUPs) for grading and for the approval of Project-related infrastructure. Project buildout would be implemented in

phases based on future market conditions over an approximate 20-year period through a series of future tract and parcel maps.

The Project includes the development of nine Villages that will each contain a mix of land uses that enable residents to live near schools, shopping, neighborhood businesses and services, civic buildings, medical facilities, and employment centers. The Project includes a mix of housing options within each Village, ranging from apartment homes close to Town Centers to single-family homes in lower-density areas. A full range of light industrial, business, and other commercial uses are planned that are intended to yield a broad range of employment opportunities, from retail services to large corporate employers. The opportunities for employment diversity increase the overall economic sustainability of the Project and the West EOA.

The Mixed-Use (MU) Overlay is an optional designation for uses within the Commercial areas. The MU Overlay is intended to allow for a combination of commercial, office and residential uses in either vertically or horizontally (uses side by side) integrated projects, as an optional land use in select commercial areas. The Project includes approximately 130,680 sf of Recreation/Entertainment Overlay uses (clubhouse, farmers market, childcare facilities, health clubs) on approximately 75 acres. Proposed sites for major Utility facilities that would serve the entire community (e.g., two wastewater reclamation facilities, water treatment facility, water bank, materials recovery facility) encompass approximately 191 acres. The School Overlay includes Kindergarten through 12<sup>th</sup> grade schools located on approximately 146 acres. Approximately 5,624 acres (approximately 45.6 percent) of the 12,323-acre Project site are proposed for Open Space for natural resource protection and greenways, and 163 acres are included in the Park Overlay for active and passive recreational use.

The Project also includes a vehicular and a non-vehicular circulation system. In support of the *Antelope Valley Area Plan's* (AVAP's) goal of reducing single-occupancy vehicle use, the Project includes alternatives to automobile travel (e.g., public transit, bicycle network, and pedestrian system) that would minimize traffic, pollution, and greenhouse gases. Efficient use of land and a balance of uses that result in a jobs/housing balance would reduce single-occupancy automobile travel and vehicle miles traveled. The Project provides for an integrated network of roadways and walking and biking trails to reduce automotive use and facilitate safe and efficient travel. An extensive network of sidewalks, greenway trails (approximately 13 miles), and community trails (approximately 60 miles) would link residential, schools, shopping, and employment areas.

The Project's Green Development Program encompasses a range of sustainable development practices that have been incorporated into the Project at all phases of site development (i.e., from land use planning to long-term resource conservation) and it encourages environmentally sustainable development in two ways. First, in addition to satisfying all mandatory measures of the California Green Building Standards (CALGreen) Code, all residential and non-residential development within the *Centennial Specific Plan* shall be required to satisfy the measures necessary to achieve CALGreen Tier 1 that are currently applicable at the time it is being developed. Second, this Green Development Program includes additional measures for Centennial that exceed applicable State, regional, and local requirements, including but not limited to exceeding 2016 CALGreen Tier 1 standards. With

this approach, Project development will meet and exceed the mandatory standards of the CALGreen Code, CALGreen Tier 1, and the requirements of the County's "Green Building Ordinances" that exist on the date of adoption of the *Centennial Specific Plan*.

In support of the AVAP's prioritization for the preservation of natural open space resources, development in areas of significant biological value would be minimized and there would be no disturbance or development within the designated Significant Ecological Area (SEA) on the Project site. Of the 12,323 acres within the Project site, approximately 5,624 acres would be included in the Open Space land use designation. Of the 5,624 acres of designated Open Space, approximately 5,116 acres (42 percent of the total Project site) are intended to (1) remain in their original natural condition; (2) be restored; and/or (3) be enhanced by weed abatement, fencing, and native species planting, among other means. Of this amount, approximately 3,865 acres are designated as SEA 17 to be preserved in perpetuity within the Project site boundaries. The preservation also protects local wildlife movement on and off-site because these areas are positioned contiguous to off-site open space areas, thereby providing a larger total area of continuous preserved open space for local wildlife to use as habitat and for movement. No Project development would occur within SEA 17.

#### **1.4.4 PUBLIC SERVICES AND INFRASTRUCTURE**

The Project includes conceptual site locations for up to four new fire stations in the Project area. The number of on-site fire stations and their general locations were determined through preliminary consultation with the Los Angeles County Fire Department (LACFD). The Project would provide for one on-site Sheriff's station. Prior to development of this permanent Sheriff's station, the Los Angeles County Sheriff's Department (LASD) would operate a temporary station (e.g., store front station) in the first phase of Project development. This store front Sheriff station would be developed and fully operational prior to issuance of the first certificate of occupancy. To accommodate the demand for educational facilities created by future Centennial residents, the Project reserves sites through a "Schools" land use designation for five Kindergarten (K) through 8<sup>th</sup> grade schools, one K-5 school, and one high school. A library will also be developed in the Town Center.

The Project's Green Development Program requires reduced potable water consumption through the use of drought-tolerant or native plants in greenways, transition areas, and rights-of-way; low-flow showerheads, faucets and toilets; intelligent irrigation devices; and recycled water use primarily for landscape irrigation in residential common areas. Additionally, the Project's water resource management infrastructure for wastewater treatment, recycled water, flood control/drainage, water quality, hydromodification control, and sediment management are integrated to create a cohesive infrastructure system that minimizes the Project's effects on the environment.

The Project includes two wastewater reclamation facilities for the tertiary treatment of all wastewater generated by Project uses. This recycled water will be delivered throughout the Project site for non-potable uses (e.g., irrigation), thereby reducing the Project's demand for imported water and groundwater resources. The Project will also use its underground aquifers to bank imported water supplies available but not needed during average and wet years to provide for Project uses in dry years. The Project's flood control/drainage and water

quality facilities have been designed in such a way that they can increase groundwater recharge, thereby increasing the amount of groundwater available for Project uses and decreasing the Project's need for imported water resources. As a result of this integrated approach, the Project will be able to rely on its groundwater and wastewater resources, as well as its Green Development Program requirements, to reduce the demand for imported water from the State Water Project (SWP) that the Project would otherwise create, and will be more protective of its natural drainages and sensitive habitats.

A portion of the National Cement Plant Road within the Project boundaries is planned to be realigned through the Project site to access the SR-138 from the western side of Quail Lake rather than from its current connection on the east side of Quail Lake. This realignment serves the purpose of providing a shorter route of access for the cement trucks to the I-5; eliminates concrete truck travel over the bridge that crosses the West Branch of the Aqueduct; and eliminates cement truck traffic from traversing through one of the entrances to the Project site. In addition to the existing National Cement Plant Road bridge, the Project includes the construction of one new bridge over the West Branch of the Aqueduct.

#### **1.4.5 OFF-SITE PROJECT FEATURES**

The Project would require the implementation of off-site features consisting of roadway improvements and connections and upgrades to existing off-site utility systems. The Project involves five intersections with the SR-138. Two of these intersections are considered "off site", as they are not surrounded on both sides by the Project site. These two off-site intersections include the proposed realignment of the National Cement Plant Road at the western edge of Quail Lake and the intersection of 290<sup>th</sup> Street West with the SR-138. The construction of acceleration and deceleration lanes, turn pockets, and signalized traffic lights at each intersection would be required for Project implementation. Additionally, two underpasses and one overpass bridge crossing over SR-138 would be constructed to facilitate both pedestrian and bike access to employment centers.

Off-site groundwater wells are expected to be required within the existing Tejon Ranch Company (TRC) Water Bank in Kern County as a result of the Project; this water would require conveyance through the construction of new water pipelines from Kern County to the Project site. Connecting the TRC Water Bank wells to the Project site would require trenching for water pipelines to connect the wellheads to the "untreated wellhead pipelines" to be installed along 300<sup>th</sup> Street West and a crossing of the California Aqueduct. The Project would require four crossings of the California Aqueduct, including the wellhead pipeline that crosses the East Branch of the Aqueduct.

Project implementation would require the extension of off-site utilities to connections with on-site utilities. Electrical and telephone extensions would be constructed on the north side of SR-138 in the vicinity of Quail Lake. The new telephone extension would involve retrofitting and replacing the current overhead system that extends from the Frazier Park area to Gorman, and then to the site. Additionally, development of the Project could also impact off-site fiber-optic connections to the Litespan 2000 cabinet and require an upgrade of the existing Central Office facility to expand the Central Office's service capacity. However, AT&T's implementation of necessary expansion and upgrades would occur within existing



facility structures. A utility corridor would also be required within the 300<sup>th</sup> Street West right-of-way as it traverses both on and off the site. This would likely contain both wet and dry utilities, including but not limited to sewer, recycled, water, storm drain, electricity, cable television, and telephone.

Regarding electrical service, through coordination with Southern California Edison (SCE), two options were developed for bringing the additional capacity to service the western portion of the Project site: (1) reconfiguration of the existing Bailey Substation located off site along the property's western boundary and (2) upgrading the Gorman Substation and reconstructing the existing overhead transmission lines to handle the higher load. In either event, the improvements would occur entirely on lands owned by SCE, not on the Project site. No existing off-site facilities other than these would require upgrades or retrofitting to provide adequate electrical service to the Project site. At this time, upgrade of the Bailey Substation is considered the more likely solution; however, both options will continue to remain viable until later stages of the site development process subsequent to the CEQA process. If the Bailey Substation is upgraded, no upgrades to the Gorman Substation or other off-site facilities will be necessary to serve the first phase of Project implementation.

The initial natural gas facilities for the first phase of Project implementation would be provided by tapping into the existing high pressure gas main along Gorman Post Road west of the Project site. It would be necessary to construct a gas regulator station at this location for distributing pressure and/or extending a high pressure line to and within the Project site for the placement of a series of future regulator stations.

## 1.5 PROJECT OBJECTIVES

The Project demonstrates consistency with the *Antelope Valley Area Plan (AVAP)* through the Project Objectives, which have been identified for the Project.

1. Implement the Antelope Valley Area Plan (AVAP) by creating an environmentally and economically sustainable master-planned community on the Project site to help accommodate planned regional population and economic growth.
2. Design the Project to maximize efficient utilization of regional infrastructure while preserving hundreds of thousands of acres of contiguous natural open space and important biological resources.
3. Size the Project to include a broad range of employment, residential, institutional, and recreational land uses to encourage walkability and wellness, while reducing off-site employment-related commuter trips.
4. Ensure that all Project site infrastructure and public services are funded by the Project to avoid creating any financial obligations on existing residents and other taxpayers.
5. Integrate a multi-modal transportation network, renewable energy, water conservation, community wellness, and other green development features into the Project's design, build out, and ongoing operations.

## 1.6 SUMMARY OF THE ENVIRONMENTAL ANALYSIS

### 1.6.1 GEOTECHNICAL

With implementation of Project Design Feature (PDF) 1-1, the Project would not expose people or structures to potential substantial adverse effects (including the risk of injury or death) involving strong seismic ground shaking, seismic-related ground failure (e.g., liquefaction, settlement, lateral spreading), or location on an unstable geologic unit (e.g., collapse, expansive soils). The Project has been designed with a Geologic Safety Zone so that areas with potential geologic and seismic constraints are not developed with habitable structures and are planned so that buildings near faults have a minimum 100-foot setback in either direction from the fault line (PDF 1-1). Therefore, the Project would not expose people or structures to potential adverse effects (including the risk of injury or death) from surface rupture of a known earthquake fault with implementation of PDF 1-1. Additionally, in accordance with California Department of Education's Title 5 and current building codes, no sensitive uses (i.e., schools, hospitals, or public assembly sites) would be located on sites presenting a significant geotechnical hazard, as determined by the site-specific geological and soils engineering study. Therefore, there would be less than significant impacts related to fault rupture, seismic ground shaking, and ground failure with implementation of PDF 1-1.

Development of the Project may require localized blasting associated with excavation on site, and this would have the potential to result in geotechnical instability. However, with implementation of MM 12-7 from Section 5.12, Noise, potential impacts would be reduced to a less than significant level.

There would be less than significant impacts associated with off-site Project features since no off-site features would include habitable structures and since all off-site features would be required to comply with County and State geotechnical review and building code requirements as applied to the Project.

Development of the Project would result in less than significant impacts related to erosion or loss of topsoil with compliance with County subdivision specifications; County building code requirements; the Project's Hillside Grading Guidelines, and existing and future tract map-level geotechnical recommendations for the Project.

### 1.6.2 HYDROLOGY AND FLOOD

The proposed Project has been designed to meet or exceed County MS4 Permit, LID Standards Manual and LID requirements hydromodification and hydrology (flood control) requirements for new development. The Project incorporates MMs 2-1 and 2-2 that require Project compliance with hydromodification and flood-control performance standards be confirmed in a Drainage System Engineering and Planning Report submitted to the County during the review and approval of each Project tract map. Project runoff will not exceed the planned storm drain capacity and will not require construction of additional drainage facilities not considered in this EIR and that could have significant environmental effects.

As required by MM 2-3, portions of the Project site along the northern and eastern site boundaries located within a 100-year floodplain will be subject to a Specific Plan Floodplain Safety Overlay that precludes habitable residential, commercial, school and institutional structures in the floodplain. All applications for Project tract maps that would locate any structures not precluded by the Floodplain Safety Overlay in the floodplain must include a Drainage System Engineering and Planning Report that provides a detailed description of the floodplain boundaries and a description of applicable flood protection measures. This report must demonstrate that, after construction, structure designs and floodplain flows will comply with all applicable FEMA and County of Los Angeles floodplain flood flow and development standards. If required, a conditional letter of map revision (CLOMR) from FEMA will be obtained prior to any construction within a mapped 100-year floodplain. There will be no housing development in on-site floodplains, and no significant impacts will occur from placing structures within a floodplain.

Potential mudflow impacts will be reduced to less than significant levels by capturing debris flows in on-site basins and engineered and natural stream channels and by minimizing disturbance in on-site locations with slopes in excess of 25 percent that could generate mudflows. Storm water basins will be managed to avoid potential mosquito-borne health vectors by implementing California Department of Public Health (CDPH) recommendations and fully discharging captured storm water within 96 hours. An integrated pest management program must be developed and confirmed during the County review and approval process for Project tract maps (see MM 4-2). The Project site is not subject to tsunamis, seiches or dam and levee failure inundation.

### **1.6.3 HAZARDS AND FIRE SAFETY**

#### ***Hazards and Hazardous Materials***

There would be less than significant impacts related to Valley Fever with implementation of MM 3-1 related to dust control during construction; MM 3-2 related to aiding the prevention of Valley Fever among construction workers; with PDF 3-1 related to resident notice of temporary Valley Fever risk during construction and other earth-moving activities; and implementation of Rule 403 dust-control measures.

There would be less than significant impacts related to environmental hazards, including hazardous materials from current or historic land uses with implementation of MM 3-4 related to historic dry well re-abandonment and MM 3-5 related to permanent closure of the abandoned mine/tunnel.

Operations at the Quail Lake Skypark Airport would not have a significant impact for any portion of the Project site. The Project would result in less than significant impacts related to impairment or interference with an emergency response or evacuation plan with implementation of MM 3-7, requiring preparation of an emergency response plan for the Project.

## **Fire Safety**

With adherence to requirements for fuel modification zone management (MM 3-9) and emergency access (MM 3-7), the Project's potential impact related to wildfires would be less than significant. MM 3-9 requires property owner notification of their responsibilities for maintaining the fuel modification zone(s) on their property. The Project would not result in significant impacts related to proximity of a land use representing a potential fire hazard.

## **1.6.4 WATER QUALITY**

The Project will implement site-design, source-control, Low Impact Development (LID), and hydromodification-control Best Management Practices (BMP) requirements. The Project's water quality performance standard is consistent with County requirements for new development and is incorporated in MM 4-1. With mitigation, the Project would not have a significant impact on surface water or groundwater quality. Developed area runoff constituent concentrations would be below all water quality objectives and criteria. Qualitatively assessed constituents in post-development runoff would not occur at levels that would exceed water quality standards or adversely affect beneficial uses of receiving surface or ground waters. Implementation of the planned BMPs in compliance with the Los Angeles County Municipal Separate Storm Sewer System (MS4) Permit, LID Ordinance, and LID Standards Manual would meet or exceed the requirements of the federal, State, and County standards for water quality. The two proposed wastewater reclamation facilities (WRFs) will produce recycled water treated to unrestricted reuse standards under Title 22 of the *California Code of Regulations*. The WRFs will be issued Waste Discharge Requirements (WDRs) by the Lahontan Regional Water Quality Control Board (RWQCB) and will be operated in accordance with the WDRs to protect surface and groundwater quality and designated beneficial uses. MM 19-5 in Section 5.19, Wastewater Collection, requires that WRF compliance with Title 22 and WDR requirements be confirmed in documentation submitted to the County prior to the issuance of building permits for Project development.

## **1.6.5 LAND RESOURCES**

The Project will result in the conversion of approximately 642 acres of on-site Prime Farmland. The Project site is identified as being within the West Economic Opportunity Area (EOA), one of three EOAs established by the AVAP. The EIR for the AVAP considered the impacts of converting a total of 6,169 acres of Important Farmland and concluded that the conversion would be a significant and unavoidable impact (DRP 2014). Although the Project is consistent with the AVAP's land use policy, the Project would not result in any new impacts to agricultural lands, and the Project would allow for continued grazing activity and small-scale agriculture and agriculture-related uses (PDF 5-1), because the Project is directly facilitating the conversion of 642 acres of Prime Farmland to non-agricultural uses, it is considered a significant impact of the Project. For the same reasons as described in the AVAP EIR, there is no feasible mitigation to reduce this impact to a less than significant level and, therefore would be a significant unavoidable impact of the Project.

The adoption of the Project will require a discretionary zone change to be made by the County that is consistent with, and would help implement, the AVAP—specifically the Rural

Preservation Strategy and associated Policy LU 1.1—as it applies to the Project site. Also, there are no Williamson Act contracts on site, or within Los Angeles County (outside of Catalina Island). Therefore, there would be no conflict with applicable agricultural land use policies if the County adopts the Project.

The only agricultural zoning on the Project site is the A-1-2, Light Agriculture, zone located on the lands to the east of 300<sup>th</sup> Street West. This zoning allows tree crops as a permitted use. Although the remainder of the Project site is not zoned for agricultural uses under the AVAP, an approximate 13-acre area in the northwestern corner of the site is identified as containing montane hardwood resources, and approximately 883 acres in the southwestern and southeastern portions of the site are identified as containing primarily mixed chaparral (approximately 553 acres) as well as blue oak woodland, blue oak–foothill pine, juniper, and pinyon–juniper resources (approximately 330 acres) on maps prepared by the California Department of Fire and Forestry Protection’s Fire and Resource Assessment Program (FRAP 2006). It is noted that the statewide mapping of forest and timber resources as part of the FRAP is separate from the vegetation mapping performed for the Project site, and is used herein solely for the determination of potential forest and timber resources. Finally, no part of the Project site is zoned as a Timberland Production Zone.

The Project site does not contain any trees listed as a “commercial species” for the applicable Southern Forest District as defined in the applicable regulations. Project implementation would not conflict with zoning for forest land or timberland as the Project site is not used for forest land or timberland resources and is not considered forest land or timberland by the County or the State. The Project will not conflict with zoning for timberland or a Timberland Production Zone, as the site has not been designated as such. There would be no impact to forest land and no mitigation is required.

Project implementation would not result in impacts related to the loss of known mineral resources because there are no known mineral resources on the Project site or in the areas where the off-site Project features would occur.

### **1.6.6 CULTURAL AND TRIBAL RESOURCES**

California Register of Historical Resources (CRHR) cultural resources eligibility evaluations were completed in 2012 and 2015 for sites in areas where impacts associated with development were anticipated. Also, the County of Los Angeles, as Lead Agency, completed Native American consultation under Assembly Bill (AB) 52. The Fernandeano Tataviam Band of Mission Indians (Tataviam Tribe) and the Tejon Indian Tribe (Tejon Tribe) were contacted, consultation was initiated, and mitigation measures were agreed upon by all parties involved.

CRHR-eligible resources in the development area (CA-LAN-3201, CA-LAN-3240 and CA-LAN-3242) were defined and MMs were developed to be implemented either prior to the issuance of grading permits (MMs 6-1, 6-2, and 6-3 which describe monitoring of grading, protection of CRHR-eligible sites, and data recovery/avoidance strategies respectively) or prior to the completion of construction activities (MM 6-4, which details an archaeological site protection program to be implemented during and after construction). Excavated finds shall

be offered to the County of Los Angeles and/or its designee (i.e., the Tejon Tribe) on a first refusal basis (MM 6-1 and 6-3); the Tejon Tribe can then make a determination whether the find is a significant tribal cultural resource and opt to accept the resource for curation in its facility). There are a total of 30 prehistoric archaeological sites within open space areas (i.e., areas outside the grading footprint). Of these, the CRHR eligibility of 18 of the 30 total sites has been determined, and 1 site (CA-LAN-3206) has been determined eligible and 17 sites have been determine ineligible. For the 12 remaining sites, it is assumed that the sites are historically significant until, and unless, evaluation proves otherwise. Long-term operation of the Project would result in potential indirect impacts to the 12 sites with unknown eligibility and the 1 site located in the open space areas that is known to be eligible (CA-LAN-3206). Therefore, MM 6-4 requires preparation of an Archaeological Resources Site-Protection Program aimed to protect and preserve identified archaeological resources that may be vulnerable to disturbance. With implementation of MMs 6-1 through 6-4, impacts to archaeological and tribal cultural resources would be reduced to a less than significant level.

The Paleo Environmental Associates report (2009) has classified rock units on the Project site according to their likelihood of containing resources of paleontological importance, and geologic evidence from adjacent areas with similar sedimentary formations indicates a high likelihood of encountering such resources during Project development. Impacts, should they occur, would be reduced to a level considered less than significant through the application of MMs 6-5 through 6-9.

There is no evidence for the presence of Native American burial sites and associated human remains within the Project area because none of the sites recorded and evaluated on the Project area were found to contain human remains, nor were there any data to suggest they were present. However, the presence of known cultural resources sites increases the likelihood that they may be present. MM 6-10 is provided to address these potential occurrences, should they be realized.

### **1.6.7 BIOLOGICAL RESOURCES**

Development and implementation of the Project would result in significant direct and indirect impacts to special status plants; special status wildlife; nesting birds; native grasslands, wildflower fields, and other special status vegetation types; jurisdictional drainages, wetlands, and riparian vegetation; wildlife movement and wildlife habitat; and regulated oak trees. Some, but not all, of these impacts would be reduced to less than significant levels with implementation of the Project's MMs and Mitigation Monitoring and Reporting Program (MMRP).

Significant impacts to special status plants, special status wildlife, and nesting birds that would result from implementing the Project would be reduced to a level considered less than significant through implementation of MMs 7-1 through 7-9.

Significant impacts to native grasslands and wildflower fields and other special status vegetation types that would result from implementing the Project would be reduced to less than significant levels with implementation of MMs 7-10 and 7-11.

Significant impacts to jurisdictional drainages, wetlands, and riparian vegetation that would result from implementing the Project would be reduced to less than significant levels with implementation of MM 7-12, which states that all lost functional values shall be replaced; appropriate regulatory agency permits and/or agreements shall be obtained; and the mitigation measures stipulated in those permits/agreements shall be implemented.

Significant impacts to wildlife movement and general wildlife habitat that would result from implementing the Project would be reduced to less than significant levels with implementation of MM 7-13 through MM 7-18.

Significant impacts to oak tree resources that would result from implementing the Project would be reduced to less than significant levels with implementation of MM 7-11 and MMs 7-19 through 7-20, in accordance with the County of Los Angeles Oak Tree Ordinance and in compliance with the Los Angeles County Oak Woodlands Conservation Management Plan. For the impacts to oak woodlands, mitigation is proposed in accordance with these County documents and California State law by creating, enhancing, and/or restoring oak habitats and by preserving existing oak woodlands.

There would be no development within (including roads and fuel modification zones), and therefore no direct impacts on, Significant Ecological Areas (SEAs) or on any lands for which a habitat conservation plan (HCP) or a natural community conservation plan (NCCP) has been adopted as there are no HCPs or NCCPs for the Project site or off-site impact areas. To further ensure SEA impact avoidance, MM 7-21 is included, which prohibits fuel modification zones from encroaching on the adjacent SEA. The Project's designation of open space in the northwest portion of the site is consistent with the Tehachapi Upland Multiple Species Habitat Conservation Plan (TU MSHCP) located immediately adjacent to the north.

### **1.6.8 LAND USE, ENTITLEMENTS, AND PLANNING**

The Project site is largely undeveloped, and there are no residential communities on or near the site, except for scattered residences to the east of the site, north of SR-138 and east of 290<sup>th</sup> Street West. The Project would not divide an established community.

The Project is consistent with the Los Angeles County General Plan 2035 and the AVAP (a component of the General Plan and the applicable Area Plan for the site). The Project would require a General Plan Amendment to incorporate the planned internal roadways into the AVAP Highway Plan. The AVAP designates the Project site as within the West Economic Opportunity Area (EOA); AVAP also requires approval of a Specific Plan for a new master planned community in this EOA. Further, the Land Use Map includes an SP overlay designation over the site. In compliance with applicable Specific Plan County requirements and state law, the Project Specific Plan includes the location of the project's internal circulation network of roadways. Some of these internal roadways that meet the criteria for being included in the Antelope Valley Area Plan Highway Plan (Map 3.1 of the Antelope Valley Area Plan, which includes major highways, secondary highways, limited secondary highways, parkways, and expressways). Amending Map 3.1 of the Antelope Valley Area Plan and the Highway Plan Policy Map included in the General Plan (Figure 7.3, Highway Plan Policy Map), require AVAP and General Plan amendments to fill in the required roadway

details within the Project site. This is consistent with AVAP's requirement for a Specific Plan for a new master planned community in this EOA. The Project remains consistent with the AVAP, which is part of the General Plan, and no text amendments to the AVAP or County General Plan are proposed.

The Project site would also require a zone change to Specific Plan, in accordance with the County's Zoning Ordinance (Title 22 of the County Code), to conform to the General Plan designation as well as the AVAP requirement that a Specific Plan be completed for development in the West EOA. Since a Specific Plan would be adopted for the site, the Project would be consistent with the County's Hillside Management Areas (HMA) Ordinance and since the Specific Plan includes measures to protect sensitive hillside areas as described in Section 3.3, Conceptual Grading Plan, and Appendix 1-B, Hillside Design Guidelines in the Specific Plan. However, proposed grading on the site would exceed 100,000 cubic yards and a CUP would be needed pursuant to Section 22.56.217 of the Los Angeles County Code. The Project also requires a CUP for approval of Project-related infrastructure.

The increase in housing and employment that would occur with Project implementation is consistent with the projections for the Project site included in the traffic analysis zones (TAZs)<sup>1</sup> and corresponding figures in the Southern California Association of Governments' (SCAG) 2012-2035 and 2016-2040 Regional Transportation Plan/Sustainable Communities Plan (RTP/SCS). The resident population of the Project at buildout is 82.46 percent of the projected resident population of traffic analysis zone (TAZ) 20280000 and TAZ 20281000 by 2035, but exceeds the Southern California Association of Governments (SCAG) projections for 2040. The 2016 Regional Transportation Plan/Sustainable Communities Plan (RTP/SCS) states that TAZ level data or any data at a geography smaller than the jurisdictional level is included in the draft growth forecasts for regional modeling purpose only, and is advisory and non-binding. As such, the exceedance of population growth projections at the Project site on a TAZ level is not considered a significant adverse impact. Land use impacts relative to the SCAG RTP/SCS would be less than significant and no mitigation is required.

The AVAP has been challenged in court, but no injunction against implementation of the plan has been sought or granted. The County's General Plan was adopted in October 2015, and was not challenged and is in effect. Consistent with land use law and CEQA requirements, these land use plans are being implemented and the EIRs prepared for each plan have been considered as part of this project EIR and each is incorporated by reference. This EIR does not tier from, nor is it legally reliant upon, the EIRs for either the AVAP or the General Plan. Should the approval and adoption of the AVAP or its accompanying EIR be invalidated pending further environmental and policy review, a possible judicial remedy could effectively revive the now-superseded former *Antelope Valley Areawide General Plan* (AVAGP), the earlier Area Plan for this area of Los Angeles County. In that case, the Project would require an AVAGP amendment in addition to a zone change to Specific Plan and other entitlements, including a Conditional Use Permit for development within a SEA. Upon approval of these AVAGP plan amendments, zone change, and other associated entitlements, the Project would have less than significant land use impacts.

---

<sup>1</sup> SCAG divides the entire region into traffic analysis zones (TAZs) as a basic geographic unit for its growth projections.



## 1.6.9 POPULATION, HOUSING, AND EMPLOYMENT

Implementation of the Project would result in (1) the introduction of a maximum of 19,333 housing units; (2) the creation of an estimated 23,675 permanent jobs; and (3) a maximum resident population of approximately 57,150 persons at Project buildout, which is estimated to occur in 2035. As detailed below, the estimate of a buildout population of approximately 57,150 persons serves as a conservative estimate used for impact analysis, since the number of dwelling units constructed in each planning area are not likely to be at maximum densities but would vary within the density range. Similarly, household sizes may differ from the averages used and the resulting resident population would likely be less than 57,150 persons.

Under the *Centennial Specific Plan*, reconfiguring an existing single-family home to create a Living Suite is permissible and does not create a new dwelling unit. Without regard to whether a State density bonus is ever used on the Project site, the total number of dwelling units, inclusive of all product types, cannot exceed the number of dwelling units identified in Section 4.0, Project Description, and considered in this EIR absent further CEQA review.

While the Project would increase the resident population in the Antelope Valley, it would be located in an area designated for future development as an EOA, as discussed in the 2015 AVAP. The site is part of the West EOA, which is located along SR-138, near I-5, east and west of the California Aqueduct. Most of the land in the vicinity of the Project site is designated as Open Space in the AVAP and is expected to remain undeveloped. Development on approximately 4,109 acres in the immediate Project area designated for potential development (e.g., areas with Rural Land, Rural Commercial, and Rural Mixed Use designations) within this EOA may also occur, although no applications are pending. The land immediately to the west (Gorman Post Ranch) currently has a development application pending with the County of Los Angeles for future residential development, although it is not consistent with the 2015 AVAP.

As stated in Policies LU 1.1 and LU 1.2 of the AVAP, future development in the Antelope Valley shall be directed into rural town center areas and EOAs, while limiting development in rural preserve areas. Consistent with the AVAP and the intent of EOAs, the Project would accommodate growth in the Antelope Valley through new residential, commercial, and light industrial developments, while preserving the rural character and ecological resources of the surrounding areas. The site is also identified as a Future Rural Town Area, which would serve as a transition between rural town centers and rural preserve areas and where future development is anticipated. Thus, population growth associated with the Project is consistent with anticipated population increases under the AVAP.

SCAG projects that Los Angeles County will experience substantial growth between 2012 and 2040 (SCAG 2016c). The Project site is also located in traffic analysis zones (TAZs)<sup>2</sup> where future growth is expected (SCAG 2012c). Future growth in the County is expected to occur as infill development in urban centers, as well as new development on vacant lands. The Project would lead to growth in employment, housing, and population on largely vacant land.

---

<sup>2</sup> SCAG divides the entire region into traffic analysis zones (TAZs) as a basic geographic unit for its growth projections.

The proposed Project is consistent with the household and employment projections for the area that includes the Project site in the SCAG's 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (SCAG 2012e) and 2016 RTP/SCS (SCAG 2016a), and the proposed Project is consistent with the demographic projections in the AVAP.

As discussed in Section 5.8, Land Use, Entitlement and Planning, and above in Section 1.6.8, the Project would promote sustainability consistent with regional goals. The Project would also contribute to meeting the State-mandated Regional Housing Needs Assessment (RHNA) housing production goals for the unincorporated areas of the County.

The AVAP intends to provide a jobs/housing ratio of 1.3 jobs per dwelling unit in the unincorporated area of the Antelope Valley within designated EOAs. The AVAP's Economic Development Element sets a strategy of designating areas for light and heavy industrial uses near major transportation corridors and/or a concentration of skilled labor force in EOAs. The Project would implement this strategy, and would provide an estimated jobs/housing ratio of 1.22, through the development of commercial and business park uses on the site, for use by high-tech manufacturing, transportation, and logistics companies. The Project would also include residential development to create a mixed use community within the West EOA, consistent with the AVAP's Land Use Policy Map.

In summary, implementation of the Project is considered growth accommodating rather than growth inducing at a regional level based on SCAG projections. Therefore, would be less than significant in relation to planned population, housing, and employment growth in the region. However, because the Project would substantially increase growth relative to the existing Project site conditions, this increase in population and housing on the Project site is considered significant. However, no mitigation would be appropriate since the Project is consistent with approved growth plans in the region. This represents a significant and unavoidable impact.

There would be less than significant impacts related to the potential displacement of people or housing units as a result of the Project since the majority of the Project site is undeveloped. An existing residence of a Tejon employee is located near the northern boundary of the Project site. This residence would be left in place until development occurs near this area, at which time a notice would be provided and displacement would be voluntary. The residence would then be demolished or relocated.

### **1.6.10 TRAFFIC, ACCESS, AND CIRCULATION**

This section of the EIR analyzes traffic conditions with and without the Project in the near-term (under Existing conditions) and long-term cumulative (under 2035 conditions for Los Angeles County, and 2040 conditions for Kern County).

Potential traffic increases associated with Project implementation would affect traffic operations and levels of service at roadways internal to the site and at roadways and freeways serving the site. These impacts would be addressed by a range of on-site and off-site Project improvements and the implementation of PDFs and MMs. The PDFs and MMs

include new internal roads, improved intersection configurations, and the addition of traffic signals that have been incorporated into the Project and payment of fair share fees for needed freeway and expressway improvements, as identified below. With the incorporation of PDFs and the recommended MMs, Project impacts to traffic on SR-138, streets intersecting SR-138 in the Project vicinity, freeway mainline segments, freeway interchange ramps, and arterial roadway intersections will be less than significant.

The Project Applicant intends to implement and fund State transportation facility mitigation measures through a proposed Centennial Transportation Improvement Program (CTIP) agreement with the California Department of Transportation (Caltrans). The CTIP would provide funding contributions, phasing, guarantees of payments, and collection of third-party contributions for MM implementation. Alternatively, the Project will pay a fair share contribution towards the construction of transportation facilities that will mitigate for potential Project impacts. With these traffic mitigation measures, there will not be a significant Project or cumulative impact from Project traffic. The Project will also be in compliance with the Los Angeles County and Kern County Congestion Management Programs (CMPs). The Project will incorporate PDFs to reduce vehicle use and promote alternative transportation, including transit use, in compliance with applicable transportation plans, policies, and regulations. However, if Caltrans does not implement planned and required improvements on State facilities, the Project would contribute to significant unavoidable impacts since the County (as the Lead Agency) lacks jurisdiction and control over State highway facilities, and cannot mandate the construction of improvements to these facilities.

### **1.6.11 AIR RESOURCES**

This section analyzes the temporary/construction-related and long-term/operational-related regional air quality emissions, local pollutant concentrations, and exposure of sensitive receptors to pollutants resulting from implementation of the Project. Analyses of health risks to sensitive receptors from toxic air contaminant emissions generated by stationary sources, minor sources, and by vehicles on SR-138 are provided. Odor impacts and consistency with air quality management plans are also analyzed.

The northern 91 percent of the Project site lies within the boundaries of the AVAQMD, while the remaining 9 percent lies within the SCAQMD.

The Project's construction emissions would exceed AVAQMD annual mass emissions thresholds for nitrogen oxides (NOx) and SCAQMD daily mass emissions thresholds for volatile organic compounds (VOCs) and NOx.

Implementation of MMs 11-2 and 11-3 would substantially reduce construction-related NOx and would also reduce VOC emissions, but the impact would remain significant and unavoidable after mitigation. Construction mass emissions of PM10, PM2.5, CO, and sulfur oxides (SOx) would be less than significant. During later phases of construction, concentrations of PM10 and PM2.5 from construction activities could exceed ambient air quality standards and potentially expose sensitive receptors in the completed area of the

development to substantial pollutant concentrations. This impact would be significant and unavoidable.

At buildout of the Project, in 2035, long-term operational emissions of VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> would exceed AVAQMD and SCAQMD CEQA significance thresholds. The primary source of long-term emissions would be from vehicle operations. MMs 11-4, 11-5, and 11-6 would be implemented to reduce operational emissions; however, the impact would remain significant and unavoidable. It should be noted that the Project's proposed residential and non-residential uses have been planned for a balance between the number of jobs available and the number of on-site housing units in an effort to encourage local trip making. The Centennial Traffic Study located in Appendix 5.10-A of this EIR forecasts that around 48 percent of the daily trip generation will be internal to the Project site, while 52 percent will be external trips. The Project would require the establishment of a Transportation Management Association (TMA) that develops strategic linkages with other Antelope Valley/Santa Clarita Valley TMAs or like organizations in order to maximize transit efficiencies and services. The TMA would reduce dependence on the automobile and provide for a more efficient use of transportation resources among Project occupants, thereby reducing pollutant emissions.

The Project's stationary sources (natural gas-fired boilers, emergency generators, broilers, and small source particulate matter generators) would be limited in size and number by MM 11-1, which requires implementation of PDF 11-1. With these limits, stationary source emissions would not exceed ambient air quality standards or health risk (cancer and non-carcinogenic) standards, and the impacts would be less than significant.

The Project would not contribute to off-site traffic conditions that would violate ambient CO standards and would be less than significant.

MM 11-10 requires the implementation of PDF 11-6, which specifies that residences or other sensitive land uses shall not be built within 150 feet of SR-138. The analysis demonstrates that the incremental cancer risk and chronic non-cancer health risk to sensitive receptors beyond the 150-foot buffer would be less than significant. The analysis also indicates that health risks to existing residents adjacent to SR-138 in the Project vicinity would be less than significant with incorporation of MM 11-10.

There would be less than significant impacts related to potential offensive odors generated by the wastewater reclamation facilities (WRF) and, if built, a Materials Recovery Facility Solid Waste Transfer Facility (MRF/SWTF).

The Project would not conflict with AVAQMD and SCAQMD air quality management plans (AQMP) because the land uses, population, and vehicle travel elements of the Project are anticipated in SCAG's 2012–2035 RTP/SCS and 2016–2040 RTP/SCS, which are the basis for AQMP development. The impact would be less than significant.

## 1.6.12 NOISE

The Project would generate an estimated 75,908 external daily trips at buildout; these vehicles would primarily use SR-138, I-5, SR-14, and SR-99. The addition of Project traffic to existing traffic would increase the traffic volumes on these roadways and, therefore, the traffic noise at adjacent receptors. Traffic noise increases would exceed the 3 A-weighted decibels (dBA) Community Noise Equivalent Level (CNEL) criterion at identified receptors on SR-138, between Gorman Post Road and Old Ridge Route Road, resulting in a significant impact. The impact would be considered significant and unavoidable because feasible mitigation to reduce these impacts is not within County jurisdiction.

Project-generated traffic would potentially expose people at proposed residential, hotel, school, and religious facilities on the Project site to noise levels in excess of the applicable State and County standards. The impact would be less than significant with implementation of MM 12-1, which would require the completion of an acoustical analysis that address each proposed residential, hotel, school, and place of worship that may be significantly affected by traffic noise to verify that the facilities include the appropriate noise-reduction features to meet interior and exterior noise standards.

The Project would include a number of land uses where installed equipment or activities may generate noise levels that could result in a significant impact at areas adjacent to or within the Project site. Maximum noise levels for these noise sources are prescribed by the County Code (i.e., the Noise Ordinance). The impact would be less than significant with implementation of MM 12-2, which would require the completion of an acoustical analysis for each proposed business park use, school, community use area, park and recreation area, transportation center, animal control facility, utility, commercial development, and manufacturing/industrial development to verify the facility has been properly designed to comply with the noise ordinance.

Construction of the Project and off-site Project features would increase the ambient noise levels in the Project vicinity above levels that exist without the Project. Noise from mobile equipment would be loudest during site preparation and grading activities. Because of the large size of the Project site and distance between grading activities and sensitive receptors, mobile equipment noise levels would not exceed County standards and would be less than significant. There is a potential for stationary construction equipment to generate noise exceeding the noise ordinance limit. MM 12-3 would be incorporated into the Project and would require stationary equipment to operate at a distance that is greater than 450 feet or to provide an enclosure or similar noise attenuation device to limit the average hourly daytime noise level to 60 dBA or less. With the incorporation of MM 12-3, the temporary increase in ambient noise levels due to on-site construction stationary sources would be less than significant. Blasting may be required in portions of the Project site during the construction period, but the noise impact would be less than significant with implementation of MM 12-7.

No pile driving is currently anticipated for the Project. However, if pile driving is required, there would be a potential significant impact. MM 12-4 would require a vibration analysis prior to any pile-driving activities to ensure that vibration impacts would not exceed County

standards and would be less than significant. The County vibration standard could also be exceeded if vibratory rollers, scrapers, and bulldozers operate near occupied residences. MM 12-5 restricts the use of this equipment and impacts would be less than significant with mitigation.

The Project would not expose persons to significant noise impacts from aviation activities from public airports, military overflights, Quail Lake Skypark, or the Fire Station 77 heliport.

### **1.6.13 VISUAL RESOURCES**

The Project would result in significant and unavoidable impacts related to a change in visual character of the Project site, as experienced by viewers at public vantage points (primarily existing transportation thoroughfares including SR-138 and 300<sup>th</sup> Street West). The Project proposes to preserve many existing features to minimize the visual alteration of the site, as listed in PDFs 13-1 through 13-6, as required for implementation through MMs 7-12 (from Section 5.7, Biological Resources) and 13-1 through 13-3. These include retention of rock outcroppings visible from off-site areas; use of landform/contour grading; use of landscaping designs that are similar to the natural topography; preservation of open space; use of native and regionally appropriate plant species in public landscape areas; provision of development setbacks from natural areas; and inclusion of aesthetically pleasing and consistent Project signage and monumentation both internally and externally. However, even with these features, the overall change to the site resulting from grading and development of the Project would be a substantial visual impact that may be perceived by some as an impact for which no additional feasible mitigation exists, and would therefore remain significant and unavoidable.

Views from existing public regional trails and bikeways would be limited due to both the distance and the intervening topography between these routes and the Project site, and would result in a less than significant impact. It is anticipated that any structures that are proposed along the Pacific Crest Trail (PCT) realignment would be screened by a wall along the rear of the residences (see MM 13-4); additionally, a wide, thickly landscaped setback containing the conceptual PCT realignment would ensure that the urban uses in the foreground would have limited visibility and would therefore result in a less than significant impact with implementation of MM 13-4.

There are no State-designated scenic highways within 20 miles of the Project boundaries; SR-138 is not a State scenic highway, nor is it eligible for listing (Caltrans 2011). Thus, while there are features on and around the Project site that would be considered scenic by many, because these components of the overall visual character are not within the viewshed of a State-designated scenic highway, the proposed changes to the Project site would not result in impacts related to damaging scenic resources along a scenic highway.

The *Los Angeles County General Plan* does not identify any scenic highway near the site (DRP 2015c); however, the AVAP identifies Scenic Drives. I-5, Gorman Post Road, SR-138, Old Ridge Road (Highway N-2), and Three Points Road are designated in the AVAP as Scenic Drives on and near the site. However, the site is also within the West EOA and a Future Rural Town Area (DRP 2015a).

The Project would introduce new light sources as part of future development. The Project would include preparation of an Exterior Lighting (photometric) Plan, also referred to as “the Dark Sky Plan”, to require outdoor lighting that minimizes glare and prevents light spillover beyond the Project site boundaries by using various techniques—which may include hooded street lights, directing light downward, and timers or sensors on lights—while maintaining consistency with County lighting and safety standards (MM 13-6 ). However, due to the existing low nighttime ambient light levels in the area, implementation of the Project would result in a significant and unavoidable impact by contributing a substantial new source of nighttime light and glare. In addition, because the Project site is currently undeveloped, new sources of daytime glare would be introduced and potential glare impacts would be greater than existing conditions; this would be considered a significant and unavoidable impact.

#### **1.6.14 PARKS AND RECREATION**

The Project would provide abundant and varied on-site recreational amenities in an area that currently has little local parkland, including public (i.e., State or federal owned or County-dedicated and maintained) and private (i.e., Homeowners Association or other privately maintained) parks and other recreation amenities. The Project would include approximately 163 acres of Park Overlay, which includes neighborhood parks, community parks, and community regional parks that would be dedicated to the County of Los Angeles in a developed condition.

Regarding County parkland requirements, based on consultation with the County Department of Parks and Recreation (DPR), the types and amounts of recreation amenities proposed on the Project site would meet and exceed the preliminary Parkland Dedication Ordinance/Quimby Act requirement of approximately 147 acres and the preliminary General Plan standard of approximately 195 acres. Specifically, in compliance with the Parkland Dedication Ordinance, (1) the quantity of public parks shall be provided consistent with the conditions of approval defined by the County for each tract map and (2) parkland would be dedicated to the County in a developed condition (see MM 14-3), providing for acreage equivalency credit. In compliance with the General Plan, the Project shall provide public and private recreation amenities that meet the General Plan parkland standard’s acreage requirements, and each tract map submitted for the County DPR’s review and clearance shall have a table with a breakdown of acreage per lot for the categories of parkland to be credited against both the Parkland Dedication Ordinance/Quimby Act requirement and the General Plan standard (see MMs 14-4 and 14-5). There would be less than significant impacts related to provision of parkland pursuant to State and County standards.

Although the Project would be expected to increase visitation to off-site federal, State, and County recreational facilities and trails in the Project area, it is not expected that increased visitation at any single facility would result in substantial physical deterioration or necessitate the construction or expansion of off-site recreational facilities. The Project would result in less than significant impacts related to recreational facilities built as part of the Project, and no construction or expansion of off-site federal, State, or County recreational facilities and trails are anticipated that would result in physical environmental impacts.

Finally, the Project would not interfere with, but would facilitate regional open space connectivity.

### **1.6.15 EDUCATION**

The Project would increase the resident population of the area and would therefore result in the generation of new students. These new students would be served by one of the three respective school districts that encompass the Project site. The Project includes locations for one Kindergarten through 5<sup>th</sup> grade (K-5) school; five K-8 schools (MM 15-1); and one high school (MM 15-3). The designation of school sites allows the respective school districts to plan for the provision of school facilities to serve the Project as needed. In addition, the Project Applicant/Developer shall finalize and sign agreements with the school districts for a contribution to facilitate the financing, construction, and operation of new school facilities in the Project area, as an alternative to the payment of school impact fees and as allowed under Section 65996(b) of the *California Government Code*. The Project Applicant/Developer shall demonstrate to the County of Los Angeles Department of Regional Planning that they have complied with all applicable School Facilities and Funding Agreements with the school districts (MM 15-2). In addition, compliance with California Department of Education Title 5 requirements for school site selection and school design and construction would reduce impacts to public schools to a less than significant level.

Because school facilities would be centrally located within the planning areas on the Project site, a majority of the Project site would not require busing. It is anticipated that the first K-8 school (initially a K-12 facility) would be opened by the Gorman Joint School District at occupancy of the first residential units. The planned approach is to initially construct a K-12 campus in order to provide public school accommodations at all education levels at Project opening. As Project buildout occurs, this school would revert to a K-8 school when the high school is constructed. There would be no impacts related to school transportation and no mitigation would be required.

There would be no impacts to education services associated with the proposed off-site access roads, and utilities would not result in any uses or activities that would generate additional students or otherwise create an increased demand for schools.

### **1.6.16 FIRE AND LAW ENFORCEMENT SERVICES**

The Project would result in the development of a maximum of 19,333 residential units, generating approximately 57,150 residents, and over 10.0 million square feet of non-residential development that would create approximately 23,675 jobs. This anticipated Project-related growth in population and employment would result in an increase in demand for fire and law enforcement services on the Project site.

#### ***Fire Services***

Fire services and emergency response for fire incidents during the initial development phases of the Project would be provided from Fire Station 77, located at 46833 Peace Valley Road in Gorman, which is currently staffed with a three-person engine company. This station



would serve the Project until such time that the 1,000<sup>th</sup> dwelling unit is built on the site (at which time the first on-site fire station would be operational) (see MM 16-3).

The Project includes conceptual site locations for up to four new fire stations on the Project site. These new fire stations are projected to provide an average five-minute response time for the first arriving unit for fire and eight minutes for the advanced life support (paramedic) unit on the site at Project buildout. This is consistent with the County of Los Angeles Fire Department's (LACFD's) goals for response times in urban areas. Ultimately, the LACFD would approve the final station site locations, and the Project Applicant/Developer would construct and equip the fire stations (MM 16-3). The LACFD has indicated that the proposed fire stations on the site would provide adequate fire service to the Project.

The Project Applicant/Developer would provide funding for the construction of fire protection facilities in accordance with the approved Project, in lieu of paying established developer fees at the time building permits are issued (MMs 16-1 through 16-3). Implementation of MMs 16-1 through 16-3 would provide for fire station sites and funding for fire protection services to serve the Project. Therefore, impacts on fire services would be reduced to a less than significant level.

#### ***Law Enforcement Services***

The Project would also result in an increase in the demand for law enforcement services, including those provided by the Los Angeles County Sheriff's Department (Sheriff's Department or LASD) and the California Highway Patrol (CHP). The Project includes the construction of a Sheriff's station on the Project site (in the Business Park area north of SR-138). Prior to development of this permanent Sheriff's station, the LASD would operate out of a "store front" sub-station until the permanent station is required to be developed. This LASD "store front" sub-station would be properly outfitted in accordance with applicable occupancy requirements of the LASD for this type of facility, and would be fully operational prior to the issuance of the first occupancy permit (MMs 16-2 and 16-4) to ensure that response times to the site for emergency and non-emergency calls would be within the County guidelines.

The addition of the "store front" and permanent Sheriff's stations, payment of developer fees by the Project Applicant/Developer, if applicable (refer to MM 16-4) and revenues from taxes generated (for LASD) and vehicle registration fees (for CHP) would offset increased demands on the LASD and the CHP. Therefore, impacts on law enforcement services would be reduced to a less than significant level.

### **1.6.17 OTHER PUBLIC SERVICES**

#### ***Library Services***

The Project would create less than significant impacts to the existing County of Los Angeles Public Library ("County Library") facilities with the implementation of the recommended mitigation measures (MMs 17-1 through 17-8). The sizing, design and programming of the Permanent Facility, including the influence of technology on library services, will be agreed upon by representatives from County Library and the Project Applicant/Developer. Also, as

discussed in PDF 17-1, the Project would include internet and intranet infrastructure, to provide access to all readily available library resources.

### ***Solid Waste Services***

Implementation of the Project would generate solid wastes (including hazardous wastes) during construction and operation. Adopted plans and regulations to manage solid waste disposal and recycling efforts generally mandate actions by the State, County, and/or local municipality rather than individual project applicants. For the Project, the County of Los Angeles is the agency responsible for providing solid waste disposal facilities. As such, the significance of the Project's solid waste generation would be determined by the degree to which the Project's solid waste generation and management features affect the County's disposal facilities and programs designed to meet its goals and comply with waste management regulations.

While the Project incorporates a Solid Waste Management Plan (PDF 17-3, MM 17-10) to achieve a goal of diverting at least 75 percent of operational solid waste, permitted Class III landfill capacity cannot be guaranteed at the time of Project buildout and through the life of the Project, which are both beyond the LACDPW's 15-year planning horizon for solid waste disposal. Therefore, while the County is committed to handling all solid wastes generated in the County now and in the future, to be conservative, this EIR concludes that the Project buildout would result in a significant impact on the County's anticipated Class III landfill capacity. PDFs 17-2 and 17-3 and MMs 17-9 (construction waste) and 17-10 (operational waste) reflect all feasible measures to reduce and divert the Project's municipal solid waste generation. Therefore, the Project would result in significant and unavoidable impact related to municipal solid wastes during long-term operation of the Project.

### ***Other Public Facilities***

Implementation of the Project would require County services for the maintenance of on-site public roadways, parks, and other public infrastructure. In order to facilitate the maintenance of County-owned facilities that would be developed as part of the Project, land would be provided to the County for the development of two on-site maintenance yards for County of Los Angeles Departments of Public Works and Parks and Recreation. The County may also construct, equip, and operate a permanent new animal control facility adjacent to the maintenance yards, if such a permanent facility is needed in the Project area. Impacts on other public facilities would be less than significant.

## **1.6.18 WATER RESOURCES**

A Water Supply Assessment (WSA) for the Project was approved by the Golden Valley Municipal Water District (GVMWD) in May 2011. The EIR's water supply analysis updates the information in the 2011 WSA to implement the recommendations in the peer review of the Project's water supply and demand assessment and to include the AVAP and General Plan updates and related CEQA water supply analyses; the Antelope Valley Integrated Regional Water Management Plan; the approved Judgment and Physical Solution for the Antelope Valley groundwater basin; the Antelope Valley – East Kern Water Agency 2015 Urban Water

Management Plan; the DCR; and State drought emergency and proposed permanent water conservation measures.

At buildout the Project is estimated to require 11,365 acre-feet per year (afy) of water for residential, commercial, landscaping and other purposes, of which 6,788 afy would be treated for potable use, and 4,577 afy would consist of recycled water treated in on-site WRFs to State standards under Title 22 of the CCR for unrestricted reuse. The Project's water supplies will sustainably meet buildout potable and recycled water demands and will maintain an average annual reserve supply of more than 79,000 af, or more than 11 years of full-buildout potable water demand. MM 18-1 and MM 18-2 ensure that Project's water efficiency will be achieved and that water supplies will be confirmed in reports that utilize on-site metering data after approximately 25 percent and 50 percent of the proposed Project has been built. If required, the Project Water Purveyor must identify and implement response measures that will ensure that available supplies will meet future demand. No subsequent development may occur until the County is satisfied that water supplies are sufficient to meet future demand.

### **1.6.19 WASTEWATER COLLECTION**

The Project will include wastewater treatment and recycled water distribution facilities to minimize potable water demand. Two WRFs would be constructed to provide solids handling, biogas reuse, and recycled water treated to unrestricted reuse standards under Title 22 of the CCR. One WRF would be located west of the West Branch of the California Aqueduct (WRF West) and one would be located east of the Aqueduct (WRF East). Recycled water will be used for outdoor irrigation and indoor wastewater and cooling in the proposed business park. At full buildout, recycled water will meet approximately 40 percent of total Project's water demand.

Section 3.5 of the *Centennial Specific Plan* includes a Wastewater Management Plan (see also PDFs 19-1 through 19-3). The Wastewater Management Plan requirements and PDFs 19-1 through 19-3 have been incorporated in MMs 19-1, 19-2 and 19-3. These measures ensure that potential impacts related to wastewater treatment requirements and wastewater capacity will be less than significant.

### **1.6.20 DRY UTILITIES**

The Project will result in the development of a maximum of 19,333 residential units. The new residential units will result in an increase in demand for dry utility services and facilities, including electricity (Southern California Edison [SCE]), fossil fuels (natural gas and petroleum), telephone (AT&T), and cable television (CATV)(CalNeva Broadband or other provider yet to be determined).

Direct and indirect impacts to dry utility services and facilities will be less than significant. Each affected utility has been consulted to determine whether there will be adequate energy supplies, communication services, and the infrastructure to serve the Project. In the case of cable television, since there is currently no provider, one local Cable Television company is willing and able to provide services to the Project site. With implementation of the planned

energy efficiency features and with upgrades to utility infrastructure near and within the Project site (as determined by each provider), there will be adequate energy and communication services for the Project in addition to the existing demand for these services.

There will be less than significant impacts associated with off-site features related to installation of infrastructure for electricity, natural gas, petroleum, telephone, cable television, and internet services. Any necessary off-site utility upgrades will occur within lands (easements) already owned by these respective utilities.

### **1.6.21 CLIMATE CHANGE**

The quantification of greenhouse gas (GHG) emissions, as calculated through the California Emissions Estimator Model (CalEEMod) Version 2016.3.1, estimates that the Project at buildout in 2035 would have GHG emissions of approximately 244,379 metric tons of carbon dioxide equivalent (MTCO<sub>2e</sub>) per year. This total includes amortized emissions from the construction period, the loss of carbon-sequestering vegetation, and the planting of carbon-sequestering trees.

For informational purposes only, Project GHG emissions would substantially exceed the AVAQMD's 100,000 MTCO<sub>2e</sub> per year project-level threshold. The Project's service population is estimated at 57,150 residents and 23,675 employees for a service population total of 80,825 at Project buildout. For informational purposes only, the Project's GHG efficiency would be 3.02, which would not exceed the SCAQMD-staff-proposed "plan-level" 4.1 GHG efficiency threshold, but would exceed the SCAQMD-staff-proposed "project-level" 3.0 GHG efficiency threshold.

The Project would be consistent with the *Los Angeles County Community Climate Action Plan 2020* (CCAP), SCAG's 2012–2035 and 2016–2040 RTP/SCS, and regulatory measures designed to reduce GHG emissions. Additionally, the Project is consistent with the SCAQMD's proposed draft efficiency threshold and the AVAP.

Based on the Project's consistency with the CCAP, SCAG's 2012–2035 and 2016–2040 RTP/SCS, and based on its compliance with applicable GHG-reducing regulatory measures, the Project could be found to have a less than significant impact on GHG. However, climate change is a global phenomenon and the significance of GHG emissions is more appropriately considered on a cumulative level. The Project's GHG emissions would contribute to the global inventory of GHGs. To date, the vast majority of other States and nations have not followed California's lead in mandating GHG emission reductions across a broad spectrum of economic sectors and have not enacted regulations similar to those adopted in California, which already has nearly the lowest level of GHG per capita of any state. The County of Los Angeles has no jurisdictional control or responsibility for GHG reductions in other parts of California, and certainly not in the context of global action. Moreover, due to the County's limited jurisdiction over many GHG reduction measures required in both the CCAP and the RTP/SCS, and with respect to the many GHG-reducing regulatory programs implemented at the State level, the County lacks the requisite level of jurisdiction and control to ensure that all such measures and programs will be fully implemented as planned by third party agencies and private parties. Therefore, because of the global context of GHG emissions which are

outside the County's jurisdiction and control, and because the of Project's forecasted GHG emission rate, the project's incremental contribution to the cumulative environmental impact related to GHG emissions is conservatively determined to be cumulatively considerable and this significant cumulative impact would be significant and unavoidable.

## 1.7 GROWTH-INDUCING IMPACTS

The Project is proposed in response to anticipated growth in the Northern Los Angeles County/Antelope Valley area, and Project development is consistent with the growth projections that have been adopted by SCAG for the Project area, the Antelope Valley, the North Los Angeles County Subregion, the County, and the region.

The Project is also consistent with the AVAP and proposes development in the West EOA, where the AVAP anticipates future development. The EIR (SCH No. 2014061043) for the AVAP fully evaluated the growth-inducing impacts of buildout of the unincorporated areas of the Antelope Valley, as allowed by the AVAP (LACDRP 2014). No changes to the AVAP are proposed by the Project that would affect population generation or otherwise lead to additional indirect growth, and no changes to the circumstances under which development would occur have occurred since the EIR for the AVAP was certified in June 2015. The only amendment to the AVAP proposed by the Project is the inclusion of the internal roadway network into the AVAP Highway Plan. The portion of the Project site that is located east of 300<sup>th</sup> Street West is designated as RL2 (1 DU/ 2 ac) in the AVAP; the Specific Plan designates this land as LDR (0-7 du / ac), but the AVAP allows for flexibility in land use adjustments.

Because the Project is consistent with the allowable land uses and development densities/intensities in the AVAP and since the EIR for the AVAP adequately analyzed the growth-inducing impacts of the AVAP, the Project would not have any growth-inducing impacts that were not previously analyzed in that certified EIR. As such, the Project would not be considered growth-inducing related to planned growth in the region. However, the existence of the Project makes it reasonably foreseeable that future unplanned development may occur along the eastern fringes of the Project site, where physical constraints to development are less than to the north and south, which could result in a significant impact on the environment on lands outside the West EOA. This would be considered a significant adverse indirect growth-inducing impact.

## 1.8 CUMULATIVE IMPACTS

The proposed Project's cumulative impact analysis includes the consideration of both regional growth projections (i.e., the "projection" approach) and proposed and approved development in the AVAP area, Santa Clarita Valley (SCV), southern Kern County (approximately south of Interstate [I] 5 and State Route [SR] 99) as well as the cities of Lancaster, Palmdale, and Santa Clarita (i.e., the "list" approach). Although there is expansive undeveloped land in the area surrounding the Project site, there is limited land proximate to the Project site that is available for future development. The majority of surrounding lands are subject to development constraints, such as permanent conservation, limited infrastructure, public ownership, and/or topography. This serves to minimize cumulative

impacts that are associated with proximity to other ongoing projects. Significant and unavoidable cumulative impacts were identified for biological resources (regional wildlife movement, loss of native perennial grasslands); land resources (in the form of a loss of Prime Farmland); traffic (mitigation measures are outside the control of the lead agency); air resources (emissions of O<sub>3</sub> and PM<sub>10</sub>); noise (traffic noise along segments of SR-138); visual resources (in the form of resulting in a significant change to long range views from public land, and light pollution or “sky glow”); solid waste (contribution to municipal solid waste disposal); water resources (water supplies); population, housing, and employment (substantial relative to existing conditions); and climate change (GHG-reduction measures outside the County beyond the control of the lead agency).

## 1.9 SUMMARY OF IMPACTS

Table 1-1, Centennial Specific Plan Impact Summary, below provides the significance finding, after implementation of PDFs and MMs, for each environmental topic, and associated significance thresholds, addressed in Section 5.0 of this EIR. Table 1-2, Centennial Specific Plan Mitigation Summary, following Table 1-1 provides the MMs recommended for the Centennial Project and reflects the Mitigation Monitoring and Reporting Program (MMRP) provided in Appendix 2.0-C of this EIR.

**TABLE 1-1  
CENTENNIAL SPECIFIC PLAN IMPACT SUMMARY**

<b>Topic</b>	<b>Significance Finding</b>
<b>Geotechnical</b>	
Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault	Less Than Significant
Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic groundshaking	Less Than Significant
Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction and lateral spreading	Less Than Significant
Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides	Less Than Significant
Result in substantial soil erosion or the loss of topsoil	Less Than Significant
Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse	Impact Mitigated to Less Than Significant
Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property	Impact Mitigated to Less Than Significant
Have soils incapable of adequately supporting the use of onsite wastewater treatment systems where sewers are not available for the disposal of wastewater	Impact Mitigated to Less Than Significant
Conflict with Hillside Management Area Ordinance or hillside design standards in the County General Plan Conservation and Open Space Element	Less Than Significant
<b>Hydrology and Flood</b>	

**TABLE 1-1  
CENTENNIAL SPECIFIC PLAN IMPACT SUMMARY**

<b>Topic</b>	<b>Significance Finding</b>
Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off- site	Impact Mitigated to Less Than Significant
Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site	Impact Mitigated to Less Than Significant
Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff	Impact Mitigated to Less Than Significant
Conflict with the Los Angeles County Low Impact Development Ordinance	Impact Mitigated to Less Than Significant
Create drainage system capacity problems, or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects	Less Than Significant
Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, or within a floodway or floodplain	Impact Mitigated to Less Than Significant
Place structures, which would impede or redirect flood flows, within a 100-year flood hazard area, floodway, or floodplain	Impact Mitigated to Less Than Significant
Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam	Impact Mitigated to Less Than Significant
Place structures in areas subject to inundation by seiche, tsunami, or mudflow	Impact Mitigated to Less Than Significant
Add water features or create conditions in which standing water can accumulate that could increase habitat for mosquitoes and other vectors that transmit diseases such as the West Nile virus and result in increased pesticide use	Impact Mitigated to Less Than Significant
<b>Hazards and Fire Safety (Hazards and Hazardous Materials and Fire Safety)</b>	
<i>Hazards and Hazardous Materials</i>	
Create a significant hazard to the public or the environment through the routine transport, storage, production, use, or disposal of hazardous materials	Impact Mitigated to Less Than Significant
Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials or waste into the environment	Impact Mitigated to Less Than Significant
Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter-mile of sensitive land uses	Impact Mitigated to Less Than Significant
Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment	Impact Mitigated to Less Than Significant
Result in a safety hazard for people residing or working in the project area for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport	Less Than Significant
Result in a safety hazard for people residing or working in the project area for a project within the vicinity of a private airstrip	Less Than Significant
Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan	Impact Mitigated to Less Than Significant
<i>Fire Safety</i>	

**TABLE 1-1  
CENTENNIAL SPECIFIC PLAN IMPACT SUMMARY**

<b>Topic</b>	<b>Significance Finding</b>
Expose people or structures to a significant risk of loss, injury, or death involving fires due to be located in Very High Fire Hazard Severity Zone; in a high fire hazard area with inadequate access; in an area with inadequate water and pressure to meet fire flow standards; in proximity to land uses that have the potential for dangerous fire hazard	Impact Mitigated to Less Than Significant
<b>Water Quality</b>	
Violate any (surface water) water quality standards or waste discharge requirements	Impact Mitigated to Less Than Significant
Generate construction or post-construction runoff that would violate applicable stormwater NPDES permits or otherwise significantly affect surface water or groundwater quality	Impact Mitigated to Less Than Significant
Result in point or nonpoint source pollutant discharges into State Water Resources Control Board-designated Areas of Special Biological Significance	No Impact
Use onsite wastewater treatment systems in areas with known geological limitations (e.g. high groundwater) or in close proximity to surface water (including, but not limited to, streams, lakes, and drainage course)	Impact Mitigated to Less Than Significant
Otherwise substantially degrade water quality	Impact Mitigated to Less Than Significant
<b>Land Resources (Agricultural, Forest and Mineral Resources)</b>	
<i>Agriculture and Forest Resources</i>	
Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use	Significant and Unavoidable Impact
Conflict with existing zoning for agricultural use, with a designated Agricultural Opportunity Area, or with a Williamson Act contract	Less Than Significant
Conflict with existing zoning for, or cause rezoning of forest land, timberland, or timberland zoned Timberland Production	No Impact
Result in the loss of forest land or conversion of forest land to non-forest use	No Impact
Involve other changes in the existing environment, which due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest land use	No Impact
<i>Mineral Resources</i>	
Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.	No Impact
Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	No Impact
<b>Cultural and Tribal Resources</b>	
Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines	Impact Mitigated to Less Than Significant
Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines	Impact Mitigated to Less Than Significant
Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, or contain rock formations indicating potential paleontological resources	Impact Mitigated to Less Than Significant
Disturb any human remains, including those interred outside of formal cemeteries	Impact Mitigated to Less Than Significant
Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural	Impact Mitigated to Less Than Significant



**TABLE 1-1  
CENTENNIAL SPECIFIC PLAN IMPACT SUMMARY**

<b>Topic</b>	<b>Significance Finding</b>
value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k).	
Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	Impact Mitigated to Less Than Significant
<b>Biological Resources</b>	
Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS	Impact Mitigated to Less Than Significant
Have a substantial adverse effect on any sensitive natural communities (e.g., riparian habitat, coastal sage scrub, oak woodlands, non-jurisdictional wetlands) identified in local or regional plans, policies, regulations or by CDFW or USFWS	Impact Mitigated to Less Than Significant
Have a substantial adverse effect on federally or state protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, and drainages) or waters of the United States, as defined by §404 of the federal Clean Water Act or California Fish and Game code §1600 et seq. through direct removal, filling, hydrological interruption, or other means	Impact Mitigated to Less Than Significant
Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites	Impact Mitigated to Less Than Significant
Convert oak woodlands or otherwise contain oak or other unique native trees	Impact Mitigated to Less Than Significant
Conflict with any local policies or ordinances protecting biological resources, including Wildflower Reserve Areas, the Los Angeles County Oak Tree Ordinance, the Significant Ecological Areas (SEAs), and Sensitive Environmental Resource Areas (SERAs)	Impact Mitigated to Less Than Significant
Conflict with the provisions of an adopted state, regional, or local habitat conservation plan	No Impact
<b>Land Use, Entitlements, and Planning</b>	
Physically divide an established community	No Impact
Be inconsistent with the applicable County plans for the subject property including, but not limited to, the General Plan, specific plans, local coastal plans, area plans, and community/neighborhood plans	Less Than Significant
Be inconsistent with the County zoning ordinance as applicable to the subject property	Less Than Significant
Conflict with Hillside Management criteria, Significant Ecological Areas conformance criteria, or other applicable land use criteria	Less Than Significant
<b>Population, Housing, and Employment</b>	

**TABLE 1-1  
CENTENNIAL SPECIFIC PLAN IMPACT SUMMARY**

<b>Topic</b>	<b>Significance Finding</b>
Induce substantial population growth in an area, either directly or indirectly	Significant and Unavoidable
Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere	Less than significant
Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere	Less Than Significant
Cumulatively exceed official regional or local population projections	Significant and Unavoidable
<b>Traffic, Access, and Circulation</b>	
Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system	Impact Mitigated to Less Than Significant/ Some Mitigation Outside Authority of Lead Agency
Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways	Impact Mitigated to Less Than Significant/ Some Mitigation Outside Authority of Lead Agency
Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks	Less Than Significant
Substantially increase hazards due to a design feature or incompatible uses	Impact Mitigated to Less Than Significant
Result in inadequate emergency access	Impact Mitigated to Less Than Significant
Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities	No Impact
<b>Air Resources</b>	
Violate any air quality standard or contribute substantially to an existing or projected air quality violation	Significant and Unavoidable
Expose sensitive receptors to substantial pollutant concentrations	Significant and Unavoidable
Conflict with or obstruct implementation of applicable air quality plans of either the South Coast AQMD (SCAQMD) or the Antelope Valley AQMD (AVAQMD)	Less Than Significant
Create objectionable odors affecting a substantial number of people	Less Than Significant
Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard	Significant and Unavoidable
<b>Noise</b>	
Result in exposure of persons to, or generation of, noise in excess of standards established in the County General Plan or noise ordinance, or applicable standards of other agencies	Impact Mitigated to Less Than Significant
Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels	Impact Mitigated to Less Than Significant
Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project, including noise from parking areas	Significant and Unavoidable
Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project, including noise from amplified sound systems	Impact Mitigated to Less Than Significant
For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels	No Impact

**TABLE 1-1  
CENTENNIAL SPECIFIC PLAN IMPACT SUMMARY**

<b>Topic</b>	<b>Significance Finding</b>
For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels	Less Than Significant
<b>Visual Resources</b>	
Have a substantial adverse effect on a scenic vista	Significant and Unavoidable
Be visible from or will obstruct views from a regional riding or hiking trail	Less Than Significant
Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	Less Than Significant
Substantially degrade the existing visual character or quality of the site and its surroundings because of height, bulk, pattern, scale, character, or other features	Significant and Unavoidable
Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area	Significant and Unavoidable
<b>Parks and Recreation</b>	
Increase the use of the existing neighborhood and regional parks or other recreational facilities such that a substantial physical deterioration of the facilities would occur or be accelerated	Less Than Significant
Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment	Less Than Significant
Interfere with regional open space connectivity	Less Than Significant
Create capacity or service level problems, or result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, in order to maintain acceptable service ratios, response times or other performance objectives for parks	Impact Mitigated to Less Than Significant
<b>Education</b>	
Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable performance objectives for any of the public services: schools	Impact Mitigated to Less Than Significant
<b>Fire and Law Enforcement</b>	
<i>Fire Services</i>	
Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need of new or physical altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: fire protection	Impact Mitigated to Less Than Significant
<i>Law Enforcement Services</i>	
Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need of new or physical altered governmental facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: sheriff protection	Impact Mitigated to Less Than Significant
<b>Other Public Services</b>	
<i>Library</i>	
Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or	Impact Mitigated to Less Than Significant

**TABLE 1-1  
CENTENNIAL SPECIFIC PLAN IMPACT SUMMARY**

<b>Topic</b>	<b>Significance Finding</b>
physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: libraries	
<b>Solid Waste Management</b>	
Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs	Significant and Unavoidable
Not comply with federal, state, and local statutes and regulations related to solid waste	Significant and Unavoidable
<b>Other Public Facilities</b>	
Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: other public facilities	Less Than Significant
<b>Water Resources</b>	
Have insufficient reliable water supplies available to serve the project demands from existing entitlements and resources, considering existing and projected water demands from other land uses	Impact Mitigated to Less Than Significant
Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level	Less Than Significant
<b>Wastewater</b>	
Exceed wastewater treatment requirements of either the Los Angeles or Lahontan RWQCBs	Impact Mitigated to Less Than Significant
Create water or wastewater system capacity problems, or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects	Less Than Significant
<b>Dry Utilities</b>	
Create electrical system capacity problems, or result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects	Impact Mitigated to Less Than Significant
Create energy utility (natural gas and petroleum) system capacity problems, or result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects	Impact Mitigated to Less Than Significant
Create telephone service system capacity problems, or result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects	Impact Mitigated to Less Than Significant
Create cable services system capacity problems, or result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects	Impact Mitigated to Less Than Significant
<b>Climate Change</b>	
Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment	Significant and Unavoidable
Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases	Significant and Unavoidable

**TABLE 1-1  
CENTENNIAL SPECIFIC PLAN IMPACT SUMMARY**

Topic	Significance Finding
<b>Growth-Inducing Impacts</b>	
<p>The Project would not be considered growth-inducing related to planned growth in the region. However, the existence of the Project makes it reasonably foreseeable that future unplanned development may occur along the eastern fringes of the Project site, where physical constraints to development are less than to the north and south, which could result in a significant impact on the environment on lands outside the West EOA. This would be considered a significant adverse indirect growth-inducing impact.</p>	
<b>Cumulative Impacts</b>	
<p>The following environmental factors would result in cumulatively significant and unavoidable impacts:</p> <ul style="list-style-type: none"> <li>• Land Resources (loss of Prime Farmland)</li> <li>• Biological Resources (regional wildlife movement, loss of native grasslands)</li> <li>• Population, Housing, and Employment (substantial relative to existing conditions)</li> <li>• Traffic, Access, and Circulation (without pending improvements by Caltrans)</li> <li>• Air Resources (construction and operational emissions in the AVAQMD and the SCAQMD)</li> <li>• Noise (traffic noise along segments of SR-138)</li> <li>• Visual Resources (change to long range views from public land and nighttime light and glare)</li> <li>• Solid Waste (contribution to municipal solid waste disposal)</li> <li>• Water Resources (water supplies)</li> <li>• Climate Change (greenhouse gas emissions)</li> </ul>	
<p>NPDES: National Pollutant Discharge Elimination System; CEQA: California Environmental Quality Act; CDFW: California Department of Fish and Wildlife; USFWS: U.S. Fish and Wildlife Service; SEAs: Significant Ecological Areas; SERAs: Sensitive Environmental Resource Areas; SCAQMD: South Coast Air Quality Management District; AVAQMD: Antelope Valley Air Quality Management District; RWQCB: Regional Water Quality Control Board; CATV: cable television; Caltrans: California Department of Transportation; SR: State Route</p>	

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.2	<b>Hydrology and Flood</b>	<b>MM 2-1</b> The Project shall implement hydromodification control Best Management Practices (BMPs) that will meet the requirements of Section 8 – Hydromodification Impacts of the County LID Standards Manual, as confirmed by the County based on a Drainage System Engineering and Planning Report to be submitted with each Project tract map application. This Drainage System Engineering and Planning Report shall describe applicable hydromodification control BMPs and utilize approved Los Angeles County methods to demonstrate compliance with the County LID Standards Manual.
5.2	<b>Hydrology and Flood</b>	<p><b>MM 2-2</b> The Project shall implement hydrology and flood-control BMPs that will achieve the following hydrology and flood performance standards:</p> <p><i>All project water conveyance facilities must be designed to provide capital flood protection. BMPs must be implemented to ensure that, for the capital storm event, there is no increase in peak discharge rates and no increase in runoff volume offsite compared with peak discharge rates and runoff volumes under existing, pre-development conditions. Compliance with the hydrology and flood performance standard shall be demonstrated by using a methodology approved Los Angeles County Department of Public Works for comparing project site pre- and post-development peak discharge rates and runoff volumes.</i></p> <p>Compliance with the hydrology and flood performance standards shall be further confirmed by the County, based on a Drainage System Engineering and Planning Report submitted with each Project tract map application. The Drainage System Engineering and Planning Report shall describe applicable hydrology and flood-control BMPs and utilize approved Los Angeles County methodologies to demonstrate compliance with the hydrology and flood performance standards.</p>
5.2	<b>Hydrology and Flood</b>	<b>MM 2-3</b> Each Tentative Map shall depict the 100-year floodplain mapped by the Federal Emergency Management Agency (FEMA). The placement of habitable residential, commercial, school and institutional buildings shall be precluded within any mapped 100-year floodplain. All applications for Project tract maps that would locate any structures within a mapped 100-year floodplain must include an engineering report that provides a detailed description of the floodplain boundaries and demonstrates that as-built conditions comply with all applicable FEMA requirements. If required, a conditional letter of map revision (CLOMR) shall be obtained from FEMA prior to construction within a mapped 100-year floodplain.
5.3	<b>Hazards and Fire Safety</b>	<b>MM 3-1</b> The Project Applicant/Developer shall employ a Dust-Control Supervisor who will be on the site within 30 minutes of the start of work taking place each morning; will have the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Antelope Valley Air Quality Management District (AVAQMD) Rule 403 and South Coast Air Quality Management District (SCAQMD) Rule 403 requirements; and will have completed the SCAQMD Fugitive Dust Control Class and has been issued a valid Certificate of Completion for the class. Contact information for the Project's Dust Control Supervisor shall be posted on-site to ensure that the public has a means of providing complaints regarding fugitive dust. The Dust Control Supervisor shall be responsible for tracking complaints, conducting corrective action, as necessary, and for maintaining an up-to-date log of complaints and responses for periodic County review.

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.3	Hazards and Fire Safety	<b>MM 3-3</b> The Project Applicant/Developer shall provide to each prospective property purchaser or tenant a notice and statement of acknowledgment that shall be executed (i.e., read and signed) by the prospective purchaser, lessee, or tenant that the property within Centennial may present a risk of exposure to Valley Fever spores during construction or other earth-moving activities. The form shall include strategies to reduce potential exposure to Valley Fever spores. The form and method of distribution of said notice and statement of acknowledgment shall be as approved by the County.
5.3	Hazards and Fire Safety	<b>MM 3-4</b> The Project Applicant/Developer shall coordinate with the California Department of Conservation, Division of Oil, Gas and Geological Resources (DOGGR) to facilitate re-abandonment of the two on-site historic dry oil wells in accordance with current DOGGR specifications. The Project Applicant/Developer shall present documentation to the County that it has complied with the DOGGR requirements for re-abandonment of the two on-site wells.
5.3	Hazards and Fire Safety	<b>MM 3-5</b> The Project Applicant/Developer shall provide documentation to the County that the abandoned mine shaft is permanently closed in accordance with applicable regulations, as directed by the California Department of Conservation Office of Mine Reclamation, to prevent future access and potential ground instability issues.
5.3	Hazards and Fire Safety	<b>MM 3-6</b> If unanticipated hazardous materials or waste is encountered during construction, all work in the immediate vicinity of the suspect hazardous material shall be halted and the applicable oversight agency(ies) shall be notified. The applicable agency(ies) are determined based on the type and extent of the material encountered, and may include the California Department of Toxic Substances Control (DTSC), the State Water Quality Control Board, and/or local agencies, such as the County of Los Angeles Fire Department. The Project Applicant/Developer shall coordinate with appropriate agency(ies) on the appropriate means to address the suspect hazardous material/waste. All environmental investigation and/or remediation shall be conducted under a Workplan approved by the primary oversight agency(ies) and construction in the affected area shall not proceed until clearance has been issued by the applicable agency(ies).
5.3	Hazards and Fire Safety	<b>MM 3-7</b> The Project Applicant/Developer shall prepare an Emergency Response Plan for the Project, which shall be updated as needed for each Tentative Map, and shall be submitted to the County for review and approval. The Project Applicant/Developer shall be responsible for distributing the current Emergency Response Plan to each purchaser or tenant of each property within Centennial, and shall distribute the Plan to all landowners through the Transportation Management Agency (TMA).
5.3	Hazards and Fire Safety	<b>MM 3-8</b> The Project Applicant/Developer shall prepare a Traffic Control Plan in accordance with the California Manual on Uniform Traffic Control Devices (MUTCD). The Traffic Control Plan shall be reviewed and approved by the California Department of Transportation (Caltrans), and all construction activities in the public right-of-way shall comply with the approved Traffic Control Plan to the satisfaction of Caltrans. Documentation of Caltrans approval shall be provided to the County for any Tentative Map involving construction within State Route 138 right-of-way.
5.3	Hazards and Fire Safety	<b>MM 3-9</b> The Project Applicant/Developer shall prepare a Fuel Modification Plan demonstrating compliance with the County Fire Code Title 32 and shall provide all new residents and business owners with recorded Covenants, Conditions, and Restrictions (CC&Rs) or disclosure statements that identify the responsibilities for maintaining the fuel modification zone(s) on their property, as defined in the approved Fuel Modification Plan. The CC&Rs or disclosure statements

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>prepared by the Project Applicant/Developer shall be submitted to the County to confirm that new property owners will be informed of their responsibilities for maintaining the fuel modification zone(s) on their property.</p>
5.4	Water Quality	<p><b>MM 4-1</b> The Project shall implement Low Impact Development (LID) and water quality control Best Management Practices (BMPs) that will achieve the following LID performance standard:</p> <p><i>LID BMPs shall be selected and sized to retain the volume of storm water runoff produced from the higher of the 85th percentile or ¾ inch, 24-hour storm depth as determined from the Los Angeles County 85th Percentile 24-hr Rainfall Isohyetal Map (February 2004) (LID design volume). When it has been demonstrated that 100 percent of the LID design volume cannot be feasibly infiltrated within the Project, then the volume shall be harvested and reused. If that volume cannot be harvested and reused within 96 hours, then biofiltration shall be provided for 1.5 times the portion of the LID design volume that is not retained. Runoff from roadways shall be retained or biofiltered in retention or biofiltration BMPs sized to capture the design storm volume or flow, per the guidance in the U.S. Environmental Protection Agency's (USEPA's) Managing Wet Weather with Green Infrastructure: Green Streets. LID BMPs may be parcel-based or regional facilities.</i></p> <p>Compliance with the LID performance standards shall be confirmed by the County based on a Drainage System Engineering and Planning Report to be submitted with each Tentative Map application. The Report shall describe applicable water quality control and LID BMPs and shall utilize approved Los Angeles County methodologies to demonstrate compliance with the LID performance standards. To the extent feasible, incorporate permeable pavement, groundcovers, and/or other measures to increase infiltration.</p>
5.4	Water Quality	<p><b>MM 4-2</b> The Project shall implement integrated pest management (IPM) and landscaping best management practices (BMPs) consistent with the integrated pest management and pesticide and fertilizer application guidelines established by the University of California Division of Agriculture and Natural Resources Statewide Integrated Pest Management Program. The IPM and landscaping BMPs shall be confirmed in a Landscaping Plan submitted to the County during the review and approval process for each tract map application. The BMPs shall include a Planting Plan that is consistent with the plant water use requirements of Section 3.3 of the <i>Centennial Specific Plan</i>; with procedures for removing non-native vegetation and planting native vegetation; with fertilizer guidelines; and with the IPM approach for preventing or suppressing pest problems (i.e., insects and diseases). This shall be done through a combination of techniques including using pest-resistant plants; using biological controls; incorporating cultural practices; including habitat modification; and judiciously using pesticides. The IPM and landscaping BMPs shall address the following:</p> <ul style="list-style-type: none"> <li>• Pest identification.</li> <li>• Practices to prevent pest incidence and to reduce pest buildup.</li> <li>• Monitoring to examine vegetation and surrounding areas for pests to evaluate trends and to identify when controls are needed.</li> <li>• Establishment of action thresholds that trigger control actions.</li> <li>• Pest-control methods (cultural, mechanical, environmental, biological, and appropriate pesticides).</li> </ul>



**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<ul style="list-style-type: none"> <li>• Pesticide management, which includes safety requirements (e.g., Material Safety Data Sheets, precautionary statements, protective equipment); regulatory requirements; spill mitigation measures; groundwater and surface water protection measures associated with pesticide use; and pesticide applicator certifications, licenses, and training (i.e., all pesticide applicators must be certified by the California Department of Pesticide Regulation).</li> </ul>
5.6	<b>Cultural and Tribal Resources</b>	<p><b>MM 6-1</b> The Project Applicant/Developer shall retain a qualified Archaeologist who shall oversee archaeological monitoring of topsoil grading and removals (including clearing, grubbing, and trenching) in the immediate vicinity of the following 25 archaeological sites that are within the grading footprint and 1 site in the open space area that is immediately adjacent to the development impact area: CA-LAN-3201, CA-LAN-3202H, CA-LAN-3219H, CA-LAN-3227, CA-LAN-3230, CA-LAN-3232, CA-LAN-3233, CA-LAN-3234, CA-LAN-3236, CA-LAN-3237, CA-LAN-3238, CA-LAN-3239, CA-LAN-3240, CA-LAN-3241, CA-LAN-3242, CA-LAN-3243, CA-LAN-3244, CA-LAN-3245, CA-LAN-3246, CA-LAN-3247, CA-LAN-3248, CA-LAN-3250, CA-LAN-3251, CA-LAN-3252, CA-LAN-3253, and CA-LAN-3985H. CA-LAN-3227 is the site immediately adjacent to the grading footprint. Additionally, a Native American monitor representing the Tejon Indian Tribe shall be present during topsoil grading and removals in the vicinity of the 26 above-listed archaeological sites.</p> <p>The Project Applicant/Developer shall provide written evidence to the County that a qualified Archaeologist has been retained; shall be present at the pre-grading meeting; shall establish procedures for archaeological resource surveillance, including coordination with representatives of the Tejon Indian Tribe on the location and schedule of Native American monitoring; and shall establish (in cooperation with the Project Applicant/Developer and/or County, as well as the Tejon Indian Tribe) procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of any artifacts found, as appropriate.</p> <p>The qualified Archaeologist shall develop and submit an Archaeological Resource Monitoring Plan to the County for sites in development areas. The qualified Archaeologist and a Native American monitor representing the Tejon Indian Tribe shall be retained to attend pre-grade meetings and to monitor earth-moving activities, including clearing, grubbing and trenching, in the vicinity (i.e., the area of a site reasonably expected to contain archaeological resources plus a buffer of at least 10 meters [33 feet]) of any and/or all cultural resource sites. The Archaeologist and Native American monitor shall carefully inspect these areas to assess the potential for significant prehistoric or historic remains. If potentially significant archaeological resources are uncovered, a subsurface test and/or evaluation shall be performed to assess the discovery. Further subsurface investigation or data recovery shall be undertaken if the resource is determined unique or historically significant (i.e., important for its prehistoric or historic information) and therefore eligible for the California Register of Historical Resources (CRHR).</p> <p>The archaeological procedures shall be incorporated as a note on the Grading Plan cover sheet. If additional or unexpected archaeological features are discovered, the qualified Archaeologist shall report such findings in writing to the County and/or the Tejon Indian Tribe. If archaeological resources are found to be of possible significance, the qualified Archaeologist shall determine appropriate actions, in cooperation with the County and the Tejon Indian Tribe, for further exploration and/or salvage.</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>The Archaeologist shall submit a Follow-up Report to the County. The Follow-up Report shall include the period of inspection; an analysis of any artifacts found; and the present repository of the artifacts. Recovered finds shall be offered to the Tejon Indian Tribe on a first refusal basis. If the artifacts are refused, the Project Applicant/Developer may retain said finds if written assurance is provided that they will be properly preserved in Los Angeles County, unless (1) said finds are of special significance or (2) a museum in the County of Los Angeles indicates a desire to study and/or display them, in which case the items shall be donated to the County or its designee. If the Project Applicant/Developer provides no such assurance, the County shall retain the artifacts and shall be subject to the same stipulations set forth in this mitigation measure for disposition of artifacts. These actions, as well as final mitigation and disposition of the resources, shall be subject to the approval of the County.</p> <p>The Project Applicant/Developer shall retain a certified Archaeologist who will perform a Phase II subsurface test-level investigation and surface collection for archaeological resource sites of undetermined CRHR eligibility discovered during monitoring. A Phase II Test-level Report shall be completed that evaluates the sites; includes a discussion of the sites' significance (depth, nature, condition, and extent of the resources); and contains recommendations for final mitigation and cost estimates (if required) to fully mitigate significant impacts. Should the Phase II subsurface test-level investigation and surface collection determine the potential presence of significant subsurface resources, the site shall be mitigated to a less than significant level through the implementation of one of the mitigation options discussed below:</p> <ol style="list-style-type: none"> <li>a. Relocation of grading boundaries and fuel modification zones to completely avoid disturbance to the site(s). Should boundary relocation be infeasible, a qualified Archaeologist shall be present in the vicinity of archaeological resources during grading and fuel modification brush clearance. <b>(NOTE: confidential archaeological mapping is on file at the Natural History Museum of Los Angeles County and the South Central Coastal Information Center (SCCIC) at California State, Fullerton. Review of this material is restricted to qualified individuals and project proponents on a need to know basis.)</b> Fencing shall be erected outside the sites to visually depict the areas to be avoided during construction.</li> <li>b. If it is determined that avoidance and/or preservation are not feasible, then prior to grading in the vicinity of archaeological resources, Phase III data recovery (salvage excavations) shall be conducted for these archaeological sites or any other sites within the potential impact area of development that cannot be avoided. <b>(NOTE: confidential archaeological mapping is on file at the Natural History Museum of Los Angeles County and the SCCIC. Review of this material is restricted to qualified individuals and project proponents on a need to know basis.)</b> The Phase III work shall provide sufficient scientific information to fully mitigate the impacts of development on these sites to a level considered less than significant and shall be performed in accordance with the standards of the State Historic Preservation Office (SHPO).</li> </ol> <p>Excavated assemblages shall be offered to the County and/or the Tejon Indian Tribe on a first refusal basis. If the artifacts are refused, the Project Applicant/Developer may retain said finds if written assurance is provided that they will be properly preserved in Los Angeles County, unless (1) said finds are of special significance or (2) a museum in the County of Los Angeles indicates a desire to study and/or display them, in which case the items shall be donated to the County or its designee. If the Project Applicant/Developer provides no such assurance, the County shall retain the artifacts and shall be subject to the same stipulations set forth in this mitigation measure for disposition of artifacts. Final mitigation</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		shall be carried out based upon the recommendations in the Phase II Test Level Report, and the County shall make a determination as to the site's disposition based on the recommendations of the qualified Archaeologist. Possible determinations include, but are not limited to, preservation, salvage, partial salvage, or no mitigation necessary.
5.6	<b>Cultural and Tribal Resources</b>	<b>MM 6-2</b> Archaeological sites CA-LAN-3201, CA-LAN-3206, CA-LAN-3227, CA-LAN-3240, and CA-LAN-3242 shall be surrounded with high visibility construction fencing with a buffer of approximately 50 feet around each site to ensure that the archaeological sites are completely avoided during construction-related activities. A qualified Archaeologist shall work with surveying teams and the Construction Supervisor to fence the area to be avoided prior to the commencement of grading.
5.6	<b>Cultural and Tribal Resources</b>	<p><b>MM 6-3</b> The Project Applicant/Developer shall retain a qualified Archaeologist to mitigate impacts to eligible archaeological sites within the development impact area. Additionally, and a Native American monitor representing the Tejon Indian Tribe shall be present during ground-disturbing activities (i.e. topsoil grading and removals) in the vicinity of the three below-listed archaeological sites. Impacts to these eligible sites (CA-LAN-3201, CA-LAN-3240, and CA-LAN-3242) shall be mitigated to a less than significant level through the implementation of one of the mitigation options described below.</p> <ul style="list-style-type: none"> <li>a. Relocation of grading boundaries and fuel modification zones to completely avoid disturbance to the site(s). Should boundary relocation be infeasible, a qualified Archaeologist and a Native American monitor representing the Tejon Indian Tribe shall be present in the vicinity of archaeological resources during grading and fuel modification brush clearance to monitor all activities and ensure that archaeological resources are not impacted. (<b>NOTE:</b> confidential archaeological mapping is on file at the Natural History Museum of Los Angeles County and the SCCIC. Review of this material is restricted to qualified individuals and project proponents on a need to know basis.) Fencing shall be erected outside the sites to visually depict the areas to be avoided during construction. Any temporary fencing materials (i.e., plastic web, chain link, etc.) placed during construction should not become permanent. Any permanent fencing erected to protect the sites should be visually pleasing and consistent with the overall aesthetic experience of the community of Centennial.</li> <li>b. If avoidance and/or preservation are not feasible, then prior to grading in the vicinity of archaeological resources, Phase III data recovery (salvage excavations) shall be conducted for these archaeological sites or any other sites within the potential impact area of development that cannot be avoided. (<b>NOTE:</b> confidential archaeological mapping is on file at the Natural History Museum of Los Angeles County and the SCCIC. Review of this material is restricted to qualified individuals and project proponents on a need to know basis.) The Phase III work shall provide sufficient scientific information to fully mitigate the impacts of development on these sites and shall be performed in accordance with the standards of the SHPO.</li> </ul> <p>Excavated finds shall be offered to the County and/or the Tejon Indian Tribe on a first refusal basis. If the artifacts are refused, the Project Applicant/Developer may retain said finds if written assurance is provided that they will be properly preserved in Los Angeles County, unless (1) said finds are of special significance or (2) a museum in the County of Los Angeles indicates a desire to study and/or display them, in which case the items shall be donated to the County or its designee. If the Project Applicant/Developer provides no such assurance, the County shall retain the artifacts and shall be subject to the same stipulations set forth in this mitigation measure for disposition of artifacts.</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		Final mitigation shall be carried out based upon the recommendations in the Phase II Test-Level Report, and the County shall make a determination as to the site's disposition based on the recommendations of the qualified Archaeologist and the Native American monitor representing the Tejon Indian Tribe. Possible determinations include, but are not limited to, preservation, salvage, partial salvage, or no mitigation necessary.
5.6	<b>Cultural and Tribal Resources</b>	<p><b>MM 6-4</b> The Project Applicant/Developer shall develop and implement an Archaeological Resources Site-Protection Program aimed to protect and preserve identified archaeological resources vulnerable to disturbance. This program shall be prepared by the qualified Monitoring Archaeologist familiar with the resources present within the Project boundaries and approved by the County and shall include implementation of one or more of the following:</p> <ul style="list-style-type: none"> <li>a. Fencing and/or other access-restriction methods shall be placed around the archaeologically sensitive areas of the Project site to inhibit human access. This is especially applicable to site CA-LAN-3227.</li> <li>b. Non-invasive plant species with thorns (e.g., prickly pear cactus [<i>Opuntia</i> spp.]) or other deterrent characteristics shall be planted in areas close to known resources in order to discourage human presence; this is generally applicable to the majority of sites to be preserved in areas of native vegetation.</li> <li>c. Known resources shall be capped with a layer of chemically inactive soil/sediment, in consultation with a qualified Archaeologist. This is especially applicable to sites CA-LAN-3201, CA-LAN-3206, CA-LAN-3240, and CA-LAN-3242.</li> </ul> <p>The above-mentioned mitigation shall be implemented prior to the completion of construction activities and shall be overseen by the County and/or the Tejon Indian Tribe. The qualified Archaeologist shall prepare a written statement documenting appropriate site-protection measures. Additionally, a Native American monitor representing the Tejon Indian Tribe shall be present during all initial surface grubbing, initial ground surface grading, and any excavation greater than one-half foot in depth. For implementation of each tract map, if no subsurface Native American or archaeological remains are identified during that initial grading, continuous monitoring will no longer be required but the Native American monitor shall spot-check all additional subsurface excavations at least once a week for the duration of grading and excavation activities or until monitor deems site clear. The Project Archaeologist shall be responsible for coordinating the location and schedule of Native American monitors.</p>
5.6	<b>Cultural and Tribal Resources</b>	<p><b>MM 6-5</b> For the exposed paleontological resources discovered during the Paleo Environmental Associates (PEA) 2009 study (as detailed in the document entitled <i>Paleontologic Resource Inventory and Impact Assessment Technical Report prepared in support of Centennial Specific Plan, western Antelope Valley, northern Los Angeles County, California</i>) and any paleontological resources uncovered during grading or excavation activities in or out of the presence of a Monitor, grading activities will be stopped and diverted to a part of the site reasonably away from the find (highly dependent on the size and complexity of the resource), and a qualified Paleontologist shall (1) ascertain the significance of the resources; (2) establish protocol with the Project Applicant/Developer to protect (or mitigate impacts to) such resources; (3) ascertain the presence of additional resources; and (4) provide additional monitoring of the site, if the Monitor deems it appropriate.</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.6	<b>Cultural and Tribal Resources</b>	<b>MM 6-6</b> A Paleontological Treatment and Monitoring Plan (PTMP) shall be developed by a qualified Paleontologist retained by the Project Applicant/Developer. The PTMP shall be reviewed and approved by the County. This plan shall include a protocol for examining, evaluating, and (if necessary) salvaging known fossil localities identified during the PEA (2009) study (as detailed in the document entitled <i>Paleontologic Resource Inventory and Impact Assessment Technical Report prepared in support of Centennial Specific Plan, western Antelope Valley, northern Los Angeles County, California</i> ); a grading observation schedule shall be maintained when grading occurs within sedimentary rock units so that the Paleontologist may identify and evaluate fossil resources within the Project site. This qualified Paleontologist shall be retained to attend pre-grade meetings and to monitor deep earth-moving activities (including grading, cutting, and trenching) at the site. Paleontological monitoring shall be conducted by a qualified Paleontologist during grading and other excavation work. Recommended hours for monitoring activities shall be established by the qualified Paleontologist and shall be outlined in the PTMP. It shall be the responsibility of the qualified Paleontologist to demonstrate, to the satisfaction of the County, the appropriate level of monitoring necessary based on the tentative map-level grading plans. The qualified Paleontologist shall carefully inspect PTMP-identified areas in order to assess the potential for significant fossil remains. If potential paleontological resources are uncovered, a subsurface evaluation will be performed to assess the discovery. Further subsurface investigation will be undertaken if the resource is determined unique or important for its paleontological information. Because of the potential for producing small fragments of vertebrate microfossils, the Paleontologist shall conduct reasonable, periodic screening of sands from cuts in these units. Such material may be removed in bulk and screened off site for further analysis.
5.6	<b>Cultural and Tribal Resources</b>	<b>MM 6-7</b> The qualified Paleontologist retained by the Project Applicant/Developer shall coordinate with appropriate construction contractor personnel to provide information concerning the protection of paleontological resources. Contractor personnel shall be informed that unauthorized fossil collecting is prohibited. The contractor's heavy equipment operators shall be briefed on procedures to be followed in the event that fossil remains and a fossil site are encountered during earth-moving activities (grading or blasting). The briefing shall be presented to new contractor personnel as necessary. Names and telephone numbers of the Monitor and other appropriate mitigation program personnel shall be provided to appropriate contractor personnel and to the County.
5.6	<b>Cultural and Tribal Resources</b>	<b>MM 6-8</b> The qualified Paleontologist shall initiate and coordinate recovery operations with the Project Applicant/Developer, and the County of Los Angeles for any significant fossil localities identified in the Paleo Environmental Associates 2009 document entitled <i>Paleontologic Resource Inventory and Impact Assessment Technical Report prepared in support of Centennial Specific Plan, western Antelope Valley, northern Los Angeles County, California</i> as well as if significant fossils are exposed during any Project-related grading pursuant to the PTMP. To initiate recovery operations, the Paleontologist shall be allowed to divert or direct grading in the area of exposure to facilitate evaluation and, if identified as potentially significant, to recover significant fossils. The qualified Paleontologist shall notify the Construction Foreman of the discovery of fossil resources and shall discuss recovery methods and the timeline needed to evaluate the find. If a fossil discovery occurs during grading operations when the Paleontologist is not present, grading shall be diverted a reasonable distance away from the area until the qualified Paleontologist can survey the area, conduct recovery operations, and make an assessment on the significance of the find.

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.6	<b>Cultural and Tribal Resources</b>	<b>MM 6-9</b> A formal museum storage agreement shall be developed between the Project Paleontologist and an accredited institution. Any fossils and their contextual stratigraphic data that are collected during development shall be prepared and identified by a qualified Paleontologist. Excavated significant fossil finds shall be donated with funding for stabilization, identification, and curation on a first right-of-refusal basis to an appropriate, accredited institution that has a retrievable collection system and an educational and research interest in the materials (e.g., the Natural History Museum of Los Angeles County). A final report prepared by the qualified Paleontologist that details the discovery, recovery, laboratory analysis, and findings and disposition of specimens shall be submitted to the County.
5.6	<b>Cultural and Tribal Resources</b>	<b>MM 6-10</b> In accordance with <i>California Code of Regulations</i> (Title 14, Section 15064.5[e]), in the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the Los Angeles County Coroner must be notified of the discovery ( <i>California Health and Safety Code</i> , Section 7050.5) and all activities in the immediate area of the find or in any nearby area reasonably suspected to overlie adjacent human remains must cease until appropriate and lawful measures have been implemented. If the Coroner determines that the remains are not recent, but rather of Native American origin, the Coroner shall notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours to permit the NAHC to determine the Most Likely Descendent (MLD) of the deceased Native American. The designated MLD may make recommendations to the Project Applicant/Developer or the person responsible for the excavation work, for means of treating or reassignment of the human remains and any associated grave goods with appropriate dignity, as provided in <i>California Public Resources Code</i> , Section 5097.98. If any of the following occurs, the Project Applicant/Developer shall rebury the Native American remains and the associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance: (1) the NAHC is unable to identify an MLD; (2) the MLD fails to make a recommendation within 48 hours of being notified of the discovery; or (3) the Project Applicant/Developer rejects the recommendation of the MLD and mediation by the NAHC fails to provide acceptable measures.
5.7	<b>Biological Resources</b>	<b>MM 7-1</b> Prior to issuance of grading permits in areas of the Project site that may disturb California androsace, crownscale, round-leaved filaree, Mojave spineflower, sylvan scorzonella, or adobe yampah populations, focused surveys of mitigation lands shall have been completed to confirm compliance with the 2:1 mitigation ratio for the California androsace, crownscale, round-leaved filaree, Mojave spineflower, sylvan scorzonella, and adobe yampah. Surveys will be conducted in accordance with current California Native Plant Society (CNPS) protocol and will occur during the appropriate time of year. The Survey Report shall be submitted to the County and the California Department of Fish and Wildlife (CDFW) for their review. In addition to rare plant species populations that have previously been found in the Mitigation Preserve, newly detected populations will be preserved and managed for long-term preservation. These populations will provide baseline information for management efforts described below and will provide information to help determine habitat suitability in areas where propagation of rare plants may be considered.  The Project Applicant shall prepare and implement a Special Status Plant Species Restoration Plan covering the California androsace, crownscale, round-leaved filaree, Mojave spineflower, sylvan scorzonella, and adobe yampah that shall specify the following: (1) procedures for the collection and temporary storage of seed (all available seed from every impacted occurrence shall be collected); (2) planting procedures, including soil preparation and irrigation; (3) a schedule and action plan to maintain and monitor enhanced, restored, and/or created populations; (4) methods to control plant densities (of competing plants) to promote the establishment of California androsace, crownscale, round-

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>leaved filaree, Mojave spineflower, sylvan scorzonella, and adobe yampah; and (5) a list of County-approved success criteria (e.g., germination rates, growth, plant cover) to compare to the density of existing populations. The Project Applicant shall develop the Special Status Plant Species Restoration Plan and the County shall approve it prior to any vegetation clearing or grading on the site. Adoption of this plan shall be used as the performance standard. An overview of the plan objectives is provided in the Biological Resource Mitigation Program to be submitted and approved by the County prior to issuance of grading permits.</p> <p>Prior to the commencement of vegetation clearing and/or grading activities, the Project Applicant shall contract a qualified firm to harvest California androsace, crownscale, round-leaved filaree, Mojave spineflower, sylvan scorzonella, and adobe yampah seeds from the impacted populations on the Project site. The seeds shall be collected in the manner and time described in the Special Status Plant Species Restoration Plan. The harvested seed shall be used for the enhancement, restoration, or creation of these species' populations to be preserved in open space areas on the Project site. Additionally, prior to implementation of the Plan, a focused survey for the special status species impacted (listed above) shall occur in the preserve areas to document existing populations.</p> <p>The previously documented populations of California androsace, round-leaved filaree, Mojave spineflower, sylvan scorzonella, and adobe yampah occurring in the designated on-site mitigation areas (north of State Route [SR] 138 and south of SR-138), and Mitigation Areas 1, 2, 3 shall be preserved in perpetuity. These existing areas shall be enhanced, expanded, or restored or new areas shall be created in suitable habitat in order to compensate at a 2:1 ratio for the thousands of individual special status plants that will be lost due to the Project.</p> <p>Those portions of the crownscale and Mojave spineflower populations that are located within and along the western edge of the open space polygon located approximately 500 feet east of Cement Plant Road and approximately 650 feet north of the SR-138 shall be protected. No temporary or permanent disturbance (including fuel modification) shall occur in the identified occurrence points or polygons; these occurrence points or polygons shall be flagged by a qualified Biologist prior to the start of Project activities in the area. In addition, the post-construction hydrology that supports these protected populations shall be consistent with the pre-Project hydrologic condition. The supporting area consists of the adjacent slope, which drains to the protected plant populations and consists of approximately 300 feet to the north and north northwest.</p> <p>Planting of California androsace, crownscale, round-leaved filaree, Mojave spineflower, sylvan scorzonella, and adobe yampah shall be performed in accordance with the specifications in the Special Status Plant Species Restoration Plan, which will also indicate the target densities for each of these species so that the new populations will support at least as many individuals of each species as were impacted.</p>
5.7	<b>Biological Resources</b>	<p><b>MM 7-2</b> A pre-construction/grading survey of all areas proposed for construction/grading activities that contain potentially suitable habitat for silvery legless lizard, coast horned lizard, two-striped garter snake, and American badger shall be conducted by a qualified Biologist. Surveys will consist of 1 pass-through by a qualified Wildlife Biologist walking 50-meter belt transects across areas to be impacted while visually searching for the species listed above. Surveys will be conducted no more than three days prior to the disturbance of the surveyed area. If any of these species or other wildlife species that can be easily moved are observed within the construction/grading zone, the Biologist (who must have a valid California Scientific Collecting Permit) shall relocate them to a suitable area outside the construction zone. Suitable areas would include appropriate habitats within the proposed open space areas in the northwestern portion</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>of the Project site and would be identified in a Wildlife Relocation Plan (described below) prior to surveys but before construction begins.</p> <p>Areas adjacent to Quail Lake and on the Project site potentially supporting western pond turtle breeding habitat shall not be disturbed during the breeding season for the turtles (April through August). No Project activities shall occur within 300 feet from the edge of Quail Lake, due to potential for nesting in those areas.</p> <p>Pre-construction burrowing owl and Swainson's hawk surveys shall be conducted in all potentially suitable habitat areas prior to initial site preparation. Methods employed shall be consistent with standard and appropriate protocols for both species within the appropriate season of the year prior to construction. Burrowing owl pre-construction surveys shall be conducted prior to the start of construction/ground-breaking activities. Surveys will be conducted following the California Department of Fish and Wildlife's (CDFW's) 2012 burrowing owl survey protocol. These surveys shall be conducted weekly beginning 30 days prior to the start of construction with the final survey occurring 1 day prior to construction.</p> <p>If pre-construction surveys locate an active Swainson's hawk nest on the Project site, then no construction activities will occur within ½ mile of the nest between March 1 and September 15. Furthermore, a Swainson's hawk Monitoring and Mitigation Plan shall be prepared within 90 days after locating an active Swainson's hawk nest in consultation with the County and the CDFW.</p> <p>The Wildlife Relocation Plan shall describe: (1) all areas potentially suitable for receiving relocated animals and (2) methods that shall be used in the relocation process. Methods shall include appropriate species-specific handling techniques and appropriate hygienic methods to prevent the spread of pathogens. The Plan shall also identify thresholds for the number of individuals of each species that shall be allowed to be placed in any particular area. The Wildlife Relocation Plan shall be prepared by the Project Applicant/Developer and submitted to the CDFW prior to Project implementation. County and CDFW approval of the Plan shall indicate that the performance standards have been met. Although, implementation of the mitigation plan may have some impact on wildlife, it is expected to be negligible relative to the project as a whole and expected to have a net positive effect as required.</p>
5.7	<b>Biological Resources</b>	<p><b>MM 7-3</b> For all grading and construction activities, the Project Applicant/Developer shall retain a qualified Biologist (with selection reviewed by the County) to ensure that incidental construction impacts on special status wildlife species are avoided or minimized. The Biologist shall relocate silvery legless lizard, coast horned lizard, two-striped garter snake, American badger, and any other special status wildlife species that can be moved which would otherwise be destroyed or adversely affected by construction and/or site-preparation activities. Responsibilities of the Construction Biological Monitor shall include:</p> <ol style="list-style-type: none"> <li>a. Attendance at the pre-construction meeting to ensure that timing and location of construction activities do not conflict with other mitigation requirements (e.g., seasonal surveys for nesting birds). The meeting shall be conducted with the Contractor and other key construction personnel to describe the importance of restricting work to designated areas.</li> <li>b. Discussion with the Contractor of procedures to minimize harm/harassment of wildlife that may be encountered during construction.</li> </ol>



**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>c. Review/designation of the construction area with the Contractor in accordance with the Final Grading Plan. Haul roads, access roads, and on-site staging and storage areas shall be sited in grading areas to minimize degradation of habitat adjacent to these areas. If activities outside these limits are necessary, they shall be evaluated by the Biologist to ensure no special status species or habitats will be affected.</p> <p>d. A field review that is conducted to stake designated construction limits (to be set by the Surveyor). Any construction activity areas immediately adjacent to riparian areas or other special status resources (such as large trees or bird nests) may be flagged or temporarily fenced by the Monitor at his/her discretion.</p> <p>e. Periodic visits to the site during construction to coordinate and monitor compliance with the above provisions.</p> <p>f. Submittal of a brief report to the County and CDFW discussing any conflicts or errors resulting in impacts to special status resources within 48 hours of the incident. At the conclusion of construction of each planning area, submittal of a Final Report discussing the results of the activities and any recommendations for improving the process. Submission of this report shall be the performance standard.</p> <p>In addition, a Biological Monitor will be on site during all initial vegetation removal and will employ salvage methods to minimize direct impacts to common wildlife species. Where feasible, the biological monitor will attempt to ensure wildlife are out of potential direct impact. If a wildlife species is in harm's way and has not moved on its own, the Biologist will attempt to scare them away from the area. If wildlife does not move, and where feasible, the wildlife species will be relocated to suitable habitat.</p>
5.7	<b>Biological Resources</b>	<b>MM 7-4</b> All open space preservation areas adjacent to active construction sites shall be denoted with fencing installed and maintained during construction to ensure that construction activities remain within the development footprint. Construction area temporary signage shall not have holes (or holes shall be covered or filled within the top four inches) to prevent raptor talon entanglement. Construction fencing and signage will be overseen by the Project Biologist.
5.7	<b>Biological Resources</b>	<b>MM 7-5</b> Within the year prior to, and within the appropriate season, focused surveys for the following special status species shall be repeated: arroyo toad, Tehachapi slender salamander, California red-legged frog (concurrent with two-striped garter snake and western pond turtle focused surveys), western spadefoot, mountain plover, southwestern willow flycatcher, and least Bell's vireo. Surveys shall be conducted in accordance with the approved CDFW or U.S. Fish and Wildlife Species (USFWS) protocol for that species.
5.7	<b>Biological Resources</b>	<b>MM 7-6</b> The Project Applicant/Developer shall retain a qualified Biologist with knowledge of California condors to monitor construction activities in the Project area. The resumes of the proposed Biologist(s) will be provided to the CDFW for concurrence. This Biologist(s) will be referred to as the "Authorized Biologist" hereinafter. During clearing and grubbing of construction areas, the Authorized Biologist shall be present at all times. During mass grading, construction sites shall be monitored on a daily basis, and the Authorized Biologist will have the authority to stop all activities until appropriate corrective measures have been completed. If condors are observed landing in the Project area, the Applicant shall avoid further construction within 500 feet of the sighting until the animals have left the area, or as otherwise authorized by CDFW and USFWS. All condor sightings in the Project area will be reported to CDFW and USFWS within 24 hours of the sighting.

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>To further protect California condors potentially foraging in the Project area over the long term from negative interactions with humans and/or artificial structures, the Project Applicant/Developer shall remove dead cattle that are found or reported within 1,000 feet of the boundary of a residential or commercial development. Dead cattle shall be relocated to a predetermined location. The locations where carcasses shall be placed shall be a minimum of 1,000 feet from a development area boundary. Appropriate locations for transfer of carcasses include open grasslands and oak/grassland areas where condors can readily detect carcasses and easily land and take off without encountering physical obstacles such as powerlines and other utility structures. The proposed locations would be selected and approved by the CDFW and USFWS. Pursuant to this measure, a telephone number for reporting dead cattle shall be provided and actively maintained. Any cattle carcasses transferred to the relocation areas shall be reported to the USFWS Condor Group.</p> <p>All surfaces on new antennae and phone/utility towers shall be designed and operated with anti-perching devices in conformance with Avian Power Line Interaction Committee standards to deter California condors and other raptors from perching. During construction, the area shall be kept clean of debris (e.g., cable, trash, and construction materials). The Project Applicant/Developer shall collect all microtrash and litter (i.e., anything shiny, such as broken glass), vehicle fluids, and food waste from the Project area on a daily basis. Workers shall be trained on the issue of microtrash: what constitutes microtrash, its potential effects on California condors, and how to avoid the deposition of microtrash.</p>
5.7	<b>Biological Resources</b>	<p><b>MM 7-7</b> The Project shall incorporate avoidance and additional open space buffer features for this tri-colored blackbird nesting area. Permanent impacts will be restricted to a distance of 400 feet from the nesting area. The nesting area will be delineated by a qualified Ornithologist based on all available data (three years of site-specific data shall be used). Temporary impacts (i.e., construction noise) within 400 feet shall be restricted to the non-breeding season. The breeding season for this species shall be considered April 1 through July 1.</p> <p>The Project shall include enhancement, restoration, and/or preservation of potentially suitable tricolored blackbird breeding and foraging habitat. Potentially suitable areas for enhancement and preservation include lower Oso Canyon in close proximity to Cement Plant Road, as well as any other created water bodies as part of the Project Drainage Plan, where feasible. Enhancement factors shall include the creation of bulrush marsh habitat or other substrate known to support breeding tricolored blackbirds; a persistent nearby standing water during the breeding season; and available adjacent foraging habitat with an appropriate food source.</p>
5.7	<b>Biological Resources</b>	<p><b>MM 7-8</b> Project construction activities (including, but not limited to, staging and disturbances to native and nonnative vegetation, structures, and substrates) shall occur outside of the avian breeding season, if feasible, which generally runs from February 1–August 31 (as early as January 1 for some raptors) to avoid take of birds or their eggs. “Take” means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill (California Fish and Game Code, Section 86), and includes take of eggs or young resulting from disturbances that cause abandonment of active nests. Depending on the avian species present, a qualified Biologist may determine that a change in the breeding season dates is warranted.</p> <p>If avoidance of the avian breeding season is not feasible, a qualified Biologist with experience in conducting breeding bird surveys shall conduct weekly bird surveys beginning 30 days prior to the initiation of Project activities, to detect protected native birds occurring in suitable nesting habitat that is to be disturbed and (as access to adjacent areas</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>allows) any other such habitat within 500 feet of the disturbance area. The surveys shall continue on a weekly basis with the last survey being conducted no more than three days prior to the initiation of Project activities. If a protected native bird is found, the Project Applicant/Developer shall delay all Project activities within 300 feet of on- and off-site suitable nesting habitat (within 500 feet for suitable raptor nesting habitat) until August 31. Alternatively, the qualified Biologist could continue the surveys in order to locate any nests. If an active nest is located, Project activities within 300 feet of the nest (within 500 feet for raptor nests) or as determined by a qualified Biological Monitor, must be postponed until the nest is vacated; the juveniles have fledged; and there is no evidence of a second attempt at nesting. Flagging, stakes, or construction fencing shall be used to demarcate the inside boundary of the buffer of 300 feet (or 500 feet) between the Project activities and the nest. Project personnel, including all contractors working on site, shall be instructed on the sensitivity of the area. The Project Applicant/Developer shall provide the Department of Regional Planning with the results of the recommended protective measures described above to document compliance with applicable State and federal laws pertaining to the protection of native birds.</p> <p>If the Biological Monitor determines that a narrower buffer between the Project activities and observed active nests is warranted, he/she shall submit a written explanation as to why (e.g., species-specific information; ambient conditions and birds' habituation to them; and the terrain, vegetation, and birds' lines of sight between the Project activities and the nest and foraging areas) to the Department of Regional Planning and, upon request, the CDFW. Based on the submitted information, the Department of Regional Planning (and the CDFW, if the CDFW requests) will determine whether to allow a narrower buffer.</p> <p>The Biological Monitor shall be present on site during all grubbing and clearing of vegetation to ensure that these activities remain within the Project footprint (i.e., outside the demarcated buffer); to ensure that the flagging/stakes/fencing is being maintained; and to minimize the likelihood that active nests are abandoned or fail due to Project activities. The Biological Monitor shall send weekly monitoring reports to the Department of Regional Planning during the grubbing and clearing of vegetation, and shall notify the Department of Regional Planning immediately if Project activities damage active avian nests.</p>
5.7	<b>Biological Resources</b>	<p><b>MM 7-9</b> A qualified Biologist (retained by the Project Applicant/Developer with selection reviewed by the County) shall conduct a field survey no earlier than 20 days prior to any grading activity that would occur during the breeding season (i.e., April 1 through August 31) of native bat species that potentially utilize the site. This should be done to determine if active roosts of special status bats (such as pallid bat) are present in the applicable habitats on the site (e.g., woodlands). If active roosts are found, construction within 200 feet shall be postponed or halted until the roost is vacated and juveniles are self-sufficient, as determined by the Biologist.</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation																																										
5.7	Biological Resources	<p><b>MM 7-10</b> The Project Applicant/Developer shall preserve grasslands, including native perennial grassland and associated wildflower field vegetation types, at a minimum 2:1 ratio within the approximate 27,408-acre mitigation preserve (see Table A). The Project would impact 6,416 acres of grasslands; therefore, a total of 12,832 acres of grassland mitigation acreage is required to bring impacts to a less than significant level.</p> <p style="text-align: center;"><b>TABLE A GRASSLAND MITIGATION ACREAGES</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Mitigation Area</th> <th>Grasslands</th> <th>Total Acreage</th> </tr> </thead> <tbody> <tr> <td colspan="3"><b>On-site Unimpacted/SEA</b></td> </tr> <tr> <td>On-site Unimpacted/SEA</td> <td style="text-align: center;">1,989</td> <td style="text-align: center;">3,861</td> </tr> <tr> <td style="text-align: right;"><i>Subtotal</i> <i>(Total On-Site Mitigation Area)</i></td> <td style="text-align: center;"><i>1,989</i></td> <td style="text-align: center;"><i>3,861</i></td> </tr> <tr> <td colspan="3"><b>Off-Site Open Space</b></td> </tr> <tr> <td>Area 1</td> <td style="text-align: center;">1,641</td> <td style="text-align: center;">6,417</td> </tr> <tr> <td>Area 2</td> <td style="text-align: center;">1,602</td> <td style="text-align: center;">2,556</td> </tr> <tr> <td>Area 3</td> <td style="text-align: center;">3,059</td> <td style="text-align: center;">4,183</td> </tr> <tr> <td>Area 4</td> <td style="text-align: center;">4,429</td> <td style="text-align: center;">7,319</td> </tr> <tr> <td>Area 5</td> <td style="text-align: center;">643</td> <td style="text-align: center;">643</td> </tr> <tr> <td>Area 6</td> <td style="text-align: center;">1,012</td> <td style="text-align: center;">2,429</td> </tr> <tr> <td style="text-align: right;"><i>Subtotal</i> <i>(Total Off-site Mitigation Area)</i></td> <td style="text-align: center;"><i>12,386</i></td> <td style="text-align: center;"><i>23,547</i></td> </tr> <tr> <td style="text-align: center;"><b>Total Mitigation Area</b></td> <td style="text-align: center;"><b>14,375**</b></td> <td style="text-align: center;"><b>27,408</b></td> </tr> <tr> <td colspan="2">SEA: Significant Ecological Area</td> <td>**Goal for 2:1 Grassland Mitigation is 12,832 Acres</td> </tr> </tbody> </table> <p>Mitigation for loss of those areas modeled as native perennial grassland will provide similar habitat quality as that which was lost. The result shall be native perennial grassland and wildflower field values that are equal to or greater than the overall ecological functions and values of those lost as a result of Project implementation. Preservation shall include dedication and long-term management working towards the goal of a self-sustaining system. Long-term management will include focused major problematic non-native species eradication (e.g., feral pigs) where feasible. Preservation will occur on open space lands on the Project site and on other lands within Tejon Ranch.</p>	Mitigation Area	Grasslands	Total Acreage	<b>On-site Unimpacted/SEA</b>			On-site Unimpacted/SEA	1,989	3,861	<i>Subtotal</i> <i>(Total On-Site Mitigation Area)</i>	<i>1,989</i>	<i>3,861</i>	<b>Off-Site Open Space</b>			Area 1	1,641	6,417	Area 2	1,602	2,556	Area 3	3,059	4,183	Area 4	4,429	7,319	Area 5	643	643	Area 6	1,012	2,429	<i>Subtotal</i> <i>(Total Off-site Mitigation Area)</i>	<i>12,386</i>	<i>23,547</i>	<b>Total Mitigation Area</b>	<b>14,375**</b>	<b>27,408</b>	SEA: Significant Ecological Area		**Goal for 2:1 Grassland Mitigation is 12,832 Acres
Mitigation Area	Grasslands	Total Acreage																																										
<b>On-site Unimpacted/SEA</b>																																												
On-site Unimpacted/SEA	1,989	3,861																																										
<i>Subtotal</i> <i>(Total On-Site Mitigation Area)</i>	<i>1,989</i>	<i>3,861</i>																																										
<b>Off-Site Open Space</b>																																												
Area 1	1,641	6,417																																										
Area 2	1,602	2,556																																										
Area 3	3,059	4,183																																										
Area 4	4,429	7,319																																										
Area 5	643	643																																										
Area 6	1,012	2,429																																										
<i>Subtotal</i> <i>(Total Off-site Mitigation Area)</i>	<i>12,386</i>	<i>23,547</i>																																										
<b>Total Mitigation Area</b>	<b>14,375**</b>	<b>27,408</b>																																										
SEA: Significant Ecological Area		**Goal for 2:1 Grassland Mitigation is 12,832 Acres																																										

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>As outlined in Table A above, the 14,375 acres of grassland preservation will occur in open space areas on site and in the six other areas. A full description of these areas is in PDF 7-2. Many of these grassland areas have been part of the expansive grassland studies conducted for the Project over the course of several years. Detailed plot analysis and modeling show the high level of similarity between these preserved grasslands and the grasslands within the Project impact area. In addition, the grasslands are contiguous with other preserved open space in the region and support other important biological functions (e.g., drainages and local wildlife movement pathways). As a result, the preserved grassland is part of a more watershed-level preservation allowing for long-term sustainment and a total value that is greater than the sum of its parts.</p> <p>The preservation phasing through conservation easements shall be based on the percentage of total area of impact per phase of development, regardless of specific resource impacts. The specific location of the acreage to be dedicated within a particular phase will be chosen to maximize the replacement of resource values lost during that phase of construction while maintaining as much contiguous acreage as possible. In order to preserve an adequate quantity of grassland, lands outside the County of Los Angeles, within the County of Kern, would be used for mitigation. As each phase is proposed, a percentage of the mitigation preserve (which is equivalent to the percentage of that phase's impacts) shall be dedicated concurrent with the entitlement approval of that phase.</p> <p>The open space preserve, including the grasslands within it, shall be preserved in perpetuity to offset Project impacts on native grasslands and wildflower fields prior to issuance of a grading permit for the Project site. The phasing of mitigation has been previously described. The Native Perennial Grassland and Wildflower Field Mitigation Plan will sufficiently offset and fully mitigate the impacts on native grasslands and wildflower fields associated with the Project.</p>
5.7	<b>Biological Resources</b>	<p><b>MM 7-11</b> This measure prescribes mitigation for other special status vegetation types including mixed oak woodland, oak trees, and other riparian and wetland vegetation types. Each of these three vegetation types is discussed separately (native grassland and wildflower fields are addressed in MM 7-10).</p> <p><i>Mixed Oak Woodlands</i></p> <p>The Project Applicant/Developer shall create mixed oak woodlands to achieve resulting vegetation/habitat values. Since there would be approximately 6.2 acres of oak woodland impacts, mitigation will result in the preservation of a minimum of 6.2 acres of mixed oak woodland and creation of a minimum of 6.2 acres of mixed oak woodland, which will include the establishment<sup>3</sup> of 322 oak trees completed as part of oak tree replacement in accordance with the County of Los Angeles oak tree permit requirements (see Oak Trees Section below). Oak trees established in created oak woodlands will be credited towards both oak woodland and oak tree mitigation requirements. If Project impacts are reduced through a reduction in Project disturbance limits in oak woodland areas, required mitigation acreage will be reduced accordingly.</p> <p>In accordance with mitigation options outlined in Section 21083.4 of the <i>California Public Resources Code</i> (PRC), replacement of oak woodlands shall consist of no greater than ½ of the oak woodland mitigation requirement. Therefore, half of the 6.2 oak woodland impact acreage will be mitigated via the alternate option of preservation. The</p>

3 In Biology, “establish”, in this sense, refers to vegetation (including seeds) that has been planted and is becoming a healthy, surviving plant with as much chance to survive as plants that have existed for a long period of time.

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>combined acreage of oak woodland preserved both on site (unimpacted/Significant Ecological Area [SEA]) and within the off-site mitigation areas is 3,102 acres and is expected to substantially exceed the required 50 percent of mitigation as preservation.</p> <p>Mitigation through creation is typically implemented on lands with minimal habitat value (e.g., ruderal vegetation, graded slopes) rather than in areas with a substantial component of existing native vegetation. However, evidence of lack of naturally occurring recruitment on site indicates that the existing woodlands are likely to be eventually replaced by non-woodland vegetation. Based on the lack of naturally occurring replacement trees, it is anticipated that oak woodland planting is necessary to sustain the oak woodlands. Therefore, the goal of oak resource mitigation efforts will be to create and enhance oak woodlands. To maximize potential for success, oak woodlands will be created within and adjacent to the same areas where oak woodlands currently exist. This method will create future generations of oak trees and oak woodland on the site in these areas. Details of the oak woodland mitigation program are described below in items 1-10.</p> <ol style="list-style-type: none"> <li>1. To mitigate for impacts to oak woodland and oak trees, site-specific native acorns will be collected. Acorns will be collected within the watershed area of the Project site to ensure that acorns collected are of a similar genetic stock to those existing on the site. Some acorns will be planted and maintained in containers, and others will be stored and planted directly on site within the Oak Mitigation Areas.</li> <li>2. To maximize oak woodland biological values and the potential for long-term success, some locally collected oak acorns will be planted directly into the ground. These acorns will be planted in appropriate locations in the Oak Mitigation Areas. The locations identified for acorn planting will be reviewed by the County Forester.</li> <li>3. Container plants will be propagated and maintained from locally collected acorns. In this way, more established container plants will be available for mitigation efforts, and they will contain the most suitable genetic variability appropriate for the region to increase mitigation success. The preferred method of propagation will include the establishment of a temporary nursery on the Project site. The nursery will include partial shade areas to reduce water loss and a constant water supply to supplement planted trees. Using the acorns collected from within the watershed area of the Project site, container plantings will be cultivated at this location. Development of trees on site will ensure that they are acclimated to the typical weather conditions at their eventual permanent location. If necessary, and in consultation with the County Forester, acorns collected from the site may be stored or propagated and maintained under contract with a reputable native plant nursery off site.</li> <li>4. To provide overstory, midstory, and understory tree/plant coverage, some container plants and oak trees, grown from locally collected acorns, will be installed in addition to the application of native seed mixes. Since studies indicate that the younger the planting is, the more likely the chance is for successful establishment and long term viability<sup>4</sup> locally collected acorns as well as locally collected, nursery-cultivated young oak trees (one-gallon or five-gallon containers of oaks) would be planted on site.</li> <li>5. The Project Applicant/Developer will provide an annual report to the County that will include an accounting of each of the following in the mitigation areas: (a) the number of acorns planted; (b) the number of germinated acorns</li> </ol>

4 Young and Evans 2000

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>(whether planted or natural) protected; (c) the number of new oak trees planted in mitigation areas, including the species of each tree planted; (d) the caliper of each new tree planted and/or protected; (e) the acreage of woodlands created and/or conserved in the mitigation areas.</p> <p>6. Creation of structurally diverse oak woodland habitat within and contiguous to existing oak woodlands will be accomplished by planting locally collected oak acorns, plus yearly sowings of additional locally collected acorns, as well as, temporary irrigation, weed abatement, pest deterrence, and/or other maintenance tasks as needed to facilitate oak seedling germination and survival.</p> <p>7. Prior to Project grading, locally collected acorns will be planted and grown. Once trees reach a diameter of one inch just above ground surface (i.e., basal height) within the Oak Tree/Oak Woodland Mitigation Areas, they will be appropriated as “mitigation trees” to be used for oak woodland and oak tree permit mitigation purposes with approval from the County Forester as part of the oak woodland and oak tree permit mitigation process and will be credited as a mitigation tree if the tree is determined to be healthy by the Los Angeles County Forester at the end of the monitoring period.</p> <p>8. The required 12.4 acres of mixed oak woodland creation will occur within 473 acres of existing oak woodland (primary area) and 716 acres of adjacent low quality non-native grassland (secondary area, if needed) on the western portion of the Project site. Additional suitable areas may also be identified within reduced grading footprints following final detailed tract map production to the satisfaction of the County Forester. Mitigation planting areas will be refined within the proposed mitigation areas through a multi-variable query of existing Geographical Information System (GIS) data sets, and intensive field analysis to precisely identify suitable planting locations (e.g., localized soil types, microtopography). Created oak woodlands will have an approximate average density of 80 appropriately sized oak trees per acre at the end of the monitoring period (or other density as directed by the County Forester), while staying within the mitigation areas. The contiguity of the created woodland habitat within or adjacent to existing oak woodlands will be ecologically beneficial, and will also improve the logistics of restoration installation, maintenance, and monitoring, compared to a fragmented habitat creation program. These methods will help to ensure the success of created oak woodlands to replace the existing woodlands over time.</p> <p>9. In order to implement the creation of habitat on the site and to ensure the persistence of the overall biological functions and values over time, the Project Applicant/Developer shall submit an Oak Woodland Habitat Mitigation Plan to the County for approval prior to the issuance of a grading permit for each tract map or combination of tract maps. The mitigation approach described in the Plan shall comply with Section 21083.4 of the <i>California Public Resources Code</i> (PRC), which was enacted by California Senate Bill (SB) 1334. County approval of the Plan shall be required prior to the initiation of any clearing or grading on the site that affects any oak woodland vegetation. The Oak Woodland Habitat Mitigation Plan shall be developed by a qualified Restoration Specialist, to be retained by the Project Applicant/Developer, and shall be subject to County approval. The objective of the Oak Woodland Habitat Mitigation Plan will be to preserve 6.2 acres of existing oak woodland and to create 6.2 acres of oak woodland. The Oak Woodland Habitat Mitigation Plan serves the purpose of satisfying the conditions of Section 21083.4 of the <i>California Public Resources Code</i>.</p> <p>10. Implementation of the Oak Woodland Mitigation Plan will be the responsibility of the Project Applicant/Developer or its designated party; the Plan shall specify, the following:</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>a. <b>Personnel:</b> The responsibilities and qualifications of personnel required to implement and supervise the plan will be specified. The responsibilities of the Landowner, County staff, Specialists, and Maintenance Personnel that will supervise and implement the plan will also be included.</p> <p>b. <b>Site Selection:</b> The mitigation site(s) will be determined in coordination with the Project Applicant/Developer and the County. The site(s) will be located in open space areas that will be managed in perpetuity through a conservation easement, open space dedication, performance bond, management at the Tejon Ranch Conservancy, or other method approved by the County.</p> <p>c. <b>Native Species Seed Collection, Site Preparation, and Planting Implementation:</b> Under the supervision of the County Forester, site preparation will include (i) protection of existing native species; (ii) trash and weed removal; (iii) native species salvage and reuse (i.e., duff); (iv) soil treatments (i.e., imprinting, and/or decompacting); (v) erosion-control measures (i.e., rice or willow wattles); (vi) native seed mix application; and (vii) procedures for native seed collection from the site, including acorns of native oak species.</p> <p>d. <b>Schedule:</b> Restoration/revegetation sites will be established between October 1 and January 30. Seeding and planting of container plants will take place immediately after preparation of the mitigation sites and will take place under the supervision of the County Forester.</p> <p>e. <b>Maintenance Plan and Guidelines:</b> The Maintenance Plan, to be approved by the County, will include (i) weed control; (ii) herbivory control (e.g., feral pigs); (iii) trash removal; (iv) irrigation system maintenance; (v) maintenance training; (vi) replacement planting; and (vii) a vehicle washing program to capture invasive propagules. The Maintenance Plan will also indicate who is responsible for each of these listed tasks.</p> <p>f. <b>Monitoring Plan:</b> The monitoring plan, to be approved by the County, will include (i) qualitative monitoring (i.e., photographs and general observations); (ii) yearly quantitative monitoring (i.e., randomly placed transects to assess vegetation type coverage and systematically assess all mitigation oak trees); (iii) performance criteria as approved by the County; and (iv) annual reports that will be submitted to the County for five consecutive years after initial planting (or longer if the County requires) and following plan approval.</p> <p>g. <b>Long-Term Preservation:</b> Long-term preservation of the mitigation site(s) will be outlined in the Restoration Plan to ensure that they are not impacted by future development. An open space dedication, conservation easement, performance bond, management by the Tejon Ranch Conservancy, or other County-approved method will be used to ensure long-term preservation.</p> <p>h. <b>Growth/Vegetation Standards:</b> Growth/vegetation standards will be developed by a qualified Biologist in accordance with County and regulatory agency requirements.</p> <p><i>Oak Trees</i></p> <p>The mitigation approach for replacing lost oak trees shall comply with the County of Los Angeles Oak Tree Ordinance (CLAOTO) requirements. The goal of this program is to replace impacted oak trees at a ratio of 3:1 for non-heritage oaks and 10:1 for heritage oaks in accordance with the County's oak tree permit requirements. This would result in the</p>



**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>establishment of 322 oak trees. However, if Project impacts are reduced through a reduction in Project disturbance limits within oak woodland areas, required tree numbers will be reduced accordingly.</p> <p>Mitigation trees are typically planted on lands with minimal habitat value (e.g., ruderal vegetation, graded slopes) rather than in areas with a substantial component of existing native vegetation. To maximize potential for success, oak trees will be planted in the same areas where oak woodlands currently exist. This method will create future generations of oak trees and oak woodland on the site in these areas and will be done as described in Numbers 1-10 under the "Mixed Oak Woodlands" portion above. Additionally, quantitative tree monitoring data for all mitigation trees (whether for County of Los Angeles Oak Tree Ordinance [CLAOTO] mitigation or oak woodland mitigation) will be submitted to the County Forester yearly and, for convenience, will be included as an appendix to the annual report required in 10(f)(ii) above.</p> <p><i>Other Riparian and Wetland</i></p> <p>In addition, the Project Applicant/Developer shall create, enhance, and/or restore all impacted riparian and wetland vegetation types that are not considered jurisdictional by permitting resource agencies (i.e., those not mitigated through regulatory permit conditions) at a 1:1 ratio. This applies to areas mapped as alluvial scrub; riparian herb; rush riparian grassland; southern arroyo willow riparian; southern willow scrub; unvegetated wash; willow riparian forest; willow riparian woodland; alkali meadow; Baltic rush; and seeps and ephemeral ponds. These areas shall be included in the Streambed and Wetland Habitat Creation and Enhancement Plan discussed in MM 7-12, which shall be approved by the County prior to issuance of grading permits.</p>
5.7	<b>Biological Resources</b>	<p><b>MM 7-12</b> Prior to any fill of or alteration to drainage tributaries, wetlands, and/or riparian vegetation on the Project site, the Project Applicant/Developer shall obtain the appropriate regulatory agency permits and/or agreements from the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the applicable Regional Water Quality Control Board (RWQCB). The Project Applicant/Developer shall comply with all mitigation measures specified in the regulatory agency permits and/or agreements. Pursuant to the permit requirements, the Project Applicant/Developer will develop a Storm Water Pollution Prevention Plan (SWPPP) that incorporates Best Management Practices (BMPs) for reducing or eliminating construction-related pollutants in the site runoff.</p> <p>The Project is subject to the following Mitigation Performance Standards: As anticipated to be required by USACE, CDFW, and Regional Water Quality Control Board (RWQCB) regulatory permits, the Project Applicant/Developer shall create, enhance, and/or restore acreage to ensure that net habitat values are at least equal to those lost from Project implementation. Mitigation ratios are typically specified in the regulatory permits. However, if mitigation is conducted prior to impacts taking place, mitigation ratios can be pro-rated; this type of mitigation pro-rating allows time to evaluate if created, enhanced, and/or restored habitat values are at least equal to those that will eventually be lost from Project implementation. Under this scenario, it can be verified that the restoration/creation goals have been accomplished or are proceeding satisfactorily.</p> <p>The extent of drainages and wetlands that would be preserved under the Project will provide opportunities to expand and enhance the drainages, wetlands, and riparian vegetation on the Project site.</p> <p>As discussed previously, a wetland functional assessment of the drainages and other aquatic features in the Project site was conducted by Glenn Lukos Associates in 2006 and 2009 in order to characterize and evaluate the functions of the</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>site’s drainages and riparian habitats (GLA 2009a). An update to that functional assessment was conducted in 2015 (BonTerra Psomas 2015a). Overall, aquatic resources on the site were evaluated in terms of Functional Capacity Units (FCU), which indicate more specifically the mitigation level necessary to restore riparian functions after Project implementation by providing a measure of the ability of a wetland area to perform typical wetland functions.</p> <p>The purpose of the mitigation is to replace lost habitat value, as measured in FCU rather than based on a standard acreage ratio. Mitigation will include a combination of on-site and off-site preservation of jurisdictional resources; on-site and off-site enhancement/restoration of preserved jurisdictional resources in order to increase overall functional capacity; and the creation (expansion) of riparian/wetland habitats along degraded drainages, including Oso Creek and two of its tributaries in addition to the three other drainages (including the main drainage located along and immediately north of State Route [SR] 138).</p> <p>The direct and indirect loss in on-site functional units will be mitigated through passive enhancement of open space areas, active enhancement of 6.5 acres of wetland, and creation of approximately 78.4 acres of wetland/riparian habitat (GLA 2009a). Following implementation of mitigation, the Project provides approximately 4,748.5 FCUs. Therefore, the proposed mitigation will result in a functional gain of 327.5 FCUs, thereby ensuring a net increase in functionality in the post-Project condition (GLA 2009a). In summary, implementation of the proposed jurisdictional resource mitigation will actually result in a net gain in the measurable functional capacity and therefore, the habitat values, of the on-site and off-site drainages and other aquatic features.<sup>5</sup></p> <p>To implement the creation/restoration/enhancement of streambed/wetland habitats on the site, the Project Applicant/Developer shall develop a Streambed and Wetland Habitat Creation and Enhancement Plan commensurate with regulatory agency permits and/or agreements. The purpose of this plan is to demonstrate the feasibility of creating the required mitigation acreage and to ensure that the overall biological functions and values are increased. The plan shall be developed by a qualified Restoration Specialist and shall be submitted to the County for approval. The Streambed and Wetland Habitat Creation and Enhancement Plan shall specify the following:</p> <ol style="list-style-type: none"> <li>a. <b>Personnel:</b> Responsibilities and qualifications of the personnel required to implement and supervise the plan will be specified. The responsibilities of the Landowner, Specialists, and Maintenance Personnel that will supervise and implement the plan will also be included.</li> <li>b. <b>Site Selection:</b> The sites for mitigation will be determined through coordination between the Project Applicant/Developer, the USACE, the CDFW, the applicable RWQCB, and the County.</li> <li>c. <b>Site Preparation and Planting Implementation:</b> Site preparation will include: (1) protection of existing native species; (2) trash and weed removal; (3) native species salvage and reuse (i.e., duff); (4) soil treatments (i.e., imprinting and/or decompacting); (5) erosion-control measures (i.e., rice or willow wattles); (6) seed mix application and quantities; and (7) procedures for seed collection from existing habitat on the site.</li> <li>d. <b>Schedule:</b> Establishment of restoration/revegetation sites will be conducted between October 1 and January 30. Seeding and planting of container plants will take place immediately after preparation of the restoration sites.</li> </ol>

5 For information about the functional values of the impacted jurisdictional resources and proposed mitigation areas, see GLA 2009b in Appendix 5.7-B.

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>e. <b>Maintenance Plan/Guidelines:</b> The maintenance plan will include (1) weed control; (2) herbivory control; (3) trash removal; (4) irrigation system maintenance; (5) maintenance training; (6) replacement planting; and (7) vehicle washing program to capture invasive propagules.</p> <p>f. <b>Monitoring Plan:</b> The monitoring plan will include (1) qualitative monitoring (i.e., photographs and general observations); (2) quantitative monitoring (i.e., randomly placed transects); (3) performance criteria, as approved by the USACE, the CDFW, and the applicable RWQCB; (4) biannual reports (i.e., two reports the first year) for the first year will be submitted to the USACE, the CDFW, the applicable RWQCB; and (5) annual reports, which will be submitted to all three agencies and the County for an additional four years after initial planting. The monitoring is planned for five years, but may be shorter or longer depending upon the performance of the mitigation sites.</p> <p>g. <b>Long-Term Preservation:</b> Long-term preservation of the mitigation sites will be outlined in the mitigation plan to ensure that they are not impacted by future development. An open space dedication, conservation easement, performance bond, management by the Tejon Ranch Conservancy, or other County-approved method will be used to ensure long-term preservation.</p> <p>h. <b>Performance Standards:</b> These will be developed by conducting a biological functions and values assessment (using an accepted method such as Hydrogeomorphic Modeling [HGM]) to establish a baseline for the overall biological value of the affected streambeds and riparian areas on the site. Revegetation will be considered successful at five years if the percent cover and species diversity of the restored and/or created habitat areas are similar to percent cover and species diversity of adjacent existing habitats, as determined by quantitative testing of existing, restored, and created habitat areas. Contingency measures shall also be described in the event that mitigation efforts are not successful.</p> <p>i. <b>Cattle Exclusion Methods:</b> Measures to exclude cattle from habitat creation areas and enhancement areas (where applicable) shall be identified and described.</p> <p>j. <b>Funding:</b> The funding source(s) for all proposed mitigation actions shall be identified.</p> <p>The Streambed and Wetland Habitat Creation and Enhancement Plan shall be subject to approval by the County, the USACE, the CDFW, and the applicable RWQCB for impacts within the respective jurisdictional areas of these agencies. If pro-rated mitigation ratios are used, it shall be demonstrated that the mitigation performance standards have been accomplished. The accomplishment shall be verified by the USACE, the CDFW, and the applicable RWQCB based on the performance standards established above prior to the County's issuance of a grading permit. Implementation of these mitigation measures may serve the dual purpose of satisfying the conditions (or a portion of the conditions) of the agreements/permits of the USACE, the CDFW, and the applicable RWQCB.</p>
5.7	<b>Biological Resources</b>	<p><b>MM 7-13</b> The Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County Biologist, which includes a plant palette composed of non-invasive species that are adapted to the conditions found on the Project site and do not require high irrigation rates. The Landscaping Plan will also include a list of invasive plant species prohibited from being planted on the Project site. In addition, retail sales of these invasive plant species will be prohibited at any businesses (nurseries) located within the Project site. Landscape plans shall encourage planting of local natives typical of native vegetation within ten miles of the Project site.</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>The Homeowners Association shall supply future residents of the Project site with the list of invasive plant species from the Landscaping Plan that will be prohibited from being planted on the Project site and educational materials that emphasize the importance of adhering to the list. A list of local native plants shall be provided to homeowners.</p>
5.7	<b>Biological Resources</b>	<p><b>MM 7-14</b> The designated SR-138 underpass shall be located where the highway crosses the Project's western border near the current intersection with Cement Plant Road. The width of the underpass shall be 100 feet and shall flare out on both sides of the highway to a 150-foot width in the Project open space adjacent to the highway. These specifications are expected to allow some local wildlife to safely pass between open space areas on opposite sides of the highway.</p> <p>In addition, a 50-foot open space buffer will be incorporated on the eastern and western sides of Cement Plant Road; this buffer shall be from the southern side of the bridge that spans the California Aqueduct to the nearest open space polygon that meets the property edge. The undeveloped 50-foot buffer shall run parallel with the Aqueduct along its southern bank. This buffer may be temporarily disturbed during construction, but shall be retained as greenspace to increase connectivity for local wildlife between open space areas and potential Aqueduct crossing locations.</p>
5.7	<b>Biological Resources</b>	<p><b>MM 7-15</b> Waste and recycling receptacles that discourage foraging by wildlife species adapted to urban environments shall be installed by the Project Applicant/Developer in common areas (i.e., any area where public trash receptacles would be placed, such as parks, sidewalks, community centers, and walking trails) throughout the Project site. Documentation of the completion of this measure shall be submitted to the County prior to occupation of housing units.</p> <p>The Homeowners Association shall supply an educational pamphlet to future residents of the Project site regarding: the importance of not feeding wildlife; information stating that trash (containing food) and microtrash that could potentially attract condors should not be accessible to wildlife; the necessity of keeping the ground free of fallen fruit from trees; and instructions about not leaving pet food outside.</p>
5.7	<b>Biological Resources</b>	<p><b>MM 7-16</b> All landscaping materials (including organic mulches) for common/public areas (i.e., parks and intervening unpaved areas which are not a part of any homeowner's parcel) shall be inspected and certified by landscape suppliers as being "free" of Argentine ants prior to planting. Additionally, container plants and other landscaping materials to be installed within common/public areas within 200 feet of the open space areas shall be inspected by a qualified restoration specialist for the presence of Argentine ants. Plants or other materials with Argentine ants shall be rejected.</p> <p>Upon initiating landscaping within a development area, quarterly monitoring shall be initiated for Argentine ants along the development/construction-open space interface at sentinel locations where invasions could occur (e.g., where moist microhabitats that attract Argentine ants may be created). A qualified biologist shall determine the monitoring locations. Ant pitfall traps will be placed in these sentinel locations and operated on a quarterly basis to detect invasion by Argentine ants. If Argentine ants are detected during monitoring, direct control measures will be implemented immediately to help prevent the invasion from worsening.</p> <p>These direct controls may include but are not limited to nest/mound insecticide treatment, or available natural control methods being developed. A general reconnaissance of the infested area would also be conducted to identify and correct the possible source of the invasion, such as uncontrolled urban runoff, leaking pipes, or collected water. Each site visit shall be followed up with a summary monitoring report sent electronically to Applicant indicating the status of the site. Monthly monitoring reports, as needed, shall be submitted to CDFG and the County of Los Angeles).</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>Monitoring reports shall include remedial recommendations and issue resolution discussions when necessary. Monitoring and control of Argentine ants would occur for a 5-year period. After the first 5 years, the Homeowners Association or other entity will be responsible for controlling Argentine ants. Additionally, to further guard against Argentine ants, the Homeowners Association shall discourage irrigated landscape planting through distribution of educational information and other feasible methods to reduce the potential for importing Argentine ants.</p> <p>To preclude the invasion of Argentine ants into preserved populations of round leaved filaree and crownscale and their associated buffers, controls will be implemented using an integrated pest management (IPM) approach. The controls include (1) Providing "dry zones" between development and round leaved filaree and crownscale populations, where typical soil moistures are maintained at levels below about 10% soil saturation, which will deter the establishment of nesting colonies of ants; and providing dry zone buffers of sufficient width to reduce the potential for Argentine ant activity within core habitat areas; (2) Where feasible, and/or appropriate, dry areas such as parking lots and roadways shall be built adjacent to the boundaries of these populations; (3) designing adjacent areas to slope away from the preserved populations to avoid runoff entering the area; (4) Pedestrian pathways placed next to preserve populations shall consist of decomposed granite or other gravel to minimize the holding of moisture, thereby preventing establishment of suitable habitat for Argentine ant colonies; (5) Ensuring that landscape container plants installed within 200 feet of preserved populations are ant free prior to installation to reduce the chance of colonies establishing in areas close to the preserved populations; (6) Maintaining natural hydrological conditions in the preserved populations areas, including the buffers, through project design features for roadways, French drains, irrigation systems, underground utilities, drainage pipes and fencing, storm drains, and any other BMP measures that apply to surface water entering the preserved populations areas; (7) Using drought resistant plants in fuel modification zones and minimizing irrigation to the extent feasible.</p>
5.7	<b>Biological Resources</b>	<p><b>MM 7-17</b> The Project Applicant/Developer shall implement a public awareness program (prior to the first occupancy permit) in an effort to restrict public access to the riparian and open space areas on the Project site to designated trails and to prevent unleashed domestic animals from entering these areas. This program shall include signs that identify the boundaries of ecologically sensitive areas; the use of temporary fencing around sensitive areas that appear to be receiving a high level of disturbance until the disturbance is reversed; and promotion of public education and awareness of such areas. The Project Applicant/Developer shall be responsible for the initial development of the public awareness program and installation of interpretive signs and fencing. The Homeowners Association, the Project Applicant/Developer, or an acceptable Land Manager/Agency (as approved by the County) shall be responsible for maintaining this program, including signs and fencing.</p> <p>Only passive recreational activities shall be permitted within the designated natural open space areas and shall be restricted to trails. Some areas may allow slightly greater impacts if designated as picnic and/or camping areas.</p> <p>All dogs shall be required to be leashed while in the designated natural open space areas. In addition, all dogs and cats shall be required to be neutered or spayed; all dogs shall be required to have a microchip; and potential owners shall show evidence prior to entry into the Centennial Development, as required by Los Angeles County Code (Section 10.20.350).</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.7	<b>Biological Resources</b>	<p><b>MM 7-18</b> Common area landscaping and restoration methods shall follow protocols to reduce the potential for the introduction of pathogens and pests into the Project site and to reduce the spread of pathogens and pests outside the Project site (should they inadvertently be introduced). Protocols for reducing the potential for introduction of pathogens and pests into the site via plant foliage/soil from nurseries supplying the material shall include the following anti-contamination procedures: sanitizing all containers, tools, and footwear (boots, pots, clippers, soil scoops, shovels) in soil potting areas; sanitizing all transplanting and prep tables; sanitizing plant storage locations (e.g., benches); sanitizing plant transportation devices (e.g., carts); sanitizing floor surfaces where plants are stored on a regular basis; and using anti-splash watering methods for particularly susceptible plant species. Field installation crews shall sanitize all tools and footwear during landscaping and restoration activities prior to using them or entering the site and shall install plants in a way that minimizes conditions that support pathogens and pests (e.g., minimizing standing water). All plant materials brought onto the site will be inspected by landscape/restoration personnel familiar with signs of pathogen and pest infestation. Should pathogens or pests be detected, the infected material shall be bagged, secured, and disposed of off-site to a contained location. Long-term control methods shall include monitoring to examine vegetation and surrounding areas for pests to evaluate trends and to identify when controls are needed; establishing action thresholds that trigger control actions; and implementing pest control methods—cultural, mechanical, environmental, and biological—and appropriate pesticides.</p>
5.7	<b>Biological Resources</b>	<p><b>MM 7-19</b> Prior to vegetation clearing or grading, additional surveys shall be performed to confirm that all oak trees within the impact and buffer areas are recorded. The Project Applicant/Developer will be required to comply with all mitigation measures stipulated in the County-issued Oak Tree Permit pursuant to the County of Los Angeles Oak Tree Ordinance (CLAOTO) and the <i>County of Los Angeles Oak Woodlands Conservation Management Plan</i> (OWCMP). Trees would be planted pursuant to the Oak Woodland Restoration Plan discussed in MM 7-11.</p>
5.7	<b>Biological Resources</b>	<p><b>MM 7-20</b> All oak tree driplines within 50 feet of land clearing (including brush clearing) or areas to be graded shall be enclosed with temporary fencing for the duration of the clearing or grading activities. Fencing shall extend to the root protection zone (RPZ) (that area at least 15 feet from the trunk or half again as large as the distance from the trunk to the dripline, whichever is greater). No parking or storage of equipment, solvents, or chemicals that could adversely affect the trees shall be allowed within 25 feet of the trunk at any time. Fence removal shall occur only after the Project Biologist confirms the health of preserved trees.</p> <p>All upslope grading and drainage shall be engineered to minimize resultant erosion, soil compaction, or drainage into preserved oak tree areas. Whenever possible, utilities shall be designed to avoid crossing under the canopies of preserved trees unless the utilities are installed by drilling under the root zones (where feasible) in order to avoid impacts associated with cutting roots. Feasibility of drilling under trees will be based on soil conditions. Utilities will be clustered whenever possible to lessen impacts to oak RPZs.</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.7	<b>Biological Resources</b>	<b>MM 7-21</b> In order to ensure that no direct impacts to Significant Ecological Area (SEA) 17 occur, brush clearance zones shall be contained within the current Project impact boundary and no overlap with the adjacent SEA 17 shall occur. Vegetation management for fire abatement purposes is not authorized in SEA areas. An Implementation Plan, including fire risk abatement measures (including but not limited to vegetation management) required to comply with State and County fire prevention and response legal requirements, shall be submitted as part of the tentative tract map for portions of the Project site that border an SEA or mitigation preserve area. The Plan shall include this prohibition on vegetation clearance within these biologically sensitive areas.
5.7	<b>Biological Resources</b>	<b>MM 7-22</b> If a golf course is developed as part of Project implementation, the Project Applicant/Developer shall prepare a Golf Course Management Plan that requires any golf course developed on the site to be built and managed in accordance with the Audubon Cooperative Sanctuary Program for Golf Courses (or equivalent), which is a cooperative effort between the United States Golf Association and Audubon International that is designed to promote ecologically sound land management and to conserve natural resources.
5.10	<b>Traffic, Access and Circulation</b>	<b>MM 10-1</b> The Project shall provide internet infrastructure and a community intranet with access for homeowners associations; interest groups; local event scheduling; schools, library, carpool and transit services; and other on-site entertainment and amenities for residential land uses. The internet and intranet will reduce the need for people to use automobile travel to obtain the information that is provided by both. The intranet shall also provide education about greenhouse gas (GHG) emissions; GHG reduction opportunities; energy and water conservation opportunities; financial incentives (e.g., rebates and low-interest loans) for energy-efficiency improvements; and energy-efficiency technology systems, including those suitable for large commercial and industrial users.
5.10	<b>Traffic, Access and Circulation</b>	<b>MM 10-2</b> The Project Applicant/Developer shall submit a traffic study that addresses site access and local circulation in accordance with the County of Los Angeles Department of Public Works Traffic Impact Analysis Report Guidelines. The Project Applicant/Developer shall retain a Traffic Engineer or Civil Engineer licensed in the State of California to perform the traffic study to the satisfaction of the County.
5.10	<b>Traffic, Access and Circulation</b>	<b>MM 10-3</b> The Project Applicant/Developer shall seek to enter into a Centennial Transportation Improvement Program (CTIP) for Land Development Impacts to California State Transportation Facilities with Caltrans and shall comply with the terms the CTIP agreement if approved and implemented. Compliance with the CTIP shall constitute compliance with the mitigation measures for the Project's traffic impacts on the State highway system. Any required improvements that result from direct Project impacts (i.e. not from cumulative impacts), and are required on Caltrans-owned facilities, shall be implemented through a CTIP. Any required improvements that result from cumulative traffic impacts may be implemented through payment of fair share fees.

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.10	Traffic, Access and Circulation	<p><b>MM 10-4</b> The Project Applicant/Developer will work with the County and/or Caltrans to establish a Traffic Mitigation Fee Program or an assessment district (an example of such is the Bridge and Thoroughfare District pursuant to <i>California Government Code</i>, Sections 66484 et seq.) or other equivalent program. Such a program or assessment district will mitigate vehicular trips related to new development accessing the SR-138 corridor between I-5 and SR-14 by establishing a fair share contribution from such new development to ensure the SR-138 needed improvements are fully funded. These fees shall be used for the needed improvements and may include the cost of engineering, soils analysis, right-of-way acquisition, demolition, relocation, construction, inspection, and other related expenses.</p>
5.10	Traffic, Access and Circulation	<p><b>MM 10-5</b> The Project Applicant/Developer shall submit Traffic Management Plans to the County for review and approval. The Traffic Management Plans shall describe traffic-control measures that shall be implemented to maintain traffic flow in all directions, including where utilities and other improvements are being implemented in existing roadways. The Traffic Management Plans shall identify the following: construction haul routes; duration and location of lane closures; location of parking for the public and construction workers during construction phases; use of flag persons; and any pedestrian-related impacts to sidewalks and intersection crossings. The Traffic Management Plan shall be implemented during all stages of Project construction that generate traffic impacts.</p>
5.10	Traffic, Access and Circulation	<p><b>MM 10-6</b> (<i>Traffic Study MM-1</i>) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP to improve SR-138 to a four lane expressway from I-5 to 190th Street West, with right-of-way reserved for a six-lane expressway between I-5 and 300th Street West, or comparable improvements consistent with the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).</p>
5.10	Traffic, Access and Circulation	<p><b>MM 10-7</b> (<i>Traffic Study MM-2</i>) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at Specific Plan Westerly Access and SR-138:</p> <ul style="list-style-type: none"> <li>• Widen SR-138 to a four-lane highway from westerly project entrance to 290<sup>th</sup> Street West, with auxiliary lanes between intersections, resulting in three through lanes in the WB and EB directions.</li> <li>• Construct intersection to include: two NB left-turn lanes, three NB through lanes and one NB right-turn lane.</li> <li>• In the SB direction, construct two left turn lanes, three through lanes and one free-flow right-turn lane.</li> <li>• In the EB direction, construct three left-turn lanes and one right-turn lane.</li> <li>• In the WB direction, construct two left-turn lanes and a free-flow right-turn lane.</li> <li>• Install traffic signal.</li> </ul> <p>Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).</p>



**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.10	Traffic, Access and Circulation	<p><b>MM 10-8</b> (<i>Traffic Study MM-3</i>) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at Specific Plan Central Access and SR-138:</p> <ul style="list-style-type: none"> <li>• Widen SR-138 to a four-lane highway from westerly project entrance to 290<sup>th</sup> Street West, with auxiliary lanes between intersections, resulting in three through lanes in the WB and EB directions.</li> <li>• In the NB and SB directions, construct two left-turn lanes, three through lanes and one right-turn lane.</li> <li>• In the EB direction, construct two left-turn lanes and one right-turn lane.</li> <li>• In the WB direction, construct two left-turn lanes and a free-flow right-turn lane.</li> <li>• Install traffic signal and include SB and NB right-turn overlap phasing.</li> </ul> <p>Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).</p>
5.10	Traffic, Access and Circulation	<p><b>MM 10-9</b> (<i>Traffic Study MM-4</i>) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 300<sup>th</sup> Street West and SR-138:</p> <ul style="list-style-type: none"> <li>• Widen SR-138 to a four-lane highway from westerly project entrance to 290<sup>th</sup> Street West, with auxiliary lanes between intersections, resulting in three through lanes in the WB and EB directions.</li> <li>• Construct two left-turn lanes and one right-turn lane in the EB direction and two left-turn lanes and dual right-turn lanes in the WB direction.</li> <li>• In the NB direction, construct two left-turn lanes, three through lanes, and one right-turn lane.</li> <li>• In the SB direction, construct two left turn lanes, three through lanes and one free-flow right-turn lane.</li> <li>• Install traffic signal and include WB right-turn overlap phasing.</li> </ul> <p>Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).</p>
5.10	Traffic, Access and Circulation	<p><b>MM 10-10</b> (<i>Traffic Study MM-5</i>) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 290<sup>th</sup> Street West and SR-138:</p> <ul style="list-style-type: none"> <li>• Widen SR-138 to a four-lane highway from westerly project entrance to 290<sup>th</sup> Street West, with auxiliary lanes between intersections, resulting in three through lanes in the WB and EB directions.</li> <li>• Additional intersection improvements include: two EB left turn lanes, one WB right-turn lane, two SB left turn and two SB right-turn lanes.</li> <li>• Install traffic signal.</li> </ul> <p>Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.10	Traffic, Access and Circulation	<p><b>MM 10-11</b> (<i>Traffic Study MM-6</i>) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at Margalo Drive and SR-138:</p> <ul style="list-style-type: none"> <li>• Widen SR-138 to a four-lane highway from 290<sup>th</sup> Street West to 190<sup>th</sup> Street West with roadway augmentation at intersection, approximately ¼ mile in length for the west and east legs resulting in three through lanes in the WB and EB directions.</li> <li>• Additional intersection improvements include: one EB left turn lane and one WB right-turn lane.</li> <li>• Install traffic signal.</li> </ul> <p>Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).</p>
5.10	Traffic, Access and Circulation	<p><b>MM 10-12</b> (<i>Traffic Study MM-7</i>) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at Three Points and SR-138:</p> <ul style="list-style-type: none"> <li>• Widen SR-138 to a four-lane highway from 290<sup>th</sup> Street West to 190<sup>th</sup> Street West with roadway augmentation at intersection, approximately ¼ mile in length for the west and east legs resulting in three through lanes in the WB and EB directions.</li> <li>• Additional improvements include adding one NB left-turn lane and one SB left turn lane.</li> </ul> <p>Or contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).</p>
5.10	Traffic, Access and Circulation	<p><b>MM 10-13</b> (<i>Traffic Study MM-8</i>) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 245<sup>th</sup> Street West and SR-138:</p> <ul style="list-style-type: none"> <li>• Widen SR-138 to a four-lane highway from 290<sup>th</sup> Street West to 190<sup>th</sup> Street West with roadway augmentation at intersection, approximately ¼ mile in length for the west and east legs resulting in three through lanes in the WB and EB directions.</li> <li>• Additional improvements include adding one NB left-turn lane and one SB left turn lane and one dedicated EB right-turn lane.</li> <li>• Install traffic signal.</li> </ul> <p>Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).</p>
5.10	Traffic, Access and Circulation	<p><b>MM 10-14</b> (<i>Traffic Study MM-9</i>) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 230<sup>th</sup> Street West and SR-138:</p> <ul style="list-style-type: none"> <li>• Widen SR-138 to a four-lane highway from 290<sup>th</sup> Street West to 190<sup>th</sup> Street West.</li> <li>• Additional improvements include one SB left-turn lane, one SB right-turn lane and one EB left-turn lane.</li> </ul> <p>Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.10	Traffic, Access and Circulation	<p><b>MM 10-15</b> (<i>Traffic Study MM-10</i>) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 190<sup>th</sup> Street West and SR-138:</p> <ul style="list-style-type: none"> <li>• Widen SR-138 to a four-lane highway from 290<sup>th</sup> Street West to 190<sup>th</sup> Street West with roadway augmentation at intersection, approximately ¼ mile in length for the west and east legs resulting in three through lanes in the WB and EB directions.</li> <li>• Additional improvements include adding one EB left-turn lane, one WB left-turn lane, one NB left-turn lane and one SB left turn lane and one dedicated EB right-turn lane.</li> <li>• Install traffic signal.</li> </ul> <p>Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).</p>
5.10	Traffic, Access and Circulation	<p><b>MM 10-16</b> (<i>Traffic Study MM-11</i>) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 170<sup>th</sup> Street West and SR-138:</p> <ul style="list-style-type: none"> <li>• Roadway augmentation at intersection, approximately ¼ mile in length for the east and west legs, resulting in 2 through lanes in the WB and EB directions at the intersection.</li> <li>• Additional improvements include one EB left-turn lane, one WB left-turn lane, one NB left-turn lane and one SB left-turn lane.</li> </ul> <p>Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).</p>
5.10	Traffic, Access and Circulation	<p><b>MM 10-17</b> (<i>Traffic Study MM-12</i>) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 110<sup>th</sup> Street West and SR-138:</p> <ul style="list-style-type: none"> <li>• Roadway augmentation at intersection, approximately ¼ mile in length for the east and west legs, resulting in 2 through lanes in the WB and EB directions at the intersection.</li> <li>• Additional improvements include: one EB left-turn lane, one WB left-turn lane, two NB left-turn lanes, one SB left-turn lane and two SB right-turn lanes.</li> <li>• Install traffic signal.</li> </ul> <p>Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).</p>
5.10	Traffic, Access and Circulation	<p><b>MM 10-18</b> (<i>Traffic Study MM-13</i>) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 90<sup>th</sup> Street West and SR-138:</p> <ul style="list-style-type: none"> <li>• Roadway augmentation at intersection, approximately ¼ mile in length for the east and west legs, resulting in 2 through lanes in the WB and EB directions at the intersection.</li> <li>• Additional improvements include: one EB left-turn lane, one WB left-turn lane, one NB left-turn lane and one SB left-turn lane.</li> </ul>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).
5.10	<b>Traffic, Access and Circulation</b>	<p><b>MM 10-19</b> (<i>Traffic Study MM-14</i>) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 60th Street West and SR-138:</p> <ul style="list-style-type: none"> <li>• Roadway augmentation at intersection, approximately ¼ mile in length for the east and west legs, resulting in 2 through lanes in the WB and EB directions at the intersection.</li> <li>• Additional improvements include: one EB left-turn lane, one WB left-turn lane, one NB left-turn lane and one SB left-turn lane.</li> <li>• Install traffic signal.</li> </ul> <p>Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).</p>
5.10	<b>Traffic, Access and Circulation</b>	<p><b>MM 10-20</b> (<i>Traffic Study MM-15</i>) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 30th Street West and SR-138:</p> <ul style="list-style-type: none"> <li>• Roadway augmentation at intersection, approximately ¼ mile in length for the east and west legs, resulting in 2 through lanes in the WB and EB directions at the intersection.</li> <li>• Additional improvements include adding one EB left-turn lane and one WB left-turn lane.</li> </ul> <p>Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).</p>
5.10	<b>Traffic, Access and Circulation</b>	<p><b>MM 10-21</b> (<i>Traffic Study MM-16</i>) To provide adequate capacity at the I-5/SR-138 interchange, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the following ramp improvement at I-5/SR-138:</p> <ul style="list-style-type: none"> <li>• Addition of one auxiliary lane at the connector ramp from westbound SR-138 to southbound I-5 for existing plus Project conditions.</li> </ul>
5.10	<b>Traffic, Access and Circulation</b>	<p><b>MM 10-22</b> (<i>Traffic Study MM-17 and MM-34</i>) To provide adequate capacity at The Old Road at I-5 SB Ramps/Sedona intersection, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the addition of a second southbound left-turn lane from The Old Road to the I-5 Southbound On-Ramp.</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.10	Traffic, Access and Circulation	<p><b>MM 10-23</b> (<i>Traffic Study MM-18</i>) To mitigate the increase of side-street delay for the existing adjacent off-site areas and for planned on-site side streets along SR-138, the Project Applicant/Developer shall either (1) comply with the terms of the Centennial Transportation Improvement Program (CTIP) or (2) dedicate right-of-way within the project site at each site access location to accommodate the ultimate intersection or interchange configuration to be determined by the Northwest Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative) at the following SR-138 intersections:</p> <ul style="list-style-type: none"> <li>• Westerly Access</li> <li>• Central Access</li> <li>• 300<sup>th</sup> Street West</li> <li>• 290<sup>th</sup> Street West</li> </ul>
5.10	Traffic, Access and Circulation	<p><b>MM 10-24</b> (<i>Traffic Study MM-19</i>) To provide adequate on- and off-site capacity, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the widening of SR-138, including:</p> <ul style="list-style-type: none"> <li>• Addition of an auxiliary lane in each direction (six lanes total) from I-5 to 300<sup>th</sup> Street West</li> </ul>
5.10	Traffic, Access and Circulation	<p><b>MM 10-25</b> (<i>Traffic Study MM-20</i>) To provide adequate on- and off-site capacity, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the widening of SR-138, including:</p> <ul style="list-style-type: none"> <li>• Addition of an auxiliary lane in each direction (six lanes total) from 300<sup>th</sup> Street West to 245<sup>th</sup> Street West</li> </ul>
5.10	Traffic, Access and Circulation	<p><b>MM 10-26</b> (<i>Traffic Study MM-21 and MM-26</i>) To provide adequate capacity to the I-5 mainline freeway, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding towards RTP/SCS improvement projects on SR-58 between I-5 in Kern County and I-15 in San Bernardino County, as verified by the County in consultation with the Kern COG and Caltrans. Improvements could include development of a high capacity goods movement facility along the SR-58 and/or E-220 corridors.</p>
5.10	Traffic, Access and Circulation	<p><b>MM 10-27</b> (<i>Traffic Study MM-22</i>) To provide adequate capacity on SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for the SR-138 improvements to a limited access facility with grade-separated interchanges, consistent with the County's analysis of the AVAP, or fair share participation and/or contribution to the SR-138 improvements (freeway/expressway or expressway/limited access conventional highway) being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).</p>
5.10	Traffic, Access and Circulation	<p><b>MM 10-28</b> (<i>Traffic Study MM-23</i>) To provide adequate capacity to the I-5 mainline freeway, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding towards the following planned improvements to I-5:</p> <ul style="list-style-type: none"> <li>• I-5 between Fort Tejon and Grapevine Road and between SR-138 and Lake Hughes Road interchanges: Strengthening and widening the inside and outside shoulders of I-5.</li> </ul>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
.10	<b>Traffic, Access and Circulation</b>	<p><b>MM 10-29</b> (<i>Traffic Study MM-24</i>) The Project Applicant/Developer shall implement the Mobility Plan, included as Section 3.2 of the Specific Plan, which provides an extensive system of sidewalks, greenway trails, community trails, and two transit hubs to serve as alternative means of transportation on the Project site. The Mobility Plan also requires creation and ongoing operation of a Transportation Management Association (TMA) to implement ongoing transportation improvements and programs.</p> <p>The Project Applicant/Developer, through the required implementation of the Mobility Plan, shall:</p> <ul style="list-style-type: none"> <li>• Reinforce and serve the Land Use Plan;</li> <li>• Provide residents and employees with multiple modes of accessibility for internal and external trips by future residents and visitors;</li> <li>• Provide options to reduce vehicle trips and emissions by linking effective travel demand management with transportation systems and parking policies;</li> <li>• Provide residents and employees on the Project site with multiple modes of transportation;</li> <li>• Provides for 80 percent on average, but no less than 50 percent of residential units to be located within one-half mile of a Village center that includes retail and service uses;</li> <li>• Provide parks within a 5-minute walk (0.25 mile) of 80 percent of all residential units;</li> <li>• Require TMA implementation of combination of transit and transportation measures to reduce on-site single-occupancy automobile use by 30 percent in relation to standard ITE-generation rates for the overall Project; and</li> <li>• Require TMA implementation of a combination of measures to reduce off-site peak hour commutes to and from the Project site in single-occupancy automobiles by 20 percent.</li> <li>• Require TMA implementation of a program to coordinate with automotive dealers on the Project site to promote CNG, electric, and hybrid electric vehicles.</li> <li>• Require TMA oversight of requirement for service fleet vehicles for agencies or businesses located on-site to be alternative fuel vehicles to the maximum extent feasible, as determine by the Project Applicant/Developer.</li> </ul> <p>The Circulation Plan sets forth requirements for roadway classifications; intersection controls; and traffic calming measures. Where approved by the California Department of Transportation (Caltrans) and the County and where maintenance and durability costs are comparable to traditional materials, use "cool" pavement materials, which reduce heat island effect.</p>
5.10	<b>Traffic, Access and Circulation</b>	<p><b>MM 10-30</b> (<i>Traffic Study MM-24</i>) Each component of the Mobility Plan incorporates Transportation Demand Management (TDM) features to reduce dependence on the automobile, provide for a more efficient use of transportation resources among Project occupants, and thereby reduce pollutant emissions. Related to this is the creation and ongoing operation of a Transportation Management Association (TMA) to fund and manage the operation of ongoing transportation programs, including but not limited to transit and on-demand services. The key TDM elements that are inherent in the overall Mobility Plan are:</p> <ul style="list-style-type: none"> <li>• Sidewalks, greenway trails, and community trails that link residential, schools, shopping, and employment</li> </ul>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>areas;</p> <ul style="list-style-type: none"> <li>• Small- to medium-sized streets and blocks that allow for shorter walking distances to retail, parks, schools, and other destinations;</li> <li>• Pedestrian environments incorporated with public streets;</li> <li>• Parking behind buildings to encourage walking in retail areas along street frontage; and</li> <li>• Parks within 0.25 mile of 80 percent of all residential units</li> </ul>
5.10	<b>Traffic, Access and Circulation</b>	<p><b>MM 10-31</b> (<i>Traffic Study MM-25</i>) To provide adequate capacity to the I-5 mainline freeway, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding towards the following planned improvements to I-5:</p> <ul style="list-style-type: none"> <li>• I-5 between Lake Hughes and Parker: Addition of one auxiliary lane in each direction.</li> <li>• I-5 between Parker Road and SR-14: Addition of one HOV or HOT lane in each direction.</li> </ul>
5.10	<b>Traffic, Access and Circulation</b>	<p><b>MM 10-32</b> (<i>Traffic Study MM-27</i>) To provide adequate capacity at the I-5/SR-138 interchange, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the following ramp improvement at I-5/SR-138:</p> <ul style="list-style-type: none"> <li>• Addition of two auxiliary lanes at the connector ramp from westbound SR-138 to southbound I-5 for Year 2035 cumulative buildout conditions.</li> </ul>
5.10	<b>Traffic, Access and Circulation</b>	<p><b>MM 10-33</b> (<i>Traffic Study MM-28</i>) To provide adequate capacity at the I-5/SR-138 interchange, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the following ramp improvement at I-5/SR-138:</p> <ul style="list-style-type: none"> <li>• Addition of two auxiliary lanes at the connector ramp mainline before the northbound I-5 to eastbound SR-138 connector ramp</li> </ul>
5.10	<b>Traffic, Access and Circulation</b>	<p><b>MM 10-34</b> (<i>Traffic Study MM-29</i>) To provide adequate capacity at the SR-14/SR-138 interchange, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the following ramp improvement at SR-14/SR-138:</p> <ul style="list-style-type: none"> <li>• Construction of one auxiliary lane and a second off-ramp lane for the SR-14 northbound off ramp to SR-138.</li> </ul>
5.10	<b>Traffic, Access and Circulation</b>	<p><b>MM 10-35</b> (<i>Traffic Study MM-30</i>) To provide adequate capacity at the SR-14/SR-138 interchange, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the following ramp improvement at SR-14/SR-138:</p> <ul style="list-style-type: none"> <li>• Construction of a second lane on the SR-14 southbound on-ramp from SR-138.</li> </ul>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.10	Traffic, Access and Circulation	<b>MM 10-36</b> (Traffic Study MM-31) To provide adequate capacity at the SR-14 SB Ramps and SR-138 interchange, the Project Applicant/Developer shall (1) comply with the terms of the CTIP for the reconfiguration of the interchange to include two eastbound through lanes and three westbound through lanes. In the southbound direction, add a second right-turn lane and install a traffic signal and include right-turn overlap phasing or (2) contribute fair share funding for intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).
5.10	Traffic, Access and Circulation	<b>MM 10-37</b> (Traffic Study MM-32) To provide adequate capacity at SR-14 NB Ramps and SR-138 interchange, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP for the reconfiguration of the interchange to include two eastbound through lanes and two westbound through lanes and, in the northbound direction, add two left-turn lanes and a traffic signal or (2) contribute fair share funding for intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).
5.10	Traffic, Access and Circulation	<b>MM 10-38</b> (Traffic Study MM-33) To provide adequate capacity at Lake Hughes Road at I-5 NB Ramps intersection, the Project Applicant/Developer shall (1) comply with the terms of the CTIP or (2) contribute fair share funding towards planned improvements to I-5 for the addition of one lane to the northbound off-ramp and restripe the configuration to include one left-turn, one shared left/right-turn lane, and one dedicated right-turn lane.
5.10	Traffic, Access and Circulation	<b>MM 10-39</b> (Traffic Study MM-35) To provide adequate capacity at the Magic Mountain Parkway at I-5 SB Ramps intersection, the Project Applicant/Developer shall (1) comply with the terms of the CTIP or (2) contribute fair share funding towards planned improvements to I-5 for the restriping of the southbound off-ramp to provide two left-turn lanes, one shared left-turn/through lane, and one right-turn lane.
5.10	Traffic, Access and Circulation	<b>MM 10-40</b> (Traffic Study MM-36) To provide adequate capacity at the Magic Mountain Parkway at I-5 NB Ramps intersection, the Project Applicant/Developer shall (1) comply with the terms of the CTIP or (2) contribute fair share funding towards planned improvements to I-5 for the conversion of the northbound shared through/right-turn lane to a shared left/through/right turn lane.
5.10	Traffic, Access and Circulation	<b>MM 10-41</b> (Traffic Study MM-37) To provide adequate capacity at the Valencia Boulevard at I-5 SB Ramps intersection, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the striping of a third westbound through lane.
5.10	Traffic, Access and Circulation	<b>MM 10-42</b> (Traffic Study MM-38) To provide adequate capacity at the Valencia Boulevard at I-5 NB Ramps intersection, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the traffic signal modification to add a northbound right-turn overlap phase.
5.10	Traffic, Access and Circulation	<b>MM 10-43</b> (Traffic Study MM-39) To provide adequate capacity at the McBean Parkway at I-5 SB Ramps intersection, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the restriping of the dedicated westbound right-turn lane to a shared through/right-turn lane.



**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.10	Traffic, Access and Circulation	<b>MM 10-44</b> ( <i>Traffic Study MM-40</i> ) To provide adequate capacity at the Calgrove Boulevard at I-5 SB Ramps intersection, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward adding a second eastbound through lane and a de-facto right-turn lane and a second through lane in the westbound direction.
5.10	Traffic, Access and Circulation	<b>MM 10-45</b> ( <i>Traffic Study MM-41</i> ) To provide adequate capacity at the Calgrove Boulevard at I-5 NB Ramps intersection, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward restriping to add a westbound de facto right-turn lane.
5.11	Air Resources	<b>MM 11-1</b> The Project's plans and specifications shall require stationary sources to comply with the parameters stated in Stationary Source Types, Size Limits, and Quantity Estimates, which is included as Attachment A to the Project's Mitigation Monitoring and Reporting Program. Should there be a need for a stationary source exceeding the prescribed limits, the Project Applicant/Developer shall apply for source-specific permit from the Antelope Valley Air Quality Management District (AVAQMD) or South Coast Air Quality Management District (SCAQMD), as applicable.
5.11	Air Resources	<p><b>MM 11-2</b> The Project's plans and specifications shall include the following measures to minimize nitrogen oxide (NOx) and volatile organic compound (VOC) emissions during construction:</p> <ul style="list-style-type: none"> <li>• All off-road diesel-powered construction equipment greater than 50 horsepower shall meet U.S. Environmental Protection Agency (USEPA) Tier 4 Final emission standards to the extent that the equipment is available. In addition, all construction equipment shall be outfitted with Best Available Control Technology (BACT) devices certified by the California Air Resources Board (CARB). Any emissions-control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. If Tier 4 Final equipment is not available, the Project Applicant/Developer shall provide the County with documentation showing the reasons for non-availability.</li> <li>• Alternatively, construction equipment may be selected according to the Green Construction Policy used by the Los Angeles County Metropolitan Transportation Authority or the ports of Los Angeles/Long Beach. These policies include provisions to 'step down' from Tier 4 equipment to Tier 3 or Tier 2 if specified criteria are met.</li> <li>• Require the use of 2010 and newer diesel haul trucks (e.g., material delivery trucks and soil import/export). If the Project Applicant/Developer determines that 2010 model year or newer diesel trucks cannot be obtained, trucks that meet USEPA 2007 model year NOx emissions requirements shall be required. If 2010 model year or</li> </ul>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>newer diesel trucks are not available, the Project Applicant/Developer shall provide the County with documentation showing the reasons for non-availability.</p> <ul style="list-style-type: none"> <li>• A copy of each unit's certified tier specification, BACT documentation, and CARB or District operating permit shall be provided to the County at the first occurrence of mobilization of each applicable unit of equipment.</li> <li>• Construction contractors shall ensure construction equipment is properly serviced and maintained to the manufacturer's standards.</li> <li>• Construction contractors shall limit non-essential idling of construction equipment to no more than five consecutive minutes.</li> </ul>
5.11	Air Resources	<p><b>MM 11-3</b> The Project's plans and specifications shall prohibit wood-burning fireplaces as required by SCAQMD Rule 445 in single-family residences throughout the entire Project site, including at residences that are 3,000 or more feet above mean sea level at which the SCAQMD prohibition would otherwise not apply. Natural gas fireplaces shall be limited to a total of 13,954.</p>
5.11	Air Resources	<p><b>MM 11-4</b> The Project's plans and specifications for non-residential buildings shall demonstrate that the following features have been incorporated into the building designs. Proof of compliance shall be provided to the County prior to the issuance of occupancy permits.</p> <ul style="list-style-type: none"> <li>• For buildings with over 10 tenant-occupants, changing/shower facilities shall be provided as specified in Section A5.106.4.3, Nonresidential Voluntary Measures, of the CALGreen Code as follows: for 11 to 100 tenant-occupants, one unisex shower; for 101 to 200 tenant-occupants, one shower per gender; and for over 200 tenant-occupants, one shower per gender for each 200 additional tenant-occupants.</li> <li>• Preferential parking for low-emitting, fuel-efficient, and carpool/van vehicles shall be provided as specified in Section A5.106.5.1, Nonresidential Voluntary Measures, of the CALGreen Code as follows: two for 10 to 15 spaces; four for 26 to 50 spaces; six for 51 to 75 spaces; nine for 76 to 100 spaces; eleven for 101 to 150 spaces; 18 for 151 to 200 spaces; and at least 10 percent of total for 201 and more spaces.</li> <li>• Facilities shall be installed to support future electric vehicle charging at each non-residential building with 30 or more parking spaces. Installation shall be consistent with Section A5.106.5.3, Nonresidential Voluntary Measures (Tier 1), of the CALGreen Code. The facilities shall meet Section 406.9 (Electric Vehicle) of the <i>California Building Code</i> and as follows: <p><b>Single charging space requirements.</b> When only a single charging space is required, install a listed raceway capable of accommodating a dedicated branch circuit. The raceway shall not be less than trade size 1. The raceway shall be securely fastened at the main service or subpanel and shall terminate in close proximity to the proposed location of the charging system into a listed cabinet, box or enclosure.</p> <p><b>Multiple charging spaces required.</b> When multiple charging spaces are required, plans shall include the location(s) and type of electrical vehicle supply equipment (EVSE), raceway method(s), wiring schematics and electrical calculations to verify that the electrical system has sufficient capacity to charge simultaneously all the electric vehicles (EV) at all designated EV charging spaces at their full rated amperage. Plan design shall be based on Level 2 EVSE at</p> </li> </ul>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		its maximum operating ampacity. Provide raceways from the electrical service panel to the designated parking areas which are required to be installed at the time of construction.
5.11	Air Resources	<p><b>MM 11-5</b> The Project's plans and specifications for residential buildings shall demonstrate that the following features have been incorporated.</p> <ul style="list-style-type: none"> <li>• Visitor parking shall include preferentially located parking spaces for alternative-fueled vehicles.</li> <li>• Exterior electrical receptacles and natural gas or propane hookups.</li> <li>• Bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen Code, as follows:</li> </ul> <p><b>Short-term bicycle parking.</b> Provide permanently anchored bicycle racks within 100 feet of the visitor's entrance, readily visible to passers-by, for five percent of visitor motorized vehicle parking capacity within a minimum of one two-bike capacity rack.</p> <p><b>Long-term bicycle parking for multifamily buildings.</b> Provide on-site bicycle parking for at least one bicycle per every two dwelling units. Acceptable parking facilities shall be conveniently reached from the street and may include, but not limited to:</p> <ol style="list-style-type: none"> <li>1. Covered, lockable enclosures with permanently anchored racks for bicycles.</li> <li>2. Lockable bicycle rooms with permanently anchored racks.</li> <li>3. Lockable, permanently anchored bicycle lockers.</li> </ol> <p><b>Long-term bicycle parking for hotel and motel buildings.</b> Provide one on-site bicycle parking space for every 25,000 square feet, but not less than two. Acceptable parking facilities shall be conveniently reached from the street and may include, but not be limited to:</p> <ol style="list-style-type: none"> <li>1. Covered, lockable enclosures with permanently anchored racks for bicycles.</li> <li>2. Lockable bicycle rooms with permanently anchored racks.</li> <li>3. Lockable, permanently anchored bicycle lockers.</li> </ol>
5.11	Air Resources	<p><b>MM 11-6</b> The Project's plans and specifications for parking structures and parking lots with 20 or more parking spaces shall demonstrate that the following features have been incorporated into the parking facility.</p> <ul style="list-style-type: none"> <li>• The parking facility shall include a minimum of five percent preferentially located parking spaces for alternative-fueled (electric, natural gas, or similar low-emitting technology) vehicles.</li> <li>• The parking facility shall include at least one electric vehicle charging station. Electrical lines shall be designed and sized to add additional charging stations for up to three percent of the total parking spaces when a demand is demonstrated. The design and installation shall be consistent with Section A4.106.8.2, Residential Voluntary Measures, of the CALGreen Code as follows:</li> </ul> <p><b>Single charging space requirements.</b> When only a single charging space is required, install a listed raceway capable of accommodating a dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>diameter). The raceway shall be securely fastened at the main service or subpanel and shall terminate in close proximity to the proposed location of the charging system into a listed cabinet, box or enclosure.</p> <p><b>Multiple charging spaces required.</b> When multiple charging spaces are required, plans shall include the location(s) and type of electrical vehicle supply equipment (EVSE), raceway method(s), wiring schematics and electrical calculations to verify that the electrical system has sufficient capacity to charge simultaneously all the electric vehicles at all designated EV charging spaces at their full rated amperage. Plan design shall be based on Level 2 EVSE at its maximum operating ampacity. Only underground raceways and related underground equipment are required to be installed at the time of construction.</p> <ul style="list-style-type: none"> <li>For residential parking facilities, bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen Code.</li> </ul>
5.11	Air Resources	<p><b>MM 11-7</b> The Project's plans and specifications for business park or water reclamation facility land uses shall demonstrate that buffer areas adjacent to proposed business parks in compliance with the Air Quality Analysis for Stationary Sources Allowed by the Centennial Specific Plan, (see Appendix 5.11-B of this EIR) have been incorporated into the design plans. The buffer areas shall prohibit uses that are potential sources of toxic air contaminants and shall prohibit uses that include sensitive receptors, except as allowed through written evidence that the sensitive use would not be exposed to Toxic Air Contaminants with pollutant concentrations resulting in a cancer risk greater than or equal to 10 in 1 million for health risks and 1.0 for non-cancer chronic and acute hazard indices (HIs).</p>
5.11	Air Resources	<p><b>MM 11-8</b> Prior to approval of any tract map that includes an air quality sensitive use (e.g., residence, school, hospital, daycare center) within a designated business park, the Project Applicant/Developer shall provide written evidence to the County that the sensitive use would not be exposed to Toxic Air Contaminants with pollutant concentrations resulting in a cancer risk greater than or equal to 10 in 1 million for health risks and 1.0 for non-cancer chronic and acute hazard indices (HIs).</p>
5.11	Air Resources	<p><b>MM 11-9</b> The Project's plans and specifications shall demonstrate that all distribution centers are within the business park areas south of State Route (SR) 138 and are located at least 1,000 feet from existing sensitive receptors and lands designated for sensitive land uses. Distribution centers shall not be allowed in other areas within the Project site.</p>
5.11	Air Resources	<p><b>MM 11-10</b> The Project's plans and specifications shall demonstrate that any land uses involving the public congregation of sensitive receptors (e.g. residential, schools, hospital, daycare center) are not within 150 feet of the near edge of the SR-138 traffic lanes.</p>
5.11	Air Resources	<p><b>MM 11-11</b> Prior to the approval of any tract map that includes an air quality sensitive receptor (e.g. residential, day care, schools, hospital) located within 500 feet of the SR-138, the Project Applicant/Developer shall provide a dispersion analysis to calculate the health risks from vehicle emissions from SR-138. If the study concludes that health risks would be significant at the location of a proposed sensitive receptor, then effective design measures must be implemented into the structures to mitigate for interior air quality, such as ventilation systems that include MERV13 filters or equivalent protections against TACs from vehicle emissions. Confirmation of compliance shall be provided to the County prior to occupancy that include sensitive receptors within 500 feet of the SR-138.</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.12	Noise	<p><b>MM 12-1</b> For residences, hotels and motels, schools, and places of worship adjacent to a collector road with a buildout forecast of 10,000 average daily trips (ADT) or greater or any higher classification road, the Project Applicant/Developer shall submit to the County an Acoustical Study prepared in accordance with Section 1207.12 of the County Building Code. The Acoustical Study shall demonstrate that exterior noise levels at areas where residents would reasonably be expected to spend more than one hour (e.g., backyards) would not exceed 65 A-weighted decibels (dBA) Community Noise Level Equivalent Level (CNEL). The Acoustical Study shall also verify, before Certificate of Occupancy (CofO) issuance, that the buildings have been properly designed to comply with a CNEL requirement of 45 dBA for habitable interior living areas, classrooms, and rooms used for patient care and worship. The design features required to achieve the noise standard shall include one or more of the following elements, as verified by the Acoustical Study: building setbacks from the roadway; noise barriers; building orientation relative to the roadway; interior living space (bedroom, common area) orientation; sound-rated windows; upgraded exterior wall and/or roof construction; insulation batts; and forced air ventilation.</p>
5.12	Noise	<p><b>MM 12-2</b> For each business park use, school, community use area, park and recreation area, animal control facility, utility, County maintenance facility, commercial development, or manufacturing/industrial development, the Project Applicant/Developer shall submit an Acoustical Study to verify that the Project has been properly designed to comply with the County of Los Angeles's Noise Ordinance standards at the nearby sensitive properties (both on and off site). The design features required to achieve the noise standard shall include one or more of the following elements, as verified by the Acoustical Study: building setbacks from the sensitive receptors; noise barriers; building orientation relative to the sensitive receptor; sound-rated windows; and upgraded exterior wall and/or roof construction.</p>
5.12	Noise	<p><b>MM 12-3</b> To ensure that construction noise is minimized, in addition to meeting all requirements of Section 12.08 of the <i>County of Los Angeles Code</i>, the following measures shall be implemented during construction:</p> <ul style="list-style-type: none"> <li>• All construction equipment, including internal combustion engines and stationary equipment (used for construction purposes) shall be equipped with noise-reducing features such as, but not limited to, improved mufflers, intake silencers, ducts, engine enclosures, and acoustical shields or shrouds.</li> <li>• Stationary equipment (e.g., generators, air compressors, concrete pumps) located within 450 feet of residences or schools shall have noise abatement (e.g., engine enclosures or equipment placed behind barriers,) to limit the noise level at the sensitive receptor to an average sound level (<math>L_{eq}</math>) of 60 dBA or less.</li> <li>• Equipment and material staging areas and equipment maintenance areas shall be located at least 500 feet from sensitive noise receivers, if feasible.</li> </ul>
5.12	Noise	<p><b>MM 12-4</b> The Project Applicant/Developer shall submit a vibration analysis to the County demonstrating that the pile installation has been designed to limit vibrations to 0.01 peak particle velocity (ppv) inch per second (in/sec) or less at occupied buildings. Design features may include alternate methods of installation that result in reduced vibrations such as pile driving cushions or jetting instead of drilling.</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.12	Noise	<p><b>MM 12-5</b> For the Project site areas adjacent to 300<sup>th</sup> Street West, 290<sup>th</sup> Street West, and Malinda Avenue, the Project Applicant/Developer shall provide information to County demonstrating that plans and specifications require that (1) vibratory rollers shall not be used within 300 feet of occupied residences or that vibratory rollers used within 300 feet of occupied residences shall be operated in the static mode and (2) large bulldozers and scrapers shall not be operated within 150 feet of occupied residences. Alternatively, the Project Applicant/Developer shall provide information to County demonstrating that plans and specifications require that vibratory rollers, large bulldozers, large scrapers, and similar heavy equipment shall be operated to comply with the requirements of Section 12.08.560 of the County Code and that vibrations at residential properties would not exceed 0.01 inch per second (in/sec).</p>
5.12	Noise	<p><b>MM 12-6</b> The Project Applicant/Developer shall provide to each prospective purchaser or tenant with a notice and statement of acknowledgment that shall be executed by the prospective purchaser, lessee, or tenant that the Centennial property will be undergoing continuing development and, depending on relative location, noise from construction activities may be heard. The form and method of distribution of said notice and statement of acknowledgment shall be as approved by the County. Subsequent to Project buildout, this mitigation measure would no longer apply.</p>
5.12	Noise	<p><b>MM 12-7</b> In the event that blasting is necessary in order to fracture non-rippable rock, the Project Applicant/Developer shall prepare a Blasting Plan to be submitted and approved by the County of Los Angeles Fire Department in order to obtain a blasting permit; evidence of this approval shall be submitted to the County of Los Angeles Department of Regional Planning in order to obtain an Explosives Permit. The Blasting Plan shall be prepared in accordance with the United States Department of Interior, Office of Surface Mining (USOSM) standards and shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> <li>a. A pre-blast survey.</li> <li>b. The site and location of planned blasting and hours of operation (blasting to be conducted during the daylight hours only).</li> <li>c. Notification of blasting activities to all property owners within one-half mile of the blasting area. This notification shall describe the expected period and frequency that the blasting shall occur and give a contact phone number for any questions or complaints. All complaints shall be responded to in a method deemed satisfactory to the County of Los Angeles Department of Regional Planning.</li> <li>d. The types and amounts of explosives.</li> <li>e. Warning system information.</li> <li>f. Methods of transportation and handling of explosives.</li> <li>g. Minimum acceptable weather conditions.</li> <li>h. Procedures for handling, setting, wiring, and firing explosives.</li> <li>i. Procedures for clearing and controlling access to blast danger.</li> <li>j. Procedures for handling misfires and other unusual occurrences.</li> <li>k. An Emergency Action Plan.</li> </ol>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<ul style="list-style-type: none"> <li>l. Material safety data sheet for all explosives or other hazardous materials expected to be used.</li> <li>m. Procedures to ensure compliance with local, State and federal laws.</li> <li>n. Requirements and procedures for vibration monitoring near existing structures during blasting events.</li> </ul>
5.13	Visual Resources	<p><b>MM 13-1</b> The Project's plans and specifications shall demonstrate the implementation of measures to preserve existing rock outcroppings that are visible from off-site locations along the SR-138. In addition, the County shall review all final development plans (e.g., landscape, lighting, architectural plans)—as provided by the Project Applicant/Developer—to ensure that the development standards for each land use have been implemented to minimize the visual alteration of the site and to create an aesthetically pleasing development.</p>
5.13	Visual Resources	<p><b>MM 13-2</b> The Project shall implement the following components of the Green Development Program to minimize potentially adverse visual impacts:</p> <ul style="list-style-type: none"> <li>• Site the highest density residential uses in areas adjacent to commercial centers and permit residential uses in commercial centers through the Mixed Use Overlay to place larger populations within key centers, encouraging pedestrian activity and a reduction in vehicle trips.</li> <li>• Preserve oak woodlands, savannahs, and other sensitive habitat areas near Oso Canyon and at the foot of the San Gabriel Mountains southerly of SR-138.</li> <li>• Exterior lighting shall not cause unacceptable light trespass and shall be fully shielded.</li> <li>• Outdoor lighting shall be turned off using automatic control devices or systems between the hours of 10:00 PM and sunrise of the following day in commercial, business park, and mixed use areas, unless required by the County Building Code. If the property operates beyond 10:00 PM, then outdoor lighting shall be turned off 1 hour after the operation ends for the day.</li> <li>• Outdoor lighting for safety and security reasons is allowed after 10:00 PM only if fully shielded motion sensors are used to turn off lighting after 10:00 PM and the sensors turn the lighting off automatically no more than 10 minutes after the area is vacated or at least 50 percent of the total lumen levels are reduced or 50 percent of the total outdoor light fixtures are turned off between 10:00 PM and sunrise.</li> <li>• Outdoor lighting in residential and open space areas that are over 15 feet in height shall have an output no greater than 400 lumens.</li> <li>• The maximum height of outdoor lighting fixtures shall be: <ul style="list-style-type: none"> <li>○ 20 feet in Residential and Open Space areas</li> <li>○ 30 feet in Commercial, Mixed Use, and Public areas</li> <li>○ 35 feet in Business Park areas</li> </ul> </li> <li>• Prohibit the use of outdoor lighting that includes drop-down lenses, mercury vapor lights, ultraviolet lights, search lights, laser lights and any outdoor lighting that flashes, blinks, alternates or moves unless mandated for health and safety reasons by a public agency.</li> <li>• Outdoor light fixtures in outdoor recreational areas shall be mounted, aimed, and fully shielded so that light</li> </ul>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>beams fall onto activity areas and no unacceptable light trespass occurs on surrounding areas or properties. Outdoor lighting shall only provide the minimum necessary to illuminate recreational activities areas and shall be no more than 75 feet high. Preferably, these fixtures shall also use high pressure sodium or metal halide lamps.</p> <ul style="list-style-type: none"> <li>• Outdoor advertising signs, business signs and roof and freestanding signs that are lighted shall be fully shielded. Externally mounted light fixtures shall be mounted on the top of the sign and shall be oriented downward. Externally mounted bulbs or lighting tubes for signs shall not be visible from adjoining properties or public rights-of-way, unless such bulbs or tubes are filled with neon, argon, krypton or other self-illuminating substance.</li> </ul>
5.13	<b>Visual Resources</b>	<b>MM 13-3</b> The existing off-site 66 kV electric lines that extend from SR-138 beginning at approximately the Old Ridge Route to 290th Street West, shall be relocated south of the Business Park area or may be placed underground,.
5.13	<b>Visual Resources</b>	<b>MM 13-4</b> Structures proposed along the Pacific Crest National Scenic Trail (PCT) shall be screened by a block wall along the rear of the structures abutting the trail and a 34-foot-wide landscaped setback shall be provided that would contain the conceptual PCT realignment.
5.13	<b>Visual Resources</b>	<b>MM 13-5</b> Security lighting used for construction areas, equipment, and building materials staging areas shall be directed away from SR-138, 300 <sup>th</sup> Street West, 290 <sup>th</sup> Street West, and existing residences east of 300 <sup>th</sup> Street West and east of 290 <sup>th</sup> Street West and Malinda Avenue. Screening of construction security lighting at construction staging areas shall be implemented, as feasible. Construction equipment and materials staging areas shall be located as far as feasible from surrounding adjacent residences and lights shall be directed away from adjacent on-site residences that are occupied, as each development phase is built.
5.13	<b>Visual Resources</b>	<p><b>MM 13-6</b> An Exterior Lighting Plan shall be prepared in coordination with a qualified Biologist, be reviewed by an Electrical Engineer who is registered in the State of California, and then approved by the County prior to the submittal of each building permit. The Lighting Plan shall apply to all proposed structures and for development areas that border natural open space resources.</p> <p>The Lighting Plan shall be consistent with County Rural Outdoor Lighting District requirements for the Antelope Valley and shall provide guidelines for the outdoor lighting to be used throughout the Project site. Final lighting orientation and design shall be approved by the County.</p> <p>The Lighting Plan shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> <li>a. All lighting within 300 feet of natural open space areas shall only be implemented where needed for safety and shall be directed away from these areas and shielded so that light is not directed into open space and riparian areas. Where possible, these safety lights shall be motion sensor activated with infrared light sensors to prevent daytime lighting.</li> <li>b. Mercury vapor and halide lighting shall not be used on the perimeter of the developed areas or adjacent to designated open space.</li> </ol>



**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<ul style="list-style-type: none"> <li>c. Illumination levels should be compatible with the character and use of surrounding development as determined by national lighting organizations. The Illuminating Engineering Society of North America publishes recommendations for the lighting industry that include illumination levels for outdoor lighting.</li> <li>d. Low-pressure sodium lighting fixtures or flashing lights shall not be used except in emergency situations.</li> <li>e. Exterior lighting standards and fixtures shall be located and designed to minimize direct glare beyond the site boundaries. Lighting shall be fully shielded and directed downwards to confine light spread solely within necessary locations. Illumination or glare from the exterior lighting system onto adjacent properties or streets should be minimized.</li> <li>f. Security lighting fixtures shall not project above the roof line of the building on which they are mounted.</li> <li>g. Where applicable, time-control devices shall be utilized on exterior lighting sources.</li> <li>h. Street, parking lot, and structural lighting fixtures shall provide adequate illumination for safety and comfort of vehicular and pedestrian traffic while minimizing light spillover.</li> </ul>
5.14	Parks and Recreation	<p><b>MM 14-1</b> The Project shall implement the following components of the Green Development Program to provide healthy outdoor parks and recreational resources on the Project site:</p> <ul style="list-style-type: none"> <li>• Provide a functional system of community trails, greenway trails, and natural corridors to serve as recreational opportunities and as alternative means of transportation to reduce vehicular traffic.</li> <li>• Provide “complete streets” throughout the community to provide alternative modes of transport (walking, biking, low-speed vehicles (LSVs) such as neighborhood electric scooters, bikes and other low-speed electric vehicles (NEVs).</li> <li>• Incorporate sidewalks (separated by a parkway from streets) and trees to be the main street elements to create a walking environment, promoting pedestrian activity.</li> <li>• Provide Class I – IV bike lanes throughout the Project to ensure a variety of alternative transportation options.</li> <li>• Provide permanently anchored bicycle racks within 200 feet of visitors’ entrance of nonresidential buildings, readily visible to passers-by, for 5 percent of new visitor motorized vehicle parking spaces being added, with a minimum of two-bike capacity rack.</li> <li>• For new nonresidential buildings with over 10 tenant-occupants or for additions or alterations that add 10 or more tenant vehicular parking spaces, provide secure bicycle parking spaces at a rate of 5 percent of tenant parking being added, with a minimum of one space.</li> <li>• For residential buildings, provide permanently anchored bicycle racks within 100 feet of the visitor’s entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity with a minimum of one two-bike capacity rack.</li> <li>• Nonresidential buildings within the Business Park and Commercial areas with 75,000 or more square feet of gross floor area shall provide locker rooms and shower facilities.</li> <li>• For multifamily buildings, provide on-site bicycle parking for at least one bicycle per every two dwelling units</li> </ul>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<ul style="list-style-type: none"> <li>• Include planned green space, which are integrated pockets of open space (including greenways, tree stands, hillsides, and community parks) with minimal developed amenities. Planned green space reduces evapotranspiration; allows natural percolation of runoff from adjacent lands; reduces the heat island effect; and adds aesthetic value to a site. Planned green space can provide habitat as well as linkages to other habitat areas.</li> </ul>
5.14	Parks and Recreation	<b>MM 14-2</b> The Project Applicant/Developer shall implement the Parks and Recreation Plan as set forth in Chapter 3.12 of the <i>Centennial Specific Plan</i> to provide visually appropriate parks and recreational amenities to the Project site.
5.14	Parks and Recreation	<b>MM 14-3</b> The Project Applicant/Developer shall construct 163 acres of parks consistent with the Park Overlay requirements of the Centennial Specific Plan, which includes acreage to meet the County's Parkland Dedication Ordinance requirements. In addition, the Project Applicant/Developer will fund the cost of constructing and equipping the public parks within the Project, pursuant to a park Development Agreement, a statutory Development Agreement pursuant to Section 65864 et seq. of the <i>California Government Code</i> , or other condition of approval.  For purposes of this measure, and as applied to all future Tentative Maps, the County shall deem all parks that are 3.0 acres or more in size as public parks, so long as each park site meets County standards for site suitability. The Project shall provide public parks to be developed in accordance with the schematic designs approved by the County.  Neighborhood and community parks shall contain various types of improvements that may include, but not be limited to, parking lot, walkways, plazas and other forms of hardscape, shade trellis, security lighting, trash enclosures, locking gates, fencing, open turf sports fields, basketball courts, multi-purpose ballfields, tennis courts, children's play areas, picnic areas (picnic tables with pads), shade structures/pavilions, restrooms with drinking fountains, recreation building, office and storage space/service yards, trees, landscaping (including plant material, grading, drainage, and irrigation), and park entry monuments.
5.14	Parks and Recreation	<b>MM 14-4</b> The Project shall provide public parkland in compliance with the County of Los Angeles Parkland Dedication Ordinance/Quimby Act, with all acreage figures stated as "net" (three percent slope, maximum). Additionally, public parks shall be dedicated to the County in a developed condition, in accordance with the schematic designs recommended by the County and/or as approved by the Regional Planning Commission and/or the County Board of Supervisors as part of approval of each tract map as each phase of development occurs throughout the Project site with amenities consistent with County-approved plans. Developed public parks shall also be credited with an equivalency acreage correlating with the current Representative Land Value for the applicable Park Planning Area (currently Park Planning Area 48). All public parks must comply with County's Park Design Guidelines and Standards, Public Parks.
5.14	Parks and Recreation	<b>MM 14-5</b> The Project shall provide public and private recreation amenities that equate to the acreage requirements of the County of Los Angeles General Plan local parkland standard (4 acres for every 1,000 persons in the unincorporated County). For purposes of monitoring compliance with the General Plan standard, whenever either a Tentative Map or a Final Map is submitted for the County's review and clearance, those maps shall have a table that provides a breakdown of acreage per lot for the following categories: (1) Public Park acreage (maximum slope 3 percent or less), ; (2) Public Park Acreage Equivalency (which shall be based upon estimated Public Park Improvement Values derived from Total Project Cost Estimates required at the time of map clearance and the Parkland Dedication Ordinance/Quimby Ordinance in effect at the time the map is submitted); (3) Private Park acreage, including pocket

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		parks; (4) Greenway and County multi-use (hiking, equestrian, and mountain biking) trail acreage; (5) Community Recreation Facility acreage; and (6) Private Recreation Facility acreage.
5.15	<b>Education</b>	<b>MM 15-1</b> The Project Applicant/Developer shall designate one K-5 and five K-8 school sites in the Project area in accordance with the conceptual land use plan or alternate location(s) that shall be agreed upon by the authorized school districts.
5.15	<b>Education</b>	<b>MM 15-2</b> The Project Applicant/Developer shall demonstrate to the County that they have an executed agreement with all school districts that operate within the boundaries of the Project site.
5.15	<b>Education</b>	<b>MM 15-3</b> The Project Applicant/Developer shall designate one high school site in the Project area in accordance with the conceptual land use plan or alternate location(s) that shall be agreed upon by the authorized school district.
5.16	<b>Fire and Law Enforcement Services</b>	<b>MM 16-1</b> At buildout, the Los Angeles County Fire Department (LACFD) fire stations shall be located such that response times to the Project site shall be 5 minutes or less for fire service responses and 8 minutes or less for the advanced life support (paramedic) unit responses within the Project site.
5.16	<b>Fire and Law Enforcement Services</b>	<b>MM 16-2</b> The Project Applicant/Developer shall pay developer fees in effect at the time of construction permit approval, in accordance with the LACFD Developer Fee Program until such time the Project Applicant/Developer has conveyed an approved, operational fire station to the LACFD. As an alternative to fee payment, the Developer Fee Program allows the LACFD and the Project Applicant/Developer to agree on a program whereby the Project Applicant/Developer would provide land and would construct and equip the fire stations required for the Project in exchange for a credit towards the Project's fee payments.
5.16	<b>Fire and Law Enforcement Services</b>	<b>MM 16-3</b> The Project Applicant/Developer shall provide land, convey title, and shall construct and equip, to the specifications and requirements of the LACFD, for up to four new Fire Stations to the LACFD. The approved final plans and specifications for the Project shall identify locations of the fire stations. The LACFD shall have final approval over the fire station site locations. The timing for the construction of the on-site fire stations shall be established by the LACFD dependent upon the phasing of development, with the first on-site fire station operational no later than the time the 1,000 <sup>th</sup> dwelling unit is built on site.
5.16	<b>Fire and Law Enforcement Services</b>	<b>MM 16-4</b> The Project Applicant/Developer shall pay Law Enforcement Facilities Mitigation Fee (LEFMF) to the Los Angeles County Sheriff's Department (LASD) pursuant to the requirements established in County Ordinance No. 2008-0033. The amount of fees to be paid will be determined based on the established fee in Section 22.74.030 of the County Code. The Project incorporates a temporary "store front" sub-station, followed by construction of a permanent LASD Station included on the Project site, in lieu of a portion of the LEFMF, as allowed under Section 22.74.090 (Consideration in Lieu of Fee) of the County Code. Costs associated with the construction of the temporary "store front" sub-station and permanent LASD Station would be credited against the LEFMF.  Prior to completion of the permanent LASD Station, the "store front" sub-station may be located on site in Village 1 on the north side of the SR-138. This temporary sub-station shall be properly outfitted in accordance with applicable occupancy requirements of the LASD for such "store front" facilities and shall be operational prior to the approval of the first certificate of occupancy for the first phase of Project development.

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>The Centennial Land Use Plan identifies a conceptual location for one LASD Station in the Business Park area on the Project site north of the SR-138. The permanent LASD Station shall be constructed immediately following completion of the first phase of development. The LASD shall have final approval over the temporary sub-station and permanent LASD Station site locations.</p>
5.17	Other Public Services	<p><b>MM 17-1</b> The <i>Los Angeles County Code</i> (Chapter 22.72 of Title 22) (“Library Ordinance”) imposes a Library Facilities Mitigation Fee on new residential development projects in the unincorporated areas of the County of Los Angeles served by the County Library (the “Library Facilities Mitigation Fee”). The Library Facilities Mitigation Fee that is in effect for the designated County Library planning area is charged upon approval of each residential building permit and is based on the estimated reasonable cost of providing the projected library facility needs in the applicable library planning area. The Project is located within Planning Area 2: Antelope Valley and, as of the date of this EIR, the Library Facilities Mitigation Fee is \$844.00 per residential building permit (based upon the County Library’s mitigation fee per building permit amount established on October 27, 1998, and last updated on July 1, 2015). The Project provides for the development of a maximum of 19,333 residential dwelling units. Based on the current fee, the total Library Facilities Mitigation Fee that would be due from the Project Applicant/Developer (or its successors in interest) is \$16,317,052. Consistent with the Library Ordinance, the amount of the Library Facilities Mitigation Fee that shall apply to the Project shall be the fee payable on the date the County issues each building permit for a residential dwelling unit. The amount of the Library Facilities Mitigation Fee may be increased from time to time pursuant to Section 22.72.040 of the County Code and State law; provided, however, the Library Facilities Mitigation Fee applicable to residential dwellings within the Project shall be no more than the amount of the Library Facilities Mitigation Fee applicable to residential dwellings outside of the Project but within Planning Area 2. The aggregate Library Facilities Mitigation Fees payable for all of the residential dwelling units within the Project for which building permits have been issued shall be referred to herein as the “Project-Wide Fee Total.” The ordinance allows that in lieu of the payment of Library Facilities Mitigation Fees, the Project Applicant/Developer shall fulfill the obligations required by the mitigation measures in this EIR, to satisfy the requirements of the Library Ordinance.</p>
5.17	Other Public Services	<p><b>MM 17-2</b> Section 22.72.090 of the Library Ordinance permits the County Librarian to accept substitute consideration in lieu of the Library Facilities Mitigation Fee if the proposed substitute consideration (such as land, facility construction, and/or materials) (i) has a value that is equal to or greater than the applicable Library Facilities Mitigation Fee that is otherwise due; (ii) is in the form acceptable to the County Librarian; and (iii) is within the scope of the applicable library facilities project. Because the Library Facilities Mitigation Fee only allows for an incremental accumulation of funds for future library facilities as building permits are issued and fees are collected pursuant to Section 22.72.060 of the County of Los Angeles Code, the County Library will implement a strategy that will better serve the residents of Centennial by ensuring that the timing and scope of public library facilities will meet the demands of the community. Centennial desires to cooperate with the County Library in meeting its goals and also seeks certainty with respect to the amount and timing of the Project’s financial commitment to the County Library. Therefore, the parties’ objectives will be satisfied if, in lieu of the Project Applicant/Developer’s payment of Library Facilities Mitigation Fees at the time residential building permits are pulled in accordance with Section 22.72.060 of the County Code, the Project Applicant/Developer will instead set aside the land and contribute the funds required to build and equip a turnkey Permanent Facility, all in accordance with the terms and conditions of the Development Agreement. As discussed in</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		MM 17-1, the Project Applicant/Developer's provision of such land and funding will, in accordance with the required mitigation measures, be credited against Library Facilities Mitigation Fees that would otherwise be due.
5.17	<b>Other Public Services</b>	<b>MM 17-3</b> The Project Applicant/Developer shall dedicate to the County Library up to 2.62 acres within Village 3 of the Project (the "Dedicated Land") for public library purposes or other location for the permanent facility mutually agreed upon by the County Librarian and the Project Applicant/Developer. The Project Applicant/Developer shall receive a credit against unpaid Library Facilities Mitigation Fees in an amount equal to the fair market value of all Dedicated Land as of the date of the dedication to the County of Los Angeles for County Library purposes. The Dedicated Land shall be conveyed to the County concurrently with the filing and recordation of the final map within which the Dedicated Land is located. If the County Library desires to increase the size of the Dedicated Land, it shall make such request of the Project Applicant/Developer no later than the date that the County approves the tentative map for the proposed subdivision in which the Dedicated Land is located. the Project Applicant/Developer agrees to increase the size of the Dedicated Land upon the County's request provided: (i) the County cooperates with the Project Applicant/Developer in any related land use boundary changes, transfers or conversions necessary to accommodate the larger library site, subject to the requirements of CEQA and (ii) the County either pays the fair market value for such land with either (A) U.S. funds or (B) a dollar-for-dollar credit against unpaid Library Facilities Mitigation Fees, so long as the Project-Wide Fee Total has not already been offset pursuant to MM 17-4 through MM 17-7. "Fair market value" for the land described in this paragraph shall be determined based on the value of such land had it been entitled for institutional office purposes and the property had a maximum floor area ratio (FAR) of 0.25. If the County Library at any time changes the use of the Dedicated Land from that of a County-owned public library facility, then the Dedicated Land will revert back to Centennial.
5.17	<b>Other Public Services</b>	<b>MM 17-4</b> The Project Applicant/Developer shall provide plans and specifications with a one or two-story, turn-key public library building (the "Permanent Facility") on the Dedicated Lands. The Permanent Facility may be constructed in phases. The size and scope of the Permanent Facility will be determined by the County Librarian in consultation with the Project Applicant/Developer provided, however, that the Project Applicant/Developer's maximum financial contribution shall not exceed the Project-Wide Fee Total, less any offsets pursuant to Mitigation Measures 17-4, 17-6, and 17-7 in this EIR. The sizing, design and programming of the Permanent Facility, including the influence of technology on library services, will be agreed upon by representatives from County Library and the Project Applicant/Developer. A report shall be prepared by an independent library consultant selected by the County Library that will solicit input from the community with respect to the types of library services desired at the Permanent Library Facility. The consultant's report shall be paid for by the Project Applicant/Developer and the Project Applicant/Developer shall receive a credit against the Project-Wide Fee Total for the Project Applicant/Developer's payment of such costs. The Permanent Facility and Permanent Library furniture, fixture, and equipment (FF&E, as defined below) will be substantially similar in quality and materials to the Quartz Hill branch of the County Library on November 2016. The design of the Permanent Library will be performed by an architect mutually selected by the Project Applicant/Developer and the County Librarian. The Permanent Facility must comply with all requirements of the County Library's Low Voltage Specifications in effect on the date the design contract for the Permanent Facility is fully executed. The County Library shall be responsible for all costs of design and construction of the Permanent Library in excess of the Project Applicant/Developer's Library Facilities Mitigation Fee obligations hereunder. If, after application of the fee credits

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>against Library Facilities Mitigation Fees to which the Project Applicant/Developer is entitled, there is insufficient funds to construct the Permanent Facility and purchase the Permanent Library FF&amp;E, the Project Applicant/Developer shall not be required to fund construction of the Permanent Facility until additional and sufficient funds are authorized by the County to construct the Permanent Facility and to procure the Permanent Library FF&amp;E. The Permanent Facility will be completed and operational on a date agreed to between the County Librarian and the Project Applicant, subject to force majeure and events within the control of the County (such as, for example, the County's failure to pay any funding shortfalls if credits against the Project-Wide Fee Total are exhausted). The size of the Permanent Facility will be proportionately reduced in size and materials if the County approves less than the 19,333 residential units proposed for the Centennial Project.</p>
5.17	Other Public Services	<p><b>MM 17-5</b> The Project Applicant/Developer agrees to install furniture, fixtures and equipment ("Permanent Library FF&amp;E") and purchase library materials in connection with the Permanent Facility, provided that the Project Applicant/Developer's financial contribution toward the cost of the Permanent Library FF&amp;E and library materials shall not exceed the Project-Wide Fee Total when taken together with all other Project Applicant/Developer expenses then credited against the Project-Wide Fee Total. The County Library shall be responsible for all costs of Permanent Library FF&amp;E and library materials in excess of the Project-Wide Fee Total. The Permanent Library FF&amp;E specifications will be provided by the County Library. Any FF&amp;E purchased shall remain the property of the County Library.</p>
5.17	Other Public Services	<p><b>MM 17-6</b> The Project Applicant/Developer shall provide plans and specifications that demonstrate on-site parking for library patrons at a ratio of 4 parking spaces per 1,000 gross square feet of library space. The parking lot shall also include two spaces adjacent to the staff entrance of the library for County library service vehicles. Parking may be shared with adjacent uses with the consent of the County Library.</p>
5.17	Other Public Services	<p><b>MM 17-7</b> If the Project Applicant/Developer has satisfied its obligations in Mitigation Measures 17-1 through 17-6, above, and the Project Applicant/Developer continues to pull building permits within the Project, then the Project Applicant/Developer (or its successors in interest) shall pay any Library Facilities Mitigation Fees still owing as construction permits are issued, which shall be expended by the County Library for the benefit of the Permanent Facility on library materials, FF&amp;E, facility enhancements or library programs as determined by the County Librarian.</p>
5.17	Other Public Services	<p><b>MM 17-8</b> No later than December 1 and July 1 of each calendar year, the Project Applicant/Developer shall deliver to the County Library a report in writing providing the number of residential building permits actually issued to date. Within 30 days from the date the report is received, the County Library will deliver, or cause to deliver, to the Project Applicant/Developer a report on the revised Project-Wide Fee Total.</p>
5.17	Other Public Services	<p><b>MM 17-9</b> The Project Applicant/Developer shall be responsible for implementing the following construction waste reduction requirements to ensure that 100 percent of soil is diverted during grading activities, and that at least 70 percent of nonhazardous construction and demolition waste is diverted from landfill disposal. During all construction phases, wastes would be managed with the use of recycling bins for various debris materials which would be sent to existing recycling and/or processing facilities in accordance with all provisions of the County Construction and Demolition Debris Ordinance. This would include submitting and implementing a Recycling and Reuse Plan to Public Works in connection with obtaining a building or grading permit.</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.17	Other Public Services	<p><b>MM 17-10</b> The Project shall incorporate the Solid Waste Management Plan (Section 3.7 of the Centennial Specific Plan) and the Property Owner/Developer shall be responsible for implementation of the following operational waste reduction requirements to ensure that at least 75 percent of operational waste is diverted from landfill disposal:</p> <ul style="list-style-type: none"> <li>• The Property Owner/Developer shall process an on-site contract with a waste management company and/or recyclers, and/or self-haul to waste and recycling facilities to properly recycle, divert, and dispose of solid waste generated on-site. Throughout the Project's operation, the waste hauler shall be required by contract to maintain records showing the diversion of not less than 75 percent of the operational waste generated by the Project.</li> <li>• The waste management contract will establish dedicated cans for green waste and a Green Waste Recycling Plan that must be adhered to by landscape maintenance companies as part of the CC&amp;Rs. The CC&amp;Rs will require the use of mulching mowers or mowers with mulching blades for common lawn area, use of California Air Resources Board- (CARB) approved or electric maintenance equipment; placing three to five inches of mulch in common areas' planting beds each year as part of the Landscape Maintenance Plan for all non-residential and multi-family buildings; and diverting organic wastes to a mulching and composting facility or anaerobic digestion facility.</li> <li>• The CC&amp;Rs will require the Property Owner to recycle and divert from the waste bin, solids such as metal, glass, paper, plastic, cardboard, food and yard waste; and divert from the waste bin hazardous waste, electronic waste, and universal waste. Information on items prohibited from landfill disposal and on recycling and composting will be provided to Property Owners.</li> <li>• Household hazardous wastes and less commonly disposed materials (such as electronics and appliances) shall have seasonal pickup (at least two times a year) and residents would be notified of upcoming events.</li> <li>• Semi-annual "exchange days" shall be organized, publicized, and paid for by the Master Homeowners Association (HOA).</li> <li>• The Project Applicant/Master Developer shall set aside a minimum of 5 acres for a future Materials Recovery Facility/Transfer Station (MRF/TS) that includes a household hazardous waste permanent collection and reuse center and allows for mulching/composting operations. The site shall be located in a suitable location with the capacity to manage the nonhazardous solid waste and household hazardous waste generated by the Centennial Development Project at buildout. The Project Applicant/Master Developer shall prepare and grade the site, and install basic mainline infrastructure fronting the property prior to the issuance of any occupancy permits associated with the first phase of project implementation. The Master Developer shall continually encourage a waste management company to build these facilities on this build ready site. The CC&amp;R for the future MRF/TS site shall require the land to be set aside for the MRF/TS in perpetuity.</li> <li>• The Smart Gardening Learning Center specifications will be provided by County Public Works.</li> <li>• Parking for the Learning Center and the MRF/TS may be shared with adjacent uses with the consent of the property owners and County Public Works.</li> </ul>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.18	Water Resources	<p><b>MM 18-1</b> In addition to complying with the water efficiency and conservation set forth in Divisions 4.3 and 5.3 of the California Green Building Standards (CALGreen) Code or the County Green Building Standards Code, whichever are more stringent, the Project Applicant/Developer shall implement the measures listed below.</p> <p><b>Meter Water Use.</b> Install, maintain, and monitor all non-construction potable and non-potable water use using appropriate metering equipment throughout the site.</p> <p><b>Reduce Potable Water Use with On-Site Recycled Water.</b> Install, maintain, and operate on-site wastewater treatment and conveyance facilities that provide recycled water treated to California Title 22 unrestricted reuse standards from on-site wastewater. Recycled water shall be used to meet (i) 100 percent of commercial, business park, institutional, school, hotel, park, and slope irrigation demand and (ii) outdoor irrigation demand in 50 percent of the total very low and low density residential lot landscaped area.</p> <p><b>Water Efficient Appliances.</b> Require installation of water-efficient major appliances (washers, dryers, dishwashers) in compliance with the California Appliance Efficiency Regulations, Energy Star®, or other applicable standards.</p> <p><b>Water Efficient Irrigation.</b> Require the installation of irrigation equipment with a minimum 0.80 irrigation efficiency for all public and private park, recreation and entertainment land use, arterial roadway, and slope irrigation uses. Water Smart/Evapotranspiration-based controllers shall be used. Low water use plants and shrubs shall be used in all irrigated slope areas with an average plant factor of 0.2, as defined in the State Model Water Efficient Landscape Ordinance.</p> <p><b>Water Budget Based Water Rates.</b> Require that the Project Water Purveyor implement water budget based rates in compliance with all applicable legal requirements and in a manner consistent with the use of such rates by other water districts in California (e.g., Irvine Ranch Water District). The water budget based rates shall incorporate and be designed to ensure that Project potable water use meets or exceeds the following standards and adjusted as may be required to meet more stringent standards that may be adopted by the State or Los Angeles County:</p> <ol style="list-style-type: none"> <li>1. Indoor Water Use Standards <ol style="list-style-type: none"> <li>(a) Residential indoor water use – 55 gallons per capita per day</li> <li>(b) Commercial indoor water use – 200 gallons per day per thousand square feet</li> <li>(c) Business Park indoor water use – 65 gallons per day per thousand square feet, including recycled water for commercial wastewater and cooling use except where prohibited by applicable law for particular types of areas or uses (e.g., employee cafeterias)</li> <li>(d) Institutional indoor water use – 50 gallons per day per thousand square feet</li> <li>(e) Hotel indoor water use – 125 gallons per day per room.</li> </ol> </li> <li>2. Outdoor Water Use Standards <ol style="list-style-type: none"> <li>(a) Residential outdoor water use – 55 percent of the reference evapotranspiration rate for the Project site</li> <li>(b) Commercial, industrial, and institutional outdoor use – 45 percent of the reference evapotranspiration rate for the Project site</li> </ol> </li> </ol>



**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.18	Water Resources	<b>MM 18-2</b> The Project Applicant/Developer shall submit to the County Water Use Reports prepared by a qualified specialist to the satisfaction of the County to verify that projected water use efficiencies are being achieved (1) at the end of the 5 <sup>th</sup> year following first occupancy or occupancy of the 4,000 <sup>th</sup> dwelling unit, whichever occurs later and (2) at the end of the 10 <sup>th</sup> year following first occupancy or occupancy of the 10,000 <sup>th</sup> dwelling unit, whichever occurs later. In the event that a Water Use Report indicates that consumption exceeds projected levels, response measures must be implemented to ensure that available supplies will be sufficient to meet future demand. No further development will be approved until additional measures are implemented to achieve the required efficiencies and/or provide additional water supplies, as confirmed by the Project Water Purveyor. No subsequent Tentative Maps shall be approved until the Project Water Purveyor has demonstrated to the satisfaction of the County that the implementation of specific water demand and supply response measures will ensure that available supplies will meet future Project demand.
5.19	Wastewater Collection	<b>MM 19-1</b> The Project Applicant/Developer shall provide documentation to the County that it has completed all required procedures and has paid all applicable fees associated with establishing the Project Water Purveyor, or an alternate qualified public utility district, as the operator of the WRFs.
5.19	Wastewater Collection	<b>MM 19-2</b> The Project Applicant/Developer shall demonstrate that the Project has either been annexed into an existing qualified public utility district (e.g. Golden Valley Municipal Water District) or that a new public utility district (e.g. Project Water Purveyor) has been created to serve the Project. The Project Water Purveyor or alternate qualified public utility district shall be responsible for the design, construction, and operation of the wastewater facilities, and shall ensure compliance with all applicable standards and regulations, including all Lahontan RWQCB and Title 22 requirements of the California Code of Regulations.
5.19	Wastewater Collection	<b>MM 19-3</b> The Project shall incorporate the Wastewater Management Plan ( <i>Centennial Specific Plan</i> , Section 3.5), and the Project Applicant/Developer shall prepare a Facilities Report, a Pump Station Feasibility Report, and a Sewer Area Study consistent with County Policies and Requirements. .
5.19	Wastewater Collection	<b>MM 19-4</b> The Project Applicant/Developer shall provide the County with plans and specifications that have been prepared in accordance with the Project Water Purveyor or alternate qualified public utility district requirements and standards that demonstrate that the WRF West shall serve the Project site west of the West Branch of the California Aqueduct. The facility shall be located on an approximate 3-acre site and shall treat an average flow of approximately 0.34 million gallon per day. Biosolids shall be hauled to a suitable landfill or used for conversion into fertilizer products.

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.19	Wastewater Collection	<b>MM 19-5</b> The Project Applicant/Developer shall provide the County with plans and specifications that have been prepared in accordance with the Project Water Purveyor or alternate qualified public utility district requirements and standards that demonstrate that the WRF East shall serve the Project site east of the West Branch of the California Aqueduct. WRF East will be located near the northeasterly corner of the Project and shall treat an average flow of 4.28 million gallons per day. Biosolids shall be hauled to a suitable landfill or used for conversion into fertilizer products. Lined seasonal recycled water storage ponds shall be implemented as required to temporarily store recycled water during times of low demand. The ponds shall implement feasible and applicable wastewater treatment facility best management practices for mosquito and health vector recommended in the California Department of Public Health's 2012 <i>Best Management Practices for Mosquito Control in California: Recommendations of the California Department of Public Health and the Mosquito and Vector Control Association of California</i> .
5.20	Dry Utilities	<b>MM 20.2-1</b> The Project Applicant/Developer shall coordinate with Southern California Edison (SCE) to ensure that there are no prolonged disruptions to the existing transmission lines that extend through the Project study area and to coordinate in the design and implementation of future electrical service and facilities (e.g., transmission lines, access road) in the Project study area. This will ensure that: (1) no prolonged service disruptions during the extension and upgrading of these services would arise; (2) the nature, design, and timing of electrical system improvements are in accordance with all SCE requirements; and (3) the improvements are adequate to serve the proposed land uses and are available for the first occupied land uses.
5.20	Dry Utilities	<b>MM 20.2-2</b> The Project Applicant/Developer shall provide the County with plans and specifications that demonstrate a future substation shall be constructed in the eastern half of the Project site to serve Project development in the easterly portion of the Project site. To provide adequate capacity for electrical services for the Project, SCE would select one of the following two options to implement: (1) reconfigure the Bailey Substation or (2) upgrade the Gorman Substation and retrofit the existing overhead power lines. An electrical generation and distribution system shall be constructed as part of the main utility corridors for dry utilities. The timing of construction, as well as specific facility location and sizing, shall be coordinated with SCE.
5.20	Dry Utilities	<b>MM 20.3-1</b> The Project Applicant/Developer shall coordinate with the Southern California Gas Company (SoCalGas) in the design and implementation of future natural gas service and facilities in the Project study area to ensure that (1) no prolonged service disruptions during the extension and upgrade of these services would arise; (2) the nature, design, and timing of natural gas system improvements are in accordance with SoCalGas requirements; and (3) the improvements are adequate to serve the Project, to be in place for the first occupied land uses.
5.20	Dry Utilities	<b>MM 20.3-2</b> The Project Applicant/Developer shall install, bond for, or otherwise provide on-site natural gas facilities in coordination with SoCalGas.
5.20	Dry Utilities	<b>MM 20.3-3</b> An additional regulator station shall be constructed by SoCalGas to loop the distribution system for increased reliability. The timing for development of this station shall be determined by SoCalGas through an assessment of the system's operational needs. The timing for construction of this facility, as well as the specific location and sizing, shall be coordinated with SoCalGas.

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.20	Dry Utilities	<b>MM 20.4-1</b> The Project Applicant/Developer shall coordinate with AT&T in the design and implementation of future telecommunications service and facilities within the Project study area to ensure that: (1) no prolonged service disruptions during the extension and upgrading of these services would arise; (2) the nature, design, and timing of telecommunications system improvements are in accordance with AT&T requirements; and (3) the improvements are adequate to serve the proposed land uses.
5.20	Dry Utilities	<b>MM 20.5-1</b> The Project Applicant/Developer shall coordinate with the Cable Television Service Provider in the design and implementation of future communication service and facilities within the Project study area to ensure that (1) no prolonged service disruptions during the extension and upgrading of these services would arise; (2) the nature, design, and timing of cable system improvements are in accordance with the Cable Service Provider's requirements; and (3) the improvements are adequate to serve the proposed land uses. The cable service connections shall be available at the property lines.
5.21	Climate Change	<b>MM 21-1</b> The Project Applicant/Developer shall provide the County with plans and specifications that demonstrate 50 percent of the Project's anticipated electrical energy demand at buildout shall be satisfied from on-site renewable energy generation. "Anticipated electrical energy demand" shall be determined on the basis of the anticipated loads for each building as shown in the reports submitted at the time of building permit application pursuant to the Building Energy Efficiency Standards of Title 24. "On-site renewable energy generation" includes, but is not limited to, solar, wind, geothermal, biofuel and hydroelectric systems. These systems shall be installed in connection with the development of one or more of the following: residential units, nonresidential buildings, public buildings, or Specific Plan utility facilities located either within the Specific Plan area or within its immediate vicinity.
5.21	Climate Change	<b>MM 21-2</b> The Project's plans and specifications shall demonstrate compliance with California Green Building Standards (CALGreen) Code voluntary measure A4.203.1.2.1 Tier 1 for newly-constructed low-rise residential buildings. Therefore, the energy efficiency of these buildings would exceed 2016 Title 24 requirements by 15 percent. Low rise buildings are three stories or less. The Project shall incorporate the Green Development Program ( <i>Centennial Specific Plan</i> , Appendix 2A), and the Project Applicant/Developer shall be responsible for the implementation of this requirement, which may include energy reduction measures such as use of high performance glazing, radiant heat roof barriers, insulation of all pipes, programmable thermostats, fluorescent and LED bulbs, solar access, sealed ducts, strategic placement of trees and other shading devices. All single-family homebuyers shall have the option to include a photovoltaic array system.

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.21	Climate Change	<p><b>MM 21-3</b> The Project's plans and specifications shall demonstrate compliance with CALGreen voluntary measure A5.203.1.2.1 Tier 1 for nonresidential buildings (e.g. hotel, high-rise residential), thereby exceeding the 2016 Title 24 energy efficiency requirements for these buildings by 10 percent. The Project shall incorporate the Green Development Program (Centennial Specific Plan, Appendix 2A), and the Project Applicant/Developer shall be responsible for the implementation of this requirement, which may include energy reduction measures such as high performance glazing, radiant heat roof barriers, high-efficient HVAC with hot-gas reheat, insulation of all pipes, programmable thermostats, fluorescent and LED bulbs, solar access, sealed ducts, zero use of CFC refrigerants in commercial buildings, strategic placement of trees, and other shading devices. Commercial structures shall include passive solar design techniques, such as a north-south panel orientation on buildings, and shall install operable windows designed to maximize natural ventilation by opening into prevailing west winds at inlets and away outlets, thereby reducing use of interior climate controls.</p>
5.21	Climate Change	<p><b>MM 21-4</b> The-Project Applicant/Developer shall require in contract specifications, that contractors limit construction equipment idling to 3 minutes and include a program to ensure that equipment operators comply with the 3-minute limit.</p>
5.21	Climate Change	<p><b>MM 21-5</b> The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that a minimum of 70 percent of public and community pools and spas shall be equipped with active solar heating systems where heating is necessary or desired. The Project Applicant/Developer shall provide the proposed plan for compliance with this provision prior to obtaining a permit for the pool.</p>
5.21	Climate Change	<p><b>MM 21-6</b> Deeds, CC&amp;Rs or similar legal documents shall contain the following requirement: The owners of all single-family and multi-family residential units shall be required, upon resale, to present to the buyer a written energy audit checklist prepared by a qualified third party at the time the seller provides the buyer with the Real Estate Transfer Disclosure Statement required by California Civil Code, Section 1102 et seq. The energy audit checklist shall certify that all HVAC systems, thermostats, appliances, windows and swimming pools (if applicable) are the same as those originally installed or, if changed, otherwise comply with Centennial's Green Development Program. All residential pool covers shall be removable, and shall not be automatic retractable covers.</p> <p>The CC&amp;Rs of the master homeowners association or other applicable association shall require compliance with the provisions of this measure and shall provide notice to individual owners of the resale energy audit checklist requirement. The master homeowners association or other applicable association shall monitor compliance and provide the County with an annual report of compliance with this measure.</p>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.21	Climate Change	<b>MM 21-7</b> Deeds, CC&Rs, or similar legal documents shall contain the following requirement: For nonresidential buildings, within ninety (90) days after the end of the first full calendar year following the issuance of the certificate of occupancy and within ninety (90) days after each five year period thereafter, the owner or tenant in possession thereof shall submit to the master commercial owners association or other applicable association a report prepared by the owner or a qualified, independent third party that evaluates whether all major building systems such as heat furnace, air conditioner, and other mechanical fixtures are working within the design standards established for each system. The master commercial owners association or other applicable association shall monitor compliance and provide the County with an annual report of compliance with this measure.
5.21	Climate Change	<b>MM 21-8</b> Energy efficient major appliances and HVAC systems that meet the more stringent of applicable California Energy Commission (CEC) requirements or ENERGY STAR requirements, or equivalent, shall be exclusively offered by residential builders. Major appliances subject to this requirement include dishwashers, clothes washers, refrigerators, and room air conditioners.
5.21	Climate Change	<b>MM 21-9</b> The Project Applicant/Developer shall provide plans and specifications to the County that have been prepared in accordance with the Project Water Purveyor or alternate qualified public utility district requirements and standards, demonstrating that the Project's wastewater reclamation facilities (WRFs) shall include equipment to capture and reuse biogas for energy production.
5.21	Climate Change	<b>MM 21-10</b> The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that nonresidential or multi-family buildings shall be constructed with recycled water infrastructure to serve common areas for these facilities, except where prohibited by law. To the extent recycled water is produced within the Project and available, recycled water shall be used for landscape irrigation within those common areas. Compliance with these measures shall be established prior to the of a construction permits for nonresidential and multi-family facilities and at the time of County approval of final landscaping plans submitted by the Project Applicant/Developer after final map recordation for homeowners association common areas. Covenants, conditions and restrictions (CC&Rs) shall require the owners of such common areas to maintain, repair and replace irrigation systems and plantings in accordance with County approved plans.
5.21	Climate Change	<b>MM 21-11</b> The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that nonresidential building shall be constructed with indoor plumbing fixtures and fixture fittings that would reduce the overall use of potable water within the building by 12 percent, consistent with 2016 CALGreen Tier 1 nonresidential voluntary measures as prescribed in Section A5.303.2.3.1 of the code.
5.21	Climate Change	<b>MM 21-12</b> The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that single or multi-family residential buildings shall be constructed with kitchen faucets and appliances that comply with 2016 CALGreen code residential voluntary measures specified in Sections A4.303.1 and A4.303.3 of the code.
5.21	Climate Change	<b>MM 21-13</b> The outdoor residential (single-family and multi-family) water budget for water budget based ratemaking shall be based on having no more than 25 percent turf grass allowed in landscaped areas of single-family detached residential front yards and multi-family residential common areas.

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.21	Climate Change	<b>MM 21-14</b> Ten percent of all homes in Centennial communities that permit housing, with the exception of the lowest density area (Community 8-2) will be affordable, in conformance with the Affordable Housing Implementation Plan (see Appendix 3-H of the Centennial Specific Plan).
5.21	Climate Change	<b>MM 21-15</b> The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that one 208/240 VAC receptacle that may be used for charging electric vehicles, shall be installed in each detached and attached single-family residence. The installation shall comply with requirements of the 2016 CALGreen Code Section 4.106.4.1, or the most applicable code at the time of construction.
5.21	Climate Change	<p><b>MM 21-16</b> The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that “alternative energy fueling stations” shall be installed as follows. An “alternative energy vehicle fueling station” is a 208/240 VAC electrical vehicle charging station or a station providing another new or improved technology (e.g. compressed natural gas (CNG) and hydrogen fuel cell) that provides refueling for vehicles that do not use fossil fuel. An electric charging station shall allow for simultaneous charging of two electric vehicles.</p> <ul style="list-style-type: none"> <li>• Business Park and Institutional land use designations shall provide a minimum of one alternative energy vehicle fueling station on site for the first 50,000 square feet of usable floor space and additional alternative energy vehicle fueling stations for each additional 50,000 square feet of usable floor space thereafter.</li> <li>• Multi-family residential buildings of at least 20 residential units shall provide a minimum of one alternative energy vehicle fueling station for the first twenty (20) residential units and an additional alternative energy vehicle fueling station for each additional twenty (20) residential units thereafter.</li> <li>• The Town Center and each Village Center shall provide a minimum of one alternative energy vehicle charging station.</li> <li>• Designated Transit Hubs shall provide a minimum of one alternative energy vehicle charging station.</li> </ul>
5.21	Climate Change	<p><b>MM 21-17</b> The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the building designs for non-residential buildings:</p> <ul style="list-style-type: none"> <li>• Bicycle parking spaces at a rate of 5 percent of minimum required vehicle parking spaces for nonresidential land uses.</li> <li>• Preferential parking for low-emitting, fuel-efficient, and carpool/van vehicles shall be provided as specified in Section A5.106.5.1, Nonresidential Voluntary Measures, of the CALGreen Code.</li> </ul>
5.21	Climate Change	<p><b>MM 21-18</b> The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the building designs or specifications for multi-family residential buildings:</p> <ul style="list-style-type: none"> <li>• Visitor parking shall include preferentially located parking spaces for alternative-fueled vehicles.</li> <li>• Bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen Code or as required by County Code Section 22.52.1225B, whichever is more stringent.</li> </ul>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
5.21	Climate Change	<p><b>MM 21-19</b> For parking structures and parking lots with 20 or more parking spaces, the Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the parking facility:</p> <ul style="list-style-type: none"> <li>• The parking facility shall include a minimum of five percent preferentially located parking spaces for alternative-fueled (electric, natural gas, or similar low-emitting technology) vehicles.</li> <li>• The parking facility shall include at least one electric vehicle charging station. Electrical lines shall be designed and sized to add additional charging stations for up to three percent of the total parking spaces when a demand is demonstrated. The design and installation shall be consistent with Section A4.106.8.2, Residential Voluntary Measures, of the CALGreen Code.</li> <li>• For residential parking facilities, bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen code or as required by County Code Section 22.52.1225B, whichever is more stringent.</li> </ul>
5.21	Climate Change	<p><b>MM 21-20</b> The Project Applicant/Developer shall ensure that the implementation of the Green Development Program takes into account compliance with the following regulations.</p> <ol style="list-style-type: none"> <li>1) Regulations that are quantified inputs into the CalEEMod analysis, resulting in GHG Reductions: <ol style="list-style-type: none"> <li>a) Pavley Motor Vehicle Standards (AB 1493)</li> <li>b) Low Carbon Fuel Standard (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 7, Section 95480 et seq.)</li> <li>c) Title 24 (part 6 [Energy Code] and part 11 [CALGreen Code]) of the California Code of Regulations</li> <li>d) Renewable Portfolio Standard (SB X1 2 and SB 350)</li> <li>e) Solid Waste Diversion (AB 341)</li> <li>f) Statewide reduction in potable urban water usage of 25 percent relative to water use in 2013 (Executive Order B-29-15)</li> <li>g) Model Water Efficient Landscape Ordinance (MWEL0) (California Code of Regulations, Title 23, Division 2, Chapter 2.7)</li> <li>h) Los Angeles Tree Planting Ordinance (Los Angeles County Code, Title 22, Division 1, Chapter 22, Part 20, Sections 22.52.2100 et seq.)</li> <li>i) Los Angeles County Green Building Standards Code (Los Angeles County Code, Title 31, Chapter 1, Sections 100 et seq.)</li> <li>j) California Water Code (California Code of Regulations, Division 6, Part 2.10, Sections 10910–10915)</li> <li>k) Los Angeles County Community Climate Action Plan</li> </ol> </li> <li>2) Regulations that are not quantified inputs into the CalEEMod analysis, but should be considered for incorporation as appropriate:</li> </ol>

**TABLE 1-2  
CENTENNIAL SPECIFIC PLAN MITIGATION SUMMARY**

#	Environmental Factor	Mitigation
		<p>a) EPA and NHTSA GHG and CAFE standards for passenger cars, light-duty trucks, and medium-duty passenger vehicles (75 FR 25324–25728 and 77 FR 62624–63200) and for medium- and heavy-duty vehicles (76 FR 57106–57513)</p> <p>b) Cap-and-Trade Program for Electricity, Stationary Sources, and Fuels (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 5, Section 95801 et seq.)</p> <p>c) Advanced Clean Cars Program (California Code of Regulations, Title 13, Division 3, Chapter 1, Articles 1, 2, 6 (parts); Chapter 2, Articles 1, 2.1, 2.3, 2.4 (parts); Chapter 4.4 (parts); Chapter 8 (parts).</p> <p>d) Under Inflated Vehicle Tires (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 8, Section 95550 et seq.)</p> <p>e) Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Regulation (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 1, Section 95300 et seq.)</p> <p>f) Management of High Global Warming Potential Refrigerants for Stationary Sources (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5.1, Section 95380 et seq.)</p> <p>g) Small Containers of Automotive Refrigerant (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5, Section 95360 et seq.)</p> <p>h) High-Global Warming Potential Greenhouse Gases in Consumer Products (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 8.5, Article 2)</p> <p>i) CALGreen Code as Adopted by the Building Standards Commission (California Code of Regulations, Title 24, Part 11 Emergency Building Standard DSA-SS EF-02/15)</p> <p>j) Natural Gas Cooking Stoves and Fireplaces (SCAQMD Rule 445)</p>



*This page intentionally left blank*

## 1.10 ALTERNATIVES

The Alternatives Section (Section 8.0) discusses the potential impacts of alternatives that have been created as alternate approaches to the proposed Project. Six of eight possible alternatives are discussed; they are: Alternative A, No Project Alternative; Alternative B, Previously Proposed Project Alternative; Alternative C, Additional Drainage Avoidance Alternative; Alternative D, Infrastructure Relocation Alternative; Alternative E, Density Clustering/East of Aqueduct Alternative; and Alternative F, Central EOA Development Alternative. Each Alternative has a description and a summary of the impacts of each. The Environmentally Superior Alternative, as determined in accordance with CEQA, is Alternative E, Density Clustering/East of Aqueduct Alternative.

## 1.11 AREAS OF CONTROVERSY

CEQA requires that areas of controversy and unresolved issues be identified up front as part of the EIR. As discussed previously, the scope of this EIR includes issues identified by agencies and the public in response to circulation of the NOP. The following are the primary issues that are unresolved or that involve an element of potential controversy:

- The scoping process identified the public's concern over availability of water supplies. The sources of water and the sufficiency of water supplies to serve the Project are discussed in Section 5.18 (Water Resources).
- Comments have been received during the scoping process indicating concern regarding creation of nighttime light pollution with Project implementation. Section 5.13 (Visual Resources), particularly the analysis of Threshold 13-5, addresses impacts related to daytime and nighttime light and glare sources associated with the Project.
- The scoping process identified the public's concern over preservation of open space. As a means of addressing this issue, the Project provides 12,323 acres in open space. In order to analyze potential impacts, land resource impacts are discussed in Section 5.5 (Land Resources), land use and planning impacts are discussed in Section 5.8 (Land Use, Entitlements and Planning), and aesthetic impacts are discussed in Section 5.13 (Visual Resources), among other sections.
- Comments have been received during the scoping process indicating that the proposed Project should not be approved because it impacts California condor habitat. EIR Section 5.7 (Biological Resources) analyzes this issue and demonstrates that the Project area is outside the designated critical habitat for the California condor.
- The Project proposes the development of 19,333 housing units on the Project site. The appropriateness of this amount of development in the proposed location has been questioned. EIR Section 5.9 analyzes the population, housing, and employment impacts that would result from the implementation of the proposed Project. Further, EIR Section 5.10 (Traffic, Access and Circulation), Section 5.11 (Air Resources), Section 5.17 (Other Public Services), and Section 5.18 (Water Resources), among others, analyze the infrastructure needed for the Project and impacts associated with developing the Project at the Project site. Section 5.7 (Biological Resources) analyzes the direct and

indirect impacts to local and regional biological resources and issues, including wildlife movement, with implementation of the Project.

- The *Centennial Specific Plan* proposes development adjacent to the San Andreas Significant Ecological Areas (SEA) designated by the County of Los Angeles, but would not impact the SEA. EIR Section 5.7 (Biological Resources), particularly the analysis of Threshold 7-5, addresses impacts to biological resources.
- SR-138 and I-5 are the main travel routes projected to be used by residents and employees within the Project. They are facilities under the control of Caltrans; therefore, the County does not have the authority to modify access to these highways. There is a concern that the additional traffic would impact the facilities in a manner that will affect existing and future travelers on the facilities. The Project includes a comprehensive mitigation program—including an agreement between the Project proponents, the County, and Caltrans—to mitigate the additional trips to a less than significant level. This issue is addressed in Section 5.10 (Traffic, Access, and Circulation).

## 1.12 REFERENCED DOCUMENTS AND AVAILABILITY OF STUDIES AND REPORTS

Copies of this Draft EIR, the technical appendices, and all cited or referenced studies or reports are available for review at the County of Los Angeles Department of Regional Planning located at 320 West Temple Street, Los Angeles, California. The EIR and technical appendices are also available for review on the Los Angeles County Department of Regional Planning website ([www.planning.lacounty.gov](http://www.planning.lacounty.gov)) and as CDs in the following libraries:<sup>6</sup>

Lancaster Regional Library  
601 West Lancaster Boulevard  
Lancaster, California 93534

Quartz Hill Library  
42018 50<sup>th</sup> Street West  
Quartz Hill, California 93536

Castaic Library  
27971 Sloan Canyon Road  
Castaic, California 91384

Canyon County JoAnne Darcy Library  
18601 Soledad Canyon Road  
Santa Clarita, California 91351

Valencia Public Library  
23743 West Valencia Boulevard  
Santa Clarita, California 91355

San Fernando Library  
217 North Maclay Avenue  
San Fernando, California 91340

Old Town Newhall Library  
24500 Main Street  
Santa Clarita, California 91321

Bakersfield Library, Southwest Branch  
8301 Ming Avenue  
Bakersfield, California 93311

Frazier Park Library  
3732 Park Drive

Stevenson Ranch Library  
25950 The Old Road

<sup>6</sup> Individuals or groups who would like a printed copy of the document can order directly from ARC at their own (nonrefundable) expense. Copies can be ordered from Kevin Oermann by phone at (949) 660-1150 ext. 154 or by email at [kevin.oermann@e-arc.com](mailto:kevin.oermann@e-arc.com).

Frazier Park, California 93225

Stevenson Ranch, CA 91381

## 1.13 REFERENCES

Cal FIRE, Fire and Resource Assessment Program (FRAP). 2006. FRAP 2006 Statewide Vegetation Mosaic. Sacramento, CA: Cal FIRE, FRAP.

California Department of Transportation (Caltrans). 2011 (September 7). California Scenic Highway Mapping System: Scenic Route (Los Angeles County). Sacramento, CA: Caltrans. [http://www.dot.ca.gov/hq/LandArch/16\\_livability/scenic\\_highways/index.htm](http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm).

California Superior Court. 2015 (December). *Antelope Valley Groundwater Cases [Proposed] Judgement and Physical Solution* (Santa Clara Case No. 1-05-CV-049053). Los Angeles, CA: Superior Court of the State of California, County of Los Angeles – Central District. [http://www.sccourt.org/complexcivil/105CV049053/volume4/234671e\\_ExhibitxAxxxxProposedxJudgmentxandxPhysicalxSolution.pdf](http://www.sccourt.org/complexcivil/105CV049053/volume4/234671e_ExhibitxAxxxxProposedxJudgmentxandxPhysicalxSolution.pdf) (Appendix 5.18-D).

California, State of. 2015a (access date). *California Code of Regulations* (Title 14, Natural Resources; Division 6, Resources Agency; Chapter 3, Guidelines for Implementation of the California Environmental Quality Act). Sacramento, CA: the State.

———. 2015b (last amended). *California Government Code* (Title 7, Planning and Land Use; Division 1, Planning and Zoning; Chapter 4.9, Payment of Fees, Charges, Deductions, or Other Requirements Against a Development Project [65995–65998]). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=4.9.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=4.9.&article=).

———. 2015c (access date). *California Public Resources Code* (Division 13, Environmental Quality; Sections 21000–21189.3). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=PRC&division=13.&title=&part=&chapter=&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=PRC&division=13.&title=&part=&chapter=&article=).

Lahontan Regional Water Quality Control Board (Lahontan RWQCB). 1995 (as amended through 2015). *Water Quality Control Plan for the Lahontan Region, North and South Basins*. South Lake Tahoe, CA and Victorville, CA: Lahontan RWQCB.

Los Angeles, County of. 2015a (last accessed). *Los Angeles County, California – Code of Ordinances* (Title 26, Building Code). Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles. [https://www.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances](https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances).

Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.

- . 2015b. *Unincorporated Los Angeles County Community Climate Action Plan 2020*. Final. August. Los Angeles, CA. Prepared with assistance from: ICF International (ICF 027920.0.011).
- . 2015c (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.
- . 2014 (October). *Final Environmental Impact Report, Antelope Valley Area Plan, County of Los Angeles*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc/environmental/>.
- Paleo Environmental Associates (PEA). 2009 (April). *Paleontologic Resource Inventory and Impact Assessment Technical Report prepared in support of Centennial Specific Plan, western Antelope Valley, northern Los Angeles County, California*. Altadena, CA: PEA (Appendix 5.6-F).
- Placeworks. 2016. *Centennial Specific Plan*. Santa Ana, CA: Placeworks (Appendix 4.0-A).
- Southern California Association of Governments (SCAG). 2016a (April 7). Final 2016 RTP/SCS – Demographics and Growth Forecast Appendix. Los Angeles, CA: SCAG. [http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS\\_DemographicsGrowthForecast.pdf](http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS_DemographicsGrowthForecast.pdf).
- . 2016b (April 13). 2016–2040 RTP/SCS Final Growth Forecast by Jurisdiction. Los Angeles, CA: SCAG. [http://www.scag.ca.gov/Documents/2016\\_2040RTPSCS\\_FinalGrowthForecastbyJurisdiction.pdf](http://www.scag.ca.gov/Documents/2016_2040RTPSCS_FinalGrowthForecastbyJurisdiction.pdf).
- . 2016c (April 7). *The 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy*. Los Angeles, CA: SCAG. <http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf>.
- . 2012a (April). 2012 Regional Transportation Plan/Sustainable Communities Strategy - Growth Forecast Appendix. Los Angeles, CA: SCAG. [http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP\\_GrowthForecast.pdf](http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP_GrowthForecast.pdf).
- . 2012b. 2012 Adopted Growth Forecast (an excel spreadsheet). Los Angeles, CA: SCAG.
- . 2012c. Tier 2 (TAZ) for the 2012-2035 Regional Transportation Plan. Los Angeles, CA: SCAG. <http://gisdata.scag.ca.gov/Pages/GIS-Library.aspx?keyword=tier>.
- Stantec. 2016 (April). *Centennial Specific Plan Traffic Study*. Irvine, CA: Stantec (Appendix 5.10-A).

---

## 2.0 INTRODUCTION

### 2.1 PURPOSE OF THE ENVIRONMENTAL IMPACT REPORT

This Environmental Impact Report (EIR) has been prepared to evaluate the potential environmental impacts associated with the construction and operation of the Centennial Project (Project). This EIR has been prepared in conformance with the California Environmental Quality Act (CEQA; *California Public Resources Code* [PRC], Sections 21000 et seq.) and the State CEQA Guidelines (Title 14, *California Code of Regulations* [CCR], Sections 15000 et seq.). This EIR addresses the potential environmental impacts associated with developing all of the land uses and implementing the associated actions identified in the Project's Conceptual Land Use Plan through buildout.

The County of Los Angeles (County) is the “public agency which has the principal responsibility for carrying out or approving the project” and, as such, is the “Lead Agency” for this Project under CEQA (14 CCR 15367). CEQA requires the Lead Agency to consider the information contained in the EIR prior to taking any discretionary action. The County, as the Lead Agency, will review and consider this EIR in its decision to approve, revise, or deny the Project.

Under CEQA, “[t]he purpose of the environmental impact report is to identify the significant effects on the environment of a project, to identify alternatives to the proposed project, and to indicate the manner in which significant environmental effects can be mitigated or avoided” (PRC 21002.1[a]). An EIR is the most comprehensive form of environmental documentation identified in CEQA and the State CEQA Guidelines and is intended to provide an objective, factually supported, full-disclosure analysis of the environmental consequences associated with a proposed project that have the potential to result in significant, adverse environmental impacts.

### 2.2 TYPE OF ENVIRONMENTAL IMPACT REPORT

This EIR analyzes the environmental impacts related to implementation of the master planned community that is detailed in Section 4.0, Project Description. More information related to the structure of each topical EIR section and the levels of analysis is provided in Section 5.0, Regulatory and Environmental Setting, Impacts, and Mitigation.

Since approval and implementation of the Project has the potential to cause physical changes in the environment, it is considered a “Project” (as defined by Section 21065 of CEQA and Section 15378 of the State CEQA Guidelines) and thus is subject to the mandates of CEQA. In accordance with Section 15051 of the State CEQA Guidelines, the Lead Agency is the public agency with the greatest responsibility for carrying out or approving the Project as a whole. The County of Los Angeles has the primary responsibility for the approval, construction, and operation of the Project.

This EIR provides a comprehensive evaluation of the reasonably anticipated scope of the Project and evaluates the potential impacts of its construction and long-term operation. It is intended to serve as an informational document for public agency decision makers and the general public regarding (1) the objectives and components of the Project; (2) any potentially significant environmental impacts (individual and cumulative) that may be associated with the planning, construction, and operation of the Project; and (3) appropriate and feasible mitigation measures and alternatives that may be adopted to reduce or eliminate these significant impacts.

This EIR is further intended to serve as the primary environmental document for all entitlements associated with the Project, including all discretionary approvals requested or required in order to implement the Project. Subsequent actions will be reviewed as required by CEQA (Section 21166) and the State CEQA Guidelines (14 CCR 15162).

This EIR provides project-level detail pursuant to the State CEQA Guidelines, including specific infrastructure components needed to implement the Project, which state that a project EIR “examines the environmental impacts of a specific development project. This type of EIR should focus primarily on the changes in the environment that would result from the development project. The EIR shall examine all phases of the project including planning, construction, and operation” (14 CCR 15161).

This EIR analyzes Project-level impacts with the most current information provided at the time. In the case that the Project changes to add significant environmental impacts not analyzed in this EIR, additional CEQA may be required.

### **2.2.1 STANDARDS OF ADEQUACY FOR ENVIRONMENTAL IMPACT REPORTS UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT**

Given the role of the EIR in informing both the public and decision makers, it is critical that the information presented in this document be both accurate and adequate. The State CEQA Guidelines do not contain specific, detailed, quantified standards for the content of environmental documents. However, Section 15151 of the State CEQA Guidelines states the following:

An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible. Disagreement among experts does not make an EIR inadequate, but the EIR should summarize the main points of disagreement among the experts. The courts have looked not for perfection but for adequacy, completeness, and a good faith effort at full disclosure.

## 2.2.2 REVIEW OF AN ENVIRONMENTAL IMPACT REPORT

The County of Los Angeles, which has the principal responsibility for processing and approving the Project and other public agencies with direct interest in the Project (e.g., responsible and trustee agencies) that may use this EIR in their decision-making or permitting processes will consider the information in this EIR along with other information that may be presented during the CEQA process. In addition, this EIR is the primary reference document in the formulation and implementation of a Mitigation Monitoring and Reporting Program (MMRP) for the Project.

In accordance with CEQA, public agencies are required to make appropriate findings for each potential environmental impact identified in the EIR that cannot be mitigated to a less than significant level. If the Lead Agency (and responsible agencies using this CEQA document for associated permits or approvals) decides that the benefits of the Project outweigh any identified significant environmental effects that cannot be mitigated to below a threshold of significance, it (the Lead Agency) is required to adopt a Statement of Overriding Considerations, which states the reasons that support its actions.

The actions involved in the implementation of the Project are described in Section 4.8, Intended Use of the EIR. Other agencies that may have discretionary approval over the Project, or components thereof, including responsible and trustee agencies, are also described in Section 4.8, Intended Use of the EIR.

## 2.3 SCOPE OF THE ENVIRONMENTAL IMPACT REPORT

### 2.3.1 2004 NOTICE OF PREPARATION AND SCOPING PROCESS

The County has complied with the State CEQA Guidelines by providing opportunities for public participation in the environmental review process. Specifically, the Notice of Preparation (NOP) was distributed on March 15, 2004, to federal, State, regional, and local government agencies and interested parties to solicit comments and to inform agencies and the public of the Project during a 30-day public review period that extended from March 15 to April 14, 2004.

Copies of the NOP were also made available at the following libraries:

Quartz Hill Library  
42018 North 50<sup>th</sup> Street West  
Quartz Hill, California 93536<sup>1</sup>

Lancaster Regional Library  
601 West Lancaster Boulevard  
Lancaster, California 93534

Valencia County Library  
23743 West Valencia Boulevard  
Santa Clarita, California 91355

Newhall County Library  
22704 West 9<sup>th</sup> Street  
Santa Clarita, California 91321

<sup>1</sup> Quartz Hill Library address prior to November 19, 2016.



San Fernando Library  
217 North Maclay Avenue  
San Fernando, California 91340

The Project, as it was envisioned in 2004, was described in the NOP; potential environmental effects associated with Project approval and implementation were identified; and agencies and the public were invited to review and comment on the Initial Study, NOP, and NOP mailing list. Three scoping meetings (two on March 30, 2004, and one on March 31, 2004) were conducted during this review period to solicit additional suggestions from the public on the content of the EIR. Attendees were provided an opportunity to identify verbally or in writing the issues they felt should be addressed.

### **2.3.2 2015 NOTICE OF PREPARATION AND SCOPING PROCESS**

Since the issuance of the 2004 NOP, two land use policy document updates have been approved by the County Board of Supervisors (BOS), including the County of Los Angeles 2035 General Plan (General Plan 2035) on March 24, 2015 and the Antelope Valley Area Plan (AVAP) Update on June 16, 2015. These updates included information and data provided by the Southern California Association of Governments (SCAG) 2012-2035 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) adopted on April 4, 2012. These updated documents take into account the development proposed within the Project site, and the Project is consistent with and implements the requirements of the AVAP.

The 2004 NOP set forth a Project boundary that included approximately 11,680 acres. The original proposal requested approval of a three Vesting Tentative Tract Maps (VTTM) and required a General Plan amendment and zone change, among other entitlement actions. Since the issuance of the 2004 NOP, certain modifications to the Project have been made, and the County of Los Angeles subsequently confirmed that the preparation of an EIR is required. The revised Project Description includes 12,323 acres, which includes new property to the east of 300th Street, north of the SR-138. The Project includes a balance of land uses and economic development consistent with the intent and the land use designations set forth within the AVAP's West Economic Opportunity Area (EOA), which includes the Project site. As such, many of the land use entitlement actions previously requested in the 2004 NOP are no longer applicable.

A revised NOP, which included the 2004 NOP and Initial Study as attachments, was prepared and issued in October 2015 to federal, State, regional, and local government agencies and interested parties to solicit comments and to inform agencies and the public of the Project during a 30-day public review period that extended from October 5 to November 4, 2015. Comments on the NOP were received from 21 agencies and individuals, which are also provided in Appendix 2.0-A.

The County conducted a public scoping meeting for the purpose of soliciting oral and written comments from interested parties as to the appropriate scope and content of the EIR. All interested parties were invited to attend the scoping meeting to assist in identifying issues to be addressed in the EIR. The scoping meeting included a brief presentation of the Project to be addressed in the EIR and provided an opportunity for attendees to give input to the

scope of the EIR. The Scoping Meeting was held on October 21, 2015 from 6:30 PM to 8:00 PM at the Gorman Elementary School (49847 Gorman School Rd, Lebec, CA 93243 ).

The NOP was made available for public review during regular business hours at the Los Angeles County Department of Regional Planning website (<http://planning.lacounty.gov/case>) and the address listed above as well as the following library locations:

Lancaster Regional Library  
601 West Lancaster Boulevard  
Lancaster, California 93534

Quartz Hill Library  
42018 50th Street West  
Quartz Hill, California 93536<sup>2</sup>

Castaic Library  
27971 Sloan Canyon Road  
Castaic, California 91384

Canyon County JoAnne Darcy Library  
18601 Soledad Canyon Road  
Santa Clarita, California 91351

Valencia Public Library  
23743 West Valencia Boulevard  
Santa Clarita, California 91355

San Fernando Library  
217 North Maclay Avenue  
San Fernando, California 91340

Old Town Newhall Library  
24500 Main Street  
Santa Clarita, California 91321

Bakersfield Library, Southwest Branch  
8301 Ming Avenue  
Bakersfield, California 93311

Frazier Park Library  
3732 Park Drive  
Frazier Park, California 93225

Stevenson Ranch Library  
25950 The Old Road  
Stevenson Ranch, CA 91381

### **2.3.3 SCOPE OF THIS ENVIRONMENTAL IMPACT REPORT**

The scope of this EIR includes issues identified in consultation with the County during the NOP comment period, as well as environmental issues raised by agencies and the general public in response to the scoping process and circulation of the NOP. The environmental topics to be addressed (with the respective EIR section numbers) include the following:

- Geotechnical (Section 5.1)
- Hydrology and Flood (Section 5.2)
- Hazards and Fire Safety (Section 5.3)
- Water Quality (Section 5.4)
- Land Resources (Agricultural, Forestry, and Mineral Resources) (Section 5.5)
- Cultural and Tribal Resources (Section 5.6)
- Biological Resources (Section 5.7)
- Land Use, Entitlements, and Planning (Section 5.8)

---

<sup>2</sup> Quartz Hill Library address prior to November 19, 2016.

- Population, Housing, and Employment (Section 5.9)
- Traffic, Access, and Circulation (Section 5.10)
- Air Resources (Section 5.11)
- Noise (Section 5.12)
- Visual Resources (Section 5.13)
- Parks and Recreation (Section 5.14)
- Education (Section 5.15)
- Fire and Law Enforcement Services (Section 5.16)
- Other Public Services (Library, Solid Waste, and Other Public Facilities) (Section 5.17)
- Water Resources (Section 5.18)
- Wastewater Collection (Section 5.19)
- Dry Utilities (Electrical, Fossil Fuels [Natural Gas and Petroleum], Telephone, and Cable Service) (Section 5.20)
- Climate Change (Section 5.21)
- Growth-Inducing Impacts (Section 6.0)
- Cumulative Impacts (Section 7.0)
- Alternatives to the Proposed Project (Section 8.0)
- CEQA-Mandated Sections (Section 9.0)
- Document Preparation (Section 10.0)
- Acronyms (Section 11.0)
- Glossary (Section 12.0)

## 2.4 PLANNING CONTEXT

### 2.4.1 COUNTY GENERAL PLAN

As previously mentioned, the BOS voted to approve the *County of Los Angeles General Plan 2035* on March 24, 2015. The General Plan was subsequently adopted on October 6, 2015, and became effective on November 5, 2015. The General Plan 2035 serves as the land use policy for the unincorporated areas of Los Angeles County and was developed in accordance with five guiding principles: smart growth; sufficient community services and infrastructure; strong and diverse economy; excellent environmental resource management; and healthy, livable, and equitable communities. The Elements of the General Plan discuss issues affecting the County and outline goals, policies, and implementation programs that address the needs of the County and achieve its long range vision for growth and development. The General Plan 2035 discusses the Antelope Valley Planning Area and its Economic Opportunity Areas, consisting of rural town centers and areas with opportunities for economic growth and development (DRP 2014). The Project is subject to the requirements of the General Plan 2035.

## 2.4.2 ANTELOPE VALLEY AREA PLAN

The AVAP is a component of the County of Los Angeles General Plan that provides a coordinate statement of public policy relating to the future of the Antelope Valley. It provides more specific goals and policies for unincorporated County land in the Antelope Valley area than the County General Plan (DRP 2014). The AVAP first went to the County of Los Angeles Board of Supervisors for approval on November 12, 2014, where the Board unanimously indicated its intent to approve the AVAP and certify its Final EIR (DRP 2015c). The Los Angeles County BOS adopted the AVAP on June 16, 2015, which includes the AVAP, associated zone changes, and amendments to the Zoning Code (Title 22) (DRP 2015b).

Both the General Plan 2035 and the AVAP updates include information and data provided in SCAG's 2012–2035 RTP/SCS adopted on April 4, 2012. On April 7, 2016, SCAG's Regional Council adopted the 2016-2040 RTP/SCS. This EIR addresses the Project's consistency with the adopted AVAP in Section 5.8, Land Use, Entitlements, and Planning.

## 2.5 PROJECT SPONSORS AND CONTACT PERSONS

The County of Los Angeles is the Lead Agency for preparation of this EIR. Inquiries regarding the EIR should be directed to the County. The Applicant for the Project is Centennial Founders, LLC. Key contact persons are as follows:

Lead Agency: County of Los Angeles  
 Department of Regional Planning  
 320 West Temple Street  
 Los Angeles, California 90012  
 Contact: Mr. Jodie Sackett  
 Email: specialprojects@planning.lacounty.gov

Project Applicant: Centennial Founders, LLC  
 28480 Avenue Stanford, Suite 210  
 Santa Clarita, California 91355

## 2.6 ENVIRONMENTAL IMPACT REPORT REVIEW

This EIR has been distributed to Responsible and Trustee Agencies, other affected agencies, surrounding jurisdictions, interested parties, and other parties who requested a copy of the EIR in accordance with Section 21092 of the *California Public Resources Code*. The Notice of Completion for the EIR was also distributed as required by CEQA. Typically, reviewers of the EIR are given a 45-day review period to prepare written comments on the document. Due to the comprehensive nature of this Project and the volume of technical materials to review, a 15-day extension (for a total 60-day review period) has been established for an initial review period prior to the first public hearing. During the public review period, this EIR (including the technical appendices) is available for review at the County of Los Angeles Department of

Regional Planning located at 320 West Temple Street, Los Angeles, California.<sup>3</sup> Additionally, copies of the EIR and technical appendices (on CD) are available at the reference desk of the same libraries listed above for the 2015 NOP, with the exception of the Quartz Hill Library (formerly located at 42018 50<sup>th</sup> Street West, Quartz Hill). The EIR is available at: Lancaster Regional Library, Castaic Library, Valencia Public Library, Old Town Newhall Library, Frazier Park Library, Canyon County JoAnne Darcy Library, San Fernando Library, Bakersfield Library–Southwest Branch, Stevenson Ranch Library, and the new Quartz Hill Library, located at 5040 West Avenue M2, Quartz Hill, California.

Written comments to the EIR should be addressed to Mr. Jodie Sackett at the address provided above under Section 2.5. Upon completion of the 60-day public review period, written responses to all significant environmental issues that were raised in written and oral comments on the EIR will be prepared and provided to all agencies and interested organizations prior to final action on the Project. These environmental comments and their responses will be included as part of the environmental record for the decision makers to consider.

## 2.7 ORGANIZATION OF THE ENVIRONMENTAL IMPACT REPORT

### 2.7.1 THE DOCUMENT AS A WHOLE

This EIR has been divided into sections and is bound in one volume. It is available both in hard copy and on DVD. This EIR contains 12 sections, as listed below, and technical appendices. For ease of use, the references have been listed at the end of each section instead of the end of the document in a separate section.

***Section 1.0: Executive Summary.*** This section presents an overview of the Project objectives, and Project setting and description; a summary of each topical analysis in the EIR, growth-inducing impacts, cumulative impacts, and alternatives analysis; a description of Project alternatives; areas of known controversy; and a summary table listing the significance finding for each threshold addressed in Section 5.0.

***Section 2.0: Introduction.*** This section provides an introduction to the EIR, the EIR process, and the public involvement process.

***Section 3.0: Environmental Setting.*** This section describes the physical setting and current land uses on the site. It also discusses the current land use designations as defined by the *County of Los Angeles 2035 General Plan* and

<sup>3</sup> Individuals or groups who would like a printed copy of the document can order directly from ARC at their own (nonrefundable) expense. Copies can be ordered from Robbie Watson by phone at (949) 660-1150 ext. 154 or by email at Robbie.Watson@e-arc.com.

*Antelope Valley Area Plan*, the current zoning, regional planning context, and summarizes possible development constraints and opportunities.

***Section 4.0: Project Description.***

This section provides a description of the Project, as illustrated by the Project's Conceptual Land Use Plan. This includes discussions of the Project's objectives, its design, implementation, and the entitlements required, among other issues.

***Section 5.0: Regulatory and Environmental Setting, Impacts, and Mitigation.***

This contains a brief overview of how each Section 5 analysis section is organized and explains the difference between a Project Design Feature (PDF) and a Mitigation Measure (MM).

***Sections 5.1–5.21.***

These sections present the regulatory and environmental settings, threshold criteria, direct and indirect environmental impacts, mitigation measures if needed, and level of significance after mitigation, including identification of any unavoidable significant impacts for the environmental topics itemized above in Section 2.3.3.

***Section 6.0: Growth-inducing Impacts.***

This section presents the analysis of possible indirect impacts due to growth wholly or partially induced by Project implementation.

***Section 7.0: Cumulative Impacts.***

This section presents the analysis of the Project's impacts in combination with anticipated impacts related to regional growth and local projects.

***Section 8.0: Alternatives to the Proposed Project.***

This section analyzes feasible alternatives to the Project that could reduce the potentially significant adverse impacts on the Project site. It also discusses how well these alternatives meet the Project objectives.

***Section 9.0: CEQA-Mandated Sections.***

This section summarizes the irreversible changes due to the Project and the Project's impacts, and discusses mitigation outside the authority of the Lead Agency.

***Section 10.0: Document Preparation.***

This section lists those persons who assisted in preparing this document.

***Section 11.0: Acronyms.***

This section lists the acronyms that have been used throughout this EIR.

**Section 12.0: Glossary.**

This section includes a glossary of terms that were frequently used in this EIR.

The technical appendices mentioned throughout this document that provide the technical support for the EIR have not been printed, except for the hard copies provided for the public at the County of Los Angeles offices. However, the technical appendices have been included in their entirety on DVDs that are included inside the front cover of all hard copies of this EIR. These appendices include the 2015 Notice of Preparation (and attachments) and responses to it; the *Centennial Specific Plan*; the technical studies prepared for the Project; and other subject-specific reports, documentation, guides, and information deemed important to the analysis. The appendix numbering corresponds to the section number (e.g., Appendix 5.1-A is used in Section 5.1, Geotechnical).

**2.7.2 ENVIRONMENTAL ANALYSIS SECTIONS (SECTION 5.1–5.21)**

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with Article 9 (Contents of Environmental Impact Reports) of the State CEQA Guidelines, each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce the significant impacts; level of significance after mitigation; and references. This information is presented in the following format:

- 5.X.1 Introduction** – Describes the purpose, focus, and format of the subsequent topical analysis; provides a summary of the analysis presented in that section; and lists the primary technical references used in that section.
- 5.X.2 Relevant Plans, Policies, and Regulations** – Lists and describes the plans, policies, laws, and regulations relevant to that topic in descending order of jurisdiction, from federal to local.
- 5.X.3 Environmental Setting** – Describes the existing physical condition of the Project site and surrounding area at the time the NOP of the EIR was distributed (in accordance with 14 CCR 15125), as it is germane to that topic. If the analysis requires an evaluation of a baseline environmental condition other than described at the time of the issuance of the NOP, the justification and method for assuming a different baseline is discussed.
- 5.X.4 Project Design Features**– Lists the numbered PDFs germane to that topic (these elements are explained in more detail in Section 5.0). PDFs are design elements that have been incorporated into the Project to avoid or minimize environmental effects. Because PDFs have been incorporated into the Project, they do not constitute mitigation measures as defined by CEQA. However, if the PDFs have mitigation value to reduce a potentially significant impact, then a corresponding mitigation measure (MM) has been prepared to ensure the implementation of the measure through the Mitigation Monitoring and Reporting Program (MMRP).

- 5.X.5 Threshold Criteria** – Lists the numbered thresholds of significance for that topic, derived from the County of Los Angeles Environmental Checklist.
- 5.X.6 Environmental Impacts** – Includes the analysis of environmental impacts under each threshold criterion identified for that topic (listed in bold italics). If the subject matter is sufficiently related, threshold criteria may be grouped together to streamline the analysis. The analysis includes a description of the Project-related impacts on the environment, which is determined by comparing the effect of the Project on the baseline environmental condition. At the conclusion of the analysis for each threshold, an “impact summary” is provided that summarizes the level of significance for that threshold after consideration of PDFs and MMs.
- 5.X.7 Mitigation Measures** – Lists numbered mitigation measures for all significant impacts identified in the analysis.
- 5.X.8 Level of Significance After Mitigation** – Summarizes the overall level of significance for that topic as a whole, after all recommended mitigation measures have been implemented.
- 5.X.9 References** – Includes an alphabetical listing of all references used in that section. The technical reports used for the topical analyses are referenced as well.

## 2.8 REFERENCES

- California, State of. 2015a (access date). *California Code of Regulations* (Title 14, Natural Resources; Division 6, Resources Agency; Chapter 3, Guidelines for Implementation of the California Environmental Quality Act). Sacramento, CA: the State.
- . 2015b (access date). *California Public Resources Code* (Division 13, Environmental Quality; Sections 21000–21189.3). Sacramento, CA: the State.  
[http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=PRC&division=13.&title=&part=&chapter=&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=PRC&division=13.&title=&part=&chapter=&article=)
- Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.
- . 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.
- . 2015c (May 27, last accessed). Town & County—Antelope Valley Area Plan Update. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.
- . 2004 (March 2004). *Notice of Preparation: Centennial Specific Plan Project Description* (Project Number 02-232, Specific Plan, Conditional Use Permits, Oak Tree Permit, Zone Change, Development Agreement, Vesting Tentative Tract Map Numbers 60020, 60021, 60023, and Vesting Tentative Parcel Map Number 60022). Los Angeles, CA: DRP (Appendix 2.0-A).



Placeworks. 2017 (June). *Centennial Specific Plan*. Santa Ana, CA: Placeworks (Appendix 4.0-A).

*This page is intentionally left blank.*

## 3.0 ENVIRONMENTAL SETTING

Section 15125 of the Guidelines adopted pursuant to the California Environmental Quality Act (CEQA) states that “an EIR must include a description of the physical environmental conditions in the vicinity of the project, as they exist at the time the notice of preparation is published”. Also, Section 21060.5 of CEQA defines “environment” as “the physical conditions that exist within the area which will be affected by a proposed project, including land, air, water, minerals, flora, fauna, noise, or objects of historic or aesthetic significance”. This section summarizes the environmental setting for the Project and its vicinity as it existed when the Notice of Preparation (NOP) was filed in 2015. This section also (1) includes the current land uses on the property and the County zoning and general plan designations for the Project site; (2) discusses the Project site in its regional planning context; and (3) includes an overview of the constraints and opportunities of developing the Project.

### 3.1 PHYSICAL SETTING

The following provides an overview of the general environmental setting and the Project site’s relationship to the surrounding area. For more detailed information on the overview summary provided in this section, please refer to the appropriate environmental topic in Sections 5.1 through 5.21 of this EIR.

#### 3.1.1 PROJECT LOCATION AND SURROUNDING LAND USES

The Project is proposed on approximately 12,323 acres (19.3 square miles) of land in the northwestern portion of the Antelope Valley in unincorporated Los Angeles County. Exhibit 3-1, Regional Location, depicts the Project site boundary in the context of the larger privately owned Tejon Ranch, which is actively used for grazing; farming; hunting; mineral, oil, and, gas extraction. Tejon Ranch is located mainly north of the Project site, primarily in Kern County.

The Project site is located approximately 35 miles north of the City of Santa Clarita in Los Angeles County; approximately 50 miles south of the City of Bakersfield in Kern County via State Route (SR) 99 and Interstate (I) 5; and approximately 36 and 43 miles west of the Cities of Lancaster and Palmdale, respectively, in Los Angeles County via SR-138. As shown on Exhibit 3-2, Project Vicinity Map, the Project site is bisected by SR-138 and is located approximately one mile east of I-5, just south of the Kern County/Los Angeles County boundary in the vicinity of Quail Lake. The community of Gorman in Los Angeles County is adjacent to I-5 and is approximately four miles north of the I-5/SR-138 junction. The community of Neenach is located approximately 1.2 miles to the east of the Project boundary. The West Branch of the State Water Project’s (SWP) California Aqueduct bisects the Project. Additional Project location information is provided in Section 3.2.

To the north of the Project site in Kern County is the National Cement Plant, which is served by a private paved road: Wayne Hands Road (also known as “National Cement Plant Road”, which is the name this document uses), which runs through the Project site and ends at the National Cement Plant. This road is proposed to be realigned on the Project site as a part of

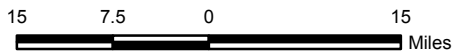


D:\Projects\3CEN\Centennial\MXD\EIR\Ex\_regional\_location\_20150903.mxd

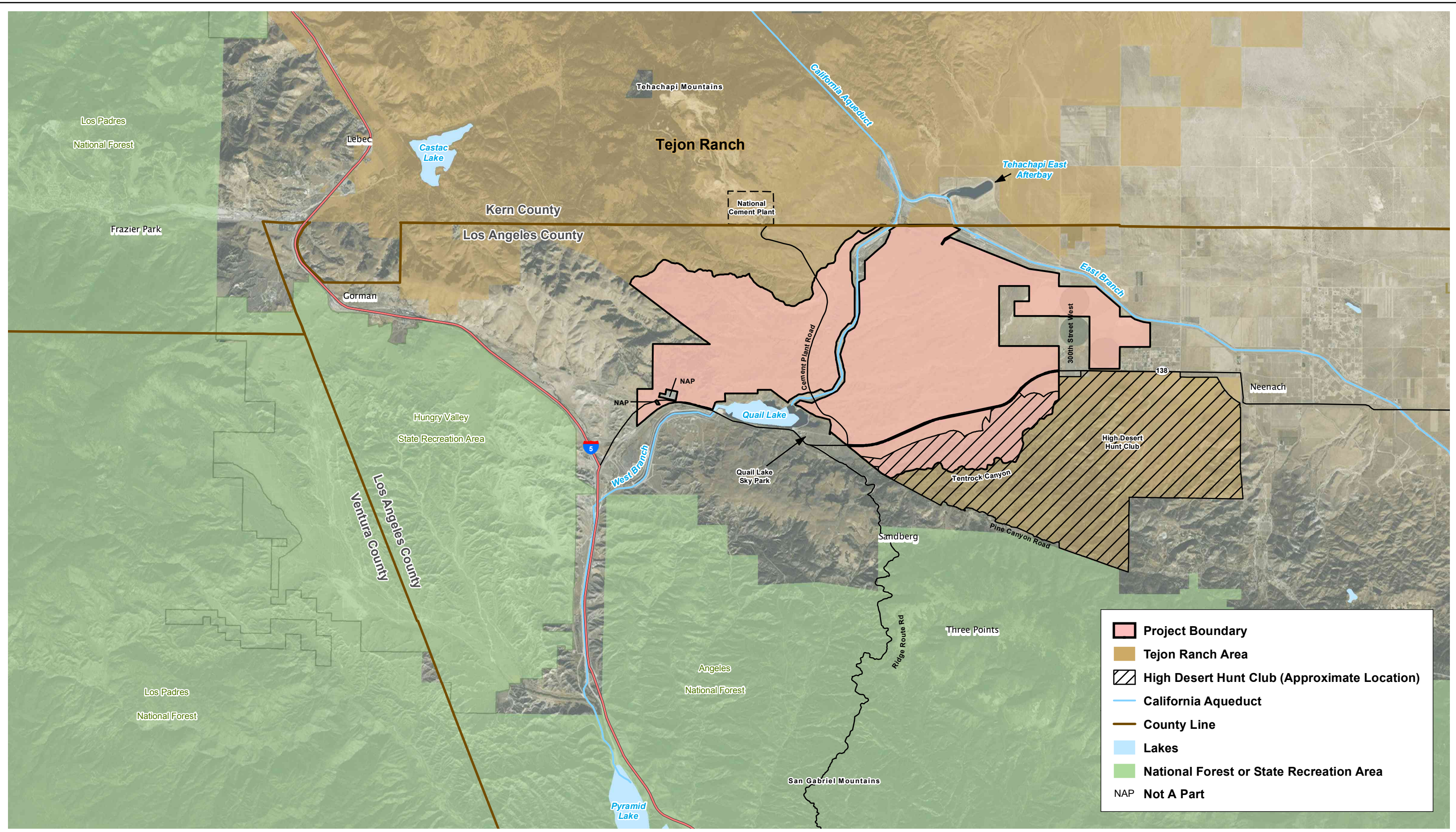
## Regional Location

## Exhibit 3-1

Centennial Project







D:\Projects\3CEN\Centennial\MXD\IER\EX\_vicinity\_aerial\_20150831.mxd

**Project Vicinity Map**

**Exhibit 3-2**

Centennial Project





the Project. The off-site National Cement Plant manufactures Portland cement from limestone deposits on its site, which is leased from Tejon Ranch.

To the east of the Project site are scattered residential and agricultural uses and the small community of Neenach. The High Desert Hunt Club is located southeast of the Project site and includes approximately 7,530 acres of land located on Tejon Ranch and 6,383 acres south of the Project site along SR-138 that is used for upland bird hunting (see Exhibit 3-2, Project Vicinity Map).

To the west of the Project site is the community of Gorman, located along I-5 approximately four miles from the Project site (as measured from the area just east of Quail Lake). The Hungry Valley State Vehicular Recreation Area (SVRA) is immediately west of I-5 at the Gorman exit, west of the Project area. The Hungry Valley SVRA contains over 19,000 acres, including campgrounds and trails for motorcycles, all-terrain vehicles (ATVs), dune buggies, and four-wheel-drive vehicles. Farther to the west is the 1.75-million-acre Los Padres National Forest located approximately 5 miles from the Project site in Ventura County.

To the south of the Project site is Quail Lake and SR-138, which also runs through the Project site. Residences are scattered throughout the foothills that lead up to the 693,000-acre Angeles National Forest (ANF), located approximately 1 to 3 miles from the Project site's southerly boundary (see Exhibit 3-2, Project Vicinity Map). The ANF extends for approximately 20 miles south to the Santa Clarita Valley.

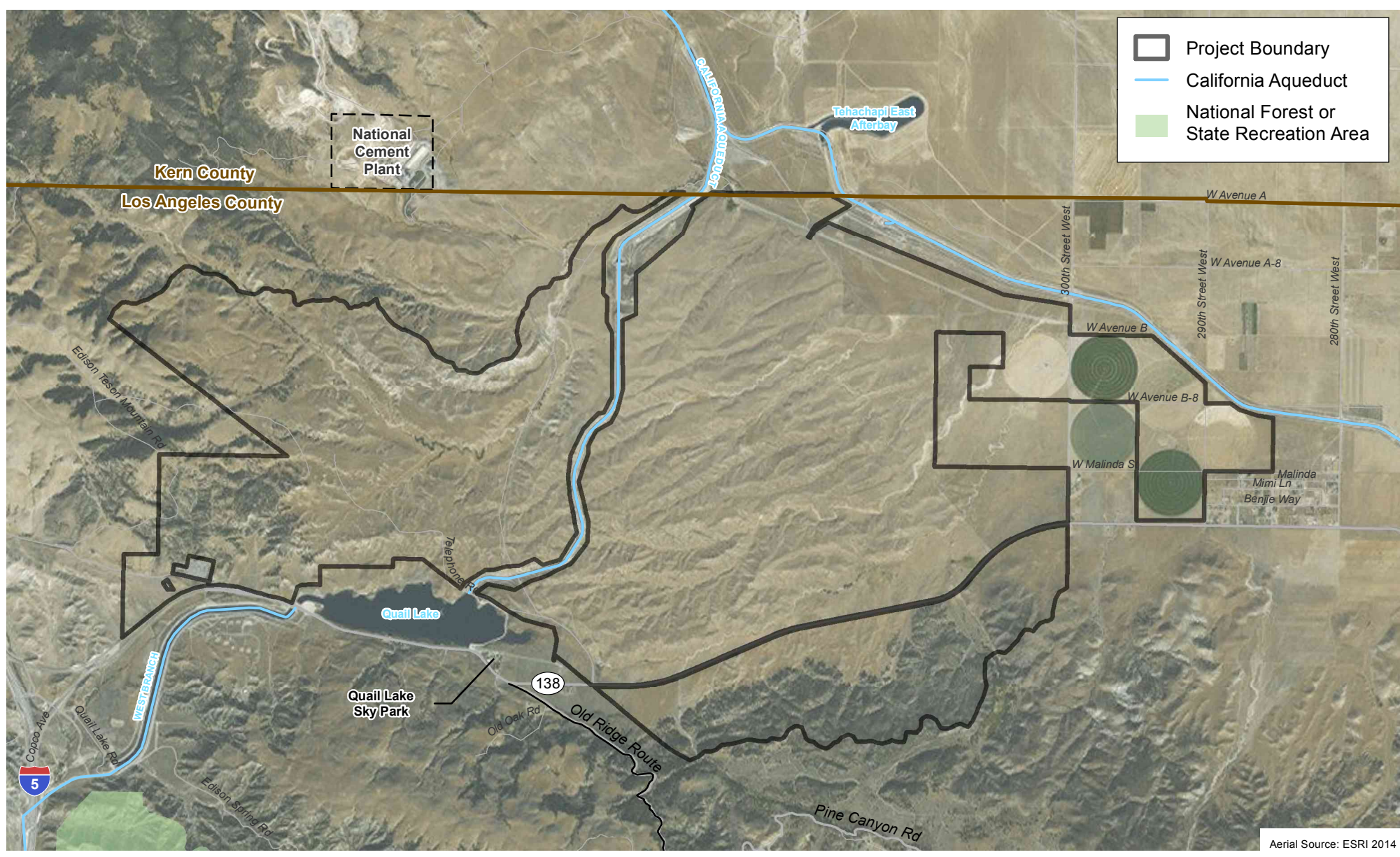
### **3.1.2 CLIMATE, TOPOGRAPHIC, GEOLOGIC, AND VISUAL SETTING**

Temperatures in the area rarely exceed 100 degrees Fahrenheit (°F) in the summer or drop below 20°F in the winter. The average annual temperature measured on Tejon Ranch from 2012 through 2014 was 67°F (WRCC 2015a). Average annual precipitation measured on the Tejon Ranch from 2012 through 2014 was 8.05 inches; however, 2013 and 2014 were drought years and in 2012, a relatively wet year, total annual precipitation was 11.53 inches (WRCC 2015b).

The Project site is situated in the western portion of the Antelope Valley and in the foothills of the Tehachapi Mountains. As shown on Exhibit 3-3, Aerial Photograph and Project Boundary, the Project site is generally bisected by the West Branch of the California Aqueduct. The western portion of the site (i.e., west of the Aqueduct) is characterized by moderate to steep hills and canyons with oak woodlands and riparian areas, and the eastern portion of the site (i.e., east of the Aqueduct) is characterized by open, gently sloping mesa grasslands dissected by a network of arroyos. Elevations range from approximately 3,000 feet above mean sea level (msl) on the Antelope Valley floor in the northeastern portion of the site to approximately 4,250 feet above msl in the southwestern portion of the property.

The Project site, as with Southern California in its entirety, lies in a seismically active region and experiences moderate to strong ground shaking from earthquakes generated on one or more active earthquake faults on or near the site and in the region. The nearest known active fault is the San Andreas Fault, a portion of which transects the southwestern corner of the Project site. In addition, recent site-specific geotechnical studies identified two previously

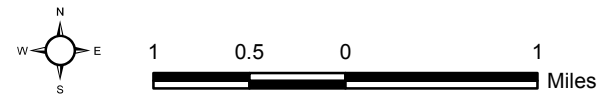
D:\Projects\3CEN\Centennial\MXD\EX\_Site\_Plan\_20150831.mxd



# Aerial Photograph and Project Boundary

# Exhibit 3-3

Centennial Project



unknown active faults that traverse portions of the site (see Exhibit 5.1-2, Geologic Hazards). Please refer to Section 5.1, Geotechnical, for more information on the geologic setting of the Project site.

The Project site is at a lower elevation than much of the surrounding landforms. The Project site is comprised largely of low rolling hills, with areas of steeper slopes and higher elevations in the western and northwestern portions of the site. The Tehachapi Mountains border the northern and western perimeter of the Project site, and the San Gabriel Mountains are located to the south of the Project site. Therefore, public views of the Project site from the north, west, and portions of the south are blocked by topography. The Project site is primarily visible from public roadways adjacent to the southern and eastern portions of the site, including SR-138, 300<sup>th</sup> Street West, and 290<sup>th</sup> Street West. From the eastern bank of Quail Lake to the western site perimeter, the majority of the Project site eastward and to the north of SR-138 is obscured from view by the local hillsides surrounding Quail Lake. Please refer to Section 5.13, Visual Resources, for further discussion of site visibility and the existing and proposed visual character of the Project site.

### **3.1.3 CULTURAL AND HISTORIC SETTING**

Please refer to Section 5.6, Cultural and Tribal Resources, for further discussion of these topics.

#### **Archaeological and Tribal Cultural**

The Tejon Ranch region, including the Project site, was a contact point between five separate ethnolinguistic groups immediately prior to the arrival of Euro Americans in California. The general Tejon region was inhabited by the Kitanemuk, Interior Chumash, Tataviam, Southern Valley Yokuts, and Kawaiisu. The first three of these groups are likely to have lived in and/or used the lands comprising the Project site. The Tejon Ranch area became a multi-ethnic, post-Mission Period refuge for many Native Americans. Substantial Native American use of the Tejon Ranch region continued into the American Period, likely due to the relative remoteness of the region from most Euro-American activities.

#### **Paleontological**

The literature review completed for the Project reveals that two of the three rock formations identified on the Project site are considered to be sensitive for the presence of fossil resources. They include (1) the marine Late Miocene Quail Lake Formation, which is exposed in the elevated parts of the southwestern portion of the Project site (north of SR-138), northwest of Quail Lake, and in part of the elevated areas of the southeastern portion of the Project site, south of SR-138 and (2) the Late Miocene Oso Canyon Formation, which grades into the Quail Lake Formation. The Neenach Volcanic Formation, exposed in the southeastern portion of the Project area on the west side of Tentrock Canyon and northeast of La Liebre Ranch, will likely lack fossils. Older Quaternary terrace deposits occurring around the exposures of the Oso Canyon Formation may contain significant fossils, probably similar to those from the famous Rancho La Brea asphalt deposits (i.e., the La Brea Tar Pits)



in Los Angeles. Younger Quaternary alluvium, which is located in drainages in the lower-lying areas, is unlikely to contain any fossil deposits.

## Historic

Four large Mexican Period land grants in this region occurred during the 1840s that would eventually be united as Tejon Ranch. Because of its remote location from the coast, the Tejon Ranch/Tehachapi Mountains area saw little Euro-American development until about the 1850s. In 1854, Edward Fitzgerald Beale was appointed by President Millard Fillmore to establish an Indian reservation in the southern San Joaquin Valley that eventually moved to Tejon Canyon on the El Tejon Land Grant. The United States established a military post and Indian reservation at the top of Grapevine Canyon in 1854 and named it Fort Tejon. The Fort was a major stopping place for stagecoaches and mule-drawn wagon trains going by an inland route between the cities in Southern California and those in the Central Valley region and San Francisco.

Beale began purchasing large Mexican land grants that had come under ownership of the United States as an outcome of the Mexican War. One of the large grants was the 36,800-acre La Liebre Rancho that had been owned by Jose Mario Florez. Beale secured ownership of this grant, along with the El Tejon grant, and would eventually create the Tejon Ranchos comprising over 276,000 acres of land. The current Project site is located in the extreme southern end of the Tejon Ranchos area.

### 3.1.4 BIOLOGICAL SETTING

#### Vegetation

Most of the land on the Project site is currently used for livestock grazing, which is how it has been used for more than 150 years. An approximate 1,000-acre area in the eastern portion of the property is under agricultural cultivation. There are a variety of vegetation types on the Project site; however, the site is dominated by grasslands. There is considerable variation in species composition within these grasslands based on soil type, grazing pressure, slope and aspect, available groundwater, and disturbance history. As is typical in California, both native and non-native species occur within the mosaic of grassland types, producing a mix of patches of non-native grassland and native grassland. Wildflower fields are a component within portions of the grasslands and are expected to occur throughout most of the Project site.

There are also riparian and wetland vegetation types on site occurring in association with drainages, springs, and seeps. Oak woodland vegetation types are dominant in the westernmost and the southern portions of the Project area as a whole, and consist of dense stands of both deciduous and evergreen oak species. Scrub vegetation types (primarily chaparral) are generally found in the western portion of the Project site on somewhat eroded, steep slopes. In the lower elevations of the Project site, a rabbitbrush scrub vegetation type is present. Please refer to Section 5.7, Biological Resources, for a complete description of these resources.

## Wildlife

There are a number of wildlife species that have been identified or that would be expected to occur on the Project site. Invertebrate species identified on the site include numerous butterfly species as well as fairy shrimp, an aquatic invertebrate. Fish habitat is extremely limited, and only the most ubiquitous and tolerant species, such as the non-native mosquitofish, are expected to occur. Several common amphibian species are expected to occur or have been found, including the western toad, Pacific treefrog, and several species of slender salamanders. Common reptile species observed or expected to occur on the Project site include the western fence lizard, side-blotched lizard, western whiptail, gopher snake, red coachwhip, and western rattlesnake.

A variety of bird species, including raptors, are expected to reside on the Project site throughout the year, while other species are present only during certain seasons. For example, grassland vegetation types on the site support breeding residents, including the mourning dove, Say's phoebe, horned lark, lark sparrow, and western meadowlark. Migratory birds expected to use this vegetation on the site, either during the summer or winter, include species such as western kingbird and American pipit. Rodents and other small mammals are expected to be among the most diverse and widespread mammals on the Project site. Mammal species include mice, squirrels, skunks, bats, desert cottontail, coyote, gray fox, mule deer, pronghorn antelope, black bear, mountain lion, and bobcat. Please refer to Section 5.7, Biological Resources, for a complete listing of these resources.

### 3.1.5 HYDROLOGY AND DRAINAGE CHARACTERISTICS

The Project site is located primarily within the limits of the Antelope Valley Watershed, as defined by the County of Los Angeles Department of Public Works. The Antelope Valley Watershed straddles the Los Angeles County-Kern County border and primarily encompasses the valley bottom, receiving flows from nearby streams that originate from the surrounding mountains. The Santa Clara River Watershed is the adjacent watershed to the southwest and is under the jurisdiction of the Los Angeles Regional Water Quality Control Board (Los Angeles RWQCB), which has been designated "Region 4" by the California Water Resources Control Board (SWRCB). Approximately ten percent of the Project site is within Region 4. However, 90 percent of the Project site is located within the jurisdiction of the Lahontan Regional Water Quality Control Board (Lahontan RWQCB), which has been designated "Region 6" by the SWRCB (see Exhibit 5.2-1, Regional Water Quality Control Board Boundaries). The Project site is also contained within the Antelope Hydrologic Unit, as identified in the Lahontan RWQCB's Water Quality Control Plan (Lahontan RWQCB 1994).

Local drainages within the Project site include Oso Canyon; Los Alamos Creek; Tentrock Canyon; Horsecamp Canyon; and Cow Springs Canyon (see Exhibit 5.2-3, Existing Watershed and Drainage Nodes). As indicated above, the West Branch of the California Aqueduct bisects the Project site from the northeast to the southwest (see Exhibit 3-2, Project Vicinity Map). The Project site falls within an approximate 37,500-acre watershed with four distinct drainage basins: the East Drainage Area (in the northeastern portion of the Project site); the Quail Lake Drainage Area; the Gorman Creek Tributary; and the Oso Canyon Drainage Area (see Exhibit 5.2-2, Drainage Areas on the Project Site).

Surface flows on the site generally flow eastward. Most of the water in the on-site drainages infiltrates into the alluvial sandy plain in the eastern portion of the site. The dominant water sources for the site are runoff from the mountains to the west and south, and surface water runoff. Another water source is groundwater discharge (e.g., seeps, springs).

A few small channels (less than 0.1 mile in length) on the western side of the Aqueduct flow into, or toward, Quail Lake. No surface waters from the site enter the lined portions of the California Aqueduct. Culverts under the Aqueduct facilitate eastward-flowing drainage courses. Several small areas of impounded water or depressions generally associated with springs or flats are present on the site. Most, if not all these ponds, were created to provide water for livestock. Project site drainage characteristics are detailed in Section 5.2, Hydrology and Flood.

### **3.1.6 WATER QUALITY SETTING**

Surface and groundwater quality data for the Project site are limited. The U.S. Geological Survey (USGS) and the California Department of Water Resources (DWR) regularly monitor water quality in the California Aqueduct, but existing water quality data in and around the Project site for Oso Canyon Creek (located west of the Aqueduct), the East Drainage Area (located east of the Aqueduct), the Gorman Creek Tributary (located east of Quail Lake), and the Quail Lake Drainage Area (located north of Quail Lake) are not available. Groundwater monitoring has been conducted at several shallow and deep wells in the Project vicinity, and two USGS groundwater wells with limited water quality data are located within five miles of the eastern Project boundary.

Oso Canyon includes several creeks that flow easterly and terminate in the Antelope Valley floor to the northeast of the Project site boundary. Similarly, the East Drainage Area consists of several drainages that originate in the mountains and foothills to the south of the Project site and that flow northward across the valley floor and eventually pond in the dry lakes adjacent to the Kern County line. During large rainfall events, these drainages are likely to carry a high sediment load indicated by elevated total suspended solids (TSS) and turbidity due to the dirt roads, steep slopes, gullied land, and exposed silty and sandy soils in the watershed.

The existing water quality of Quail Lake is likely very similar to that of the State Water Project's (SWP's) water supply in the California Aqueduct directly upstream of the Project boundary. As part of the SWP, the DWR maintains a monitoring station at the Tehachapi Afterbay (Check 41), which is located immediately upstream of Quail Lake. Water quality in Quail Lake is representative of the quality of the SWP's water supply (which discharges into Quail Lake).

Groundwater in the Antelope Valley is generally high in dissolved salts because evapotranspiration increases the concentrations of minerals. Please refer to Section 5.4, Water Quality, for more detailed water quality information.

### 3.1.7 WATER RESOURCES SETTING

The Project would provide water supplies from multiple sources, including local groundwater, recycled water, Antelope Valley – East Kern Water Agency (AVEK) water, banked water, return flows, and other purchased water supplies from outside the AVEK service area in order to increase water supply reliability in normal (or average rainfall years), in single-dry year, and in multiple-dry year conditions. Each of these sources is described briefly below.

The West Antelope and Finger Buttes sub-basins of the Antelope Valley Groundwater Basin (AVGB) underlie the Project site; these sub-basins are, as a practical matter, hydrologically independent of other AVGB sub-basins, which are located further to the east of the Project site. There are three discrete aquifer systems that underlie the Project site: the western aquifer, southern aquifer, and the deep aquifer. The deep aquifer, which underlies the West Antelope sub-basin (located in the northeastern portion of the Project site), would be the principal groundwater source for the Project.

The West Branch of the California Aqueduct, a component of the SWP operated by the DWR, traverses the site in a north to south direction; Quail Lake, which is also part of the SWP, is located off site to the south of the Project site and just north of SR-138. At the present time, these facilities do not provide water supplies to the Project site. The Project would use some SWP water previously purchased from AVEK as well as from suppliers outside the AVEK service area.

Other non-SWP potable water supplies are also available for use by the Project. These supplies include 8,393 acre-feet (af) of water purchased by the Tejon Ranch Company (TRC) from the Nickel Family, LLC in 2008 and an additional 6,893 af of “Nickel Water” purchased in 2009. Under a separate exchange agreement with AVEK, these supplies would be available to the Project in the future at a ratio of 1.5 times the Nickel Water supplied to AVEK in 2008 and 2009. This agreement will provide a total of 22,180 af of future water to the Project.

Banked water is also available to the Project from the Tejon Ranch Company (TRC) Water Bank located in Kern County (see Exhibit 4-13, Centennial Project - Conceptual Domestic Water System). As of December 2015, approximately 17,287 af of water in the TRC Water Bank is stored for Project use; water banking of approximately 2,362 af of potable water supplies obtained from the SWP in years when surplus water is available (i.e., “Call Water”) can also be used to supply the Project. Centennial has entered into an agreement with Tejon Ranch for the rights to use Tejon Ranch’s water supplies. For informational purposes, there is an additional existing groundwater well in the Project vicinity; however, this well is used solely by the Cement Plant and would not be connected to the Project’s groundwater well system at any time.

Additionally, the Project proposes to use recycled water to help ensure that the Project’s potable water demands are met. Recycled water used for irrigation of landscaping will total approximately 40 percent of the community’s water demand, freeing up potable water for drinking, cooking, and other uses that require water to meet potable standards.

Please refer to Section 5.18, Water Resources, for more detailed existing setting information.

### **3.1.8 AIR RESOURCES**

The Project site is under the jurisdiction of two different air districts and lies within two different air basins. Approximately 85 percent of the site is within the boundaries of the Antelope Valley Air Quality Management District (AVAQMD), while approximately 15 percent of the southwest portion of the Project site is within the jurisdiction of South Coast Air Quality Management District (SCAQMD) (see Exhibit 5.11-1, Air District and Basin Boundaries). The portion of the site under the jurisdiction of the AVAQMD lies within the Mojave Desert Air Basin (MDAB). The portion of the Project site that is under the jurisdiction of the SCAQMD lies within the South Coast Air Basin (SoCAB).

The U.S. Environmental Protection Agency (USEPA) has designated the AVAQMD portion of the MDAB, which includes the majority of the Project site, as being a Severe-15 nonattainment area for ambient ozone (O<sub>3</sub>) concentrations; all other criteria pollutants are classified as being in attainment or unclassified. The State of California designates the MDAB as a nonattainment area for O<sub>3</sub> and for respirable particulate matter with a diameter of 10 microns or less (PM<sub>10</sub>) and in attainment or unclassified for all other criteria pollutants. Generally, State standards are more restrictive than federal standards.

The USEPA has designated the SoCAB, which includes a portion of the Project site, as being as an extreme nonattainment area for O<sub>3</sub>; in nonattainment for fine particulate matter with a diameter of 2.5 microns or less (PM<sub>2.5</sub>); and in attainment/maintenance for PM<sub>10</sub>, carbon monoxide (CO), and nitrogen dioxide (NO<sub>2</sub>). The State has designated the SoCAB as being in nonattainment for O<sub>3</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> and in attainment for CO, NO<sub>2</sub>, sulfur dioxide (SO<sub>2</sub>), and lead.

Air quality data representative of the Project site is collected at the Santa Clarita and Lancaster Monitoring Stations. The Santa Clarita Monitoring Station is approximately 29 miles southeast of the Project site. The Lancaster Monitoring Station is approximately 33 miles east of the Project site. The Santa Clarita and Lancaster monitoring data show that O<sub>3</sub> and PM<sub>10</sub> are the air pollutants of primary concern in the Project area, as related State and federal standards have been exceeded in recent years. Federal standards were exceeded for PM<sub>2.5</sub> at the Lancaster Monitoring Station and State standards were exceeded for PM<sub>2.5</sub> at the Santa Clarita Monitoring Station. Data collected at the aforementioned monitoring stations and included in Section 5.11, Air Resources, indicates a trend towards lower maximum levels and number of days exceeding the State and federal O<sub>3</sub> standards between 2012 and 2014; however, the data also indicates a trend toward increasing days of exceedances and maximum levels for PM<sub>10</sub> during this timeframe.

Please refer to Section 5.11, Air Resources, for more detailed environmental setting information.

## 3.2 EXISTING LAND USES

### 3.2.1 EXISTING OPERATIONS

The Project site consists of undeveloped land that has been primarily used for livestock grazing for more than 150 years. The Tejon Ranch Company currently leases most of the Project site to an independent company for grazing. Of the 12,323 acres of land comprising the Project site, approximately 10,950 acres (89 percent) are currently used for cattle grazing. The grazing area is spread almost entirely across the site, and grazing occurs in the spring. The total area of cattle grazing acreage on the Project site represents approximately 5 percent of the 235,829 acres of grazing land in Los Angeles County in the year 2012 (DOC 2015). In addition to cattle grazing, the Tejon Ranch Company owns and cultivates approximately 1,000 acres in the eastern portion of the Project site as 5 separate pivot fields that correlate with the approximate 642 acres of Prime Farmland on the site. The pivot fields are managed for the production of either alfalfa or a three-way forage mix (e.g., barley, oats, sedan grass). The total 1,000-acre area has been cultivated by the Tejon Ranch Company since 1998. Prior to 1998, the land was used primarily for grazing.

The High Desert Hunt Club includes approximately 7,530 acres of land located on Tejon Ranch and 6,383 acres south of the Project site along SR-138 that is used for bird hunting (see Exhibit 3-2, Project Vicinity Map). Additionally, near the northern edge of the Project site, there is an existing residential dwelling unit used to support the grazing and caretaking operations. There are two Not a Part (NAP) areas shown within the southwestern portion of the Project area. These parcels are shown on Exhibit 3-3, Aerial Photograph and Project Boundary, and are not part of the Project site, nor are they owned by the Project Applicant. Both NAPs are owned by Southern California Edison (SCE).

### 3.2.2 EXISTING PUBLIC FACILITIES AND INFRASTRUCTURE

#### Open Space and Recreation Areas

There are no existing parks or other recreational features within the Project boundaries, as the site is privately owned. However, a variety of jurisdictions own and/or maintain open space areas, parks, trails, and other recreational facilities in the vicinity of the Project site (see Exhibit 5.14-1, Existing Open Space and Recreational Areas). Section 5.14, Parks and Recreation, provides detailed descriptions of recreational opportunities in the Project vicinity, including the Angeles National Forest, the Los Padres National Forest, the Castaic Lake State Recreation Area, the Hungry Valley SVRA, Quail Lake, and Pyramid Lake. The Pacific Crest National Scenic Trail (PCT), which is administered by the U.S. Department of Agriculture (USDA) Forest Service and Pacific Crest Trail Association (PCTA), is the nearest existing trail in the Project area. It is anticipated that the PCT will be realigned to pass through the Project site adjacent to 300<sup>th</sup> Street West.

#### Schools and Libraries

There are no existing schools, libraries, or other educational facilities on the Project site. As described in Section 5.15, Education, and as depicted on Exhibit 5.15-1, Local School

Districts, the Project site is within the jurisdiction of three school districts: Gorman Joint School District, providing public elementary and junior high/middle school education (grades Kindergarten through 8<sup>th</sup> [K-8]); Westside Union Elementary School District, also providing K-8 education; and the Antelope Valley Union High School District, providing high school education (grades 9-12).

As described in Section 5.17, Other Public Services, the Antelope Valley Bookmobile, based at the Lancaster Library, currently serves the surrounding communities, including the communities of Gorman, Lake Hughes, Leona Valley, Lake Elizabeth, Holiday Valley, Antelope Acres, and Green Valley.

## **Fire Protection**

As described in Section 5.16, Fire and Law Enforcement Services, fire protection service is provided to the Project area by the Consolidated Fire Protection District of Los Angeles County, commonly known as the Los Angeles County Fire Department. Fire Station 77 at 46833 Peace Valley Road in Gorman is the nearest and the jurisdictional Los Angeles County Fire Station for the site. Several other Los Angeles County Fire Stations also provide fire services to the Project area. In addition, the Kern County Fire Department also responds to fires and other emergencies on the Project site and in the surrounding areas under an automatic mutual aid agreement with the Los Angeles County Fire Department.

Portions of the Project site are located in an area designated by the County Fire Department as a Very High Fire Hazard Severity Zone (VHFHSZ). All development within a VHFHSZ is required to meet the building construction and fuel modification requirements specified in the County Building and Safety Code for VHFHSZ areas.

## **Law Enforcement**

As described in Section 5.16, Fire and Law Enforcement Services, the Santa Clarita Valley Station of the County of Los Angeles Sheriff's Department is located near the intersection of Magic Mountain Parkway and Valencia Boulevard at 23740 Magic Mountain Parkway in Valencia, approximately 28 miles south of the Project site, as shown on Exhibit 5.16-2, Existing Law Enforcement Station Locations. This station is responsible for providing general law enforcement to the Project area. The California Highway Patrol (CHP) provides traffic control services to the Project site through its Newhall Area Station, which is located at 28648 The Old Road in Valencia, near the interchange of I-5 and SR-126, although the nearest CHP station to the Project site is the Fort Tejon Area CHP Station, located at 1033 Lebec Road in Lebec.

## **Circulation**

The Project site is located east of I-5 and adjacent to SR-138. The northern boundary of the Project site extends to the Los Angeles County/Kern County line, and the southern boundary extends just south of SR-138. The western boundary is approximately one mile east of I-5, and the eastern boundary is approximately 1.5 miles east of 300<sup>th</sup> Street West. Project-

related traffic is anticipated to utilize the major regional roadways across a broad geographic area (see Exhibit 3-2, Project Vicinity Map).

Existing roads on the Project site with public access include, as stated previously, (1) 300<sup>th</sup> Street West; (2) the National Cement Plant Road, which runs north-south through the Project site, crossing the Aqueduct's West Branch; and (3) a small portion of Gorman Post Road in the southwestern-most part of the site where it connects to SR-138. Additionally, there is a network of unpaved roadways that traverse the Project site for ranch activities, including through the areas that are to be preserved on site.

The major highway in the area is SR-138, which runs through the southern portion of the Project site and is currently built as a two-lane rural highway. The primary regional access road is via I-5, an eight-lane portion of the highway that connects with SR-138 approximately one mile west of the Project site's westernmost boundary. Major access to the Antelope Valley is via SR-14, which connects with I-5 southeast of the Project site in the Santa Clarita Valley; SR-14 then moves northeast and becomes the major north-south access into Lancaster and Palmdale. Just north of Lancaster, SR-14 connects with SR-138 east of the Project area (see Exhibit 3-1, Regional Location).

Section 5.10 (Traffic, Access, and Circulation) summarizes the existing capacities of these regional highways. No transit services currently exist in the Project area.

### 3.3 LAND USE DESIGNATIONS AND ZONING

The Project site is located within the boundaries of the Antelope Valley Area Plan (AVAP), a component of the County of Los Angeles 2035 General Plan that provides a coordinated statement of public policy relating to the future of the Antelope Valley. The Land Use Policy Map of the AVAP designates the Project site as having the following land-use designations: H5: Residential 5 (0-5 dwelling units [du]/net acre); OS-C: Open Space Conservation; CR: Rural Commercial; RL1: Rural Land 1 (1 du/1 gross acre); IL: Light Industrial; RL2: Rural Land 2 (1 du/2 gross acres). The Project site is designated on the AVAP land use map as within the West Economic Opportunity Area (DRP 2015a).

The existing zoning of the Project site includes: OS: Open Space; A-1-2: Light Agriculture; RPD: Residential Planned Development; CPD-DP: Commercial Planned Development; and MPD-DP: Manufacturing industrial planned development (DRP 2015a). The adoption of the Centennial Project would not require any amendments to the County of Los Angeles General Plan or the AVAP. A detailed discussion of land use and the related planning programs is provided in Section 5.8, Land Use, Entitlements, and Planning.



## **3.4 REGIONAL PLANNING CONTEXT**

### **3.4.1 POPULATION AND HOUSING**

As discussed in Section 5.9, Population, Housing, and Employment, there is an existing residential dwelling unit occupied by a Tejon Ranch employee at the northern-central end of the site.

Los Angeles County had a resident population of 10,241,335 in January 2016 (DOF 2016). This represented an increase in population of approximately 422,730 people (4.31 percent) between 2010 and 2016. The Southern California Association of Governments' (SCAG's) 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) projects the County's population to increase to 10.40 million people by the year 2020 and to 11.35 million by 2035 (SCAG 2012a). The recently adopted 2016-2040 RTP/SCS projects the County's population to increase to 10.33 million by 2020; to 11.15 million by 2035; and to 11.51 million by 2040 (SCAG 2016a).

The North Los Angeles County Subregion, as defined by SCAG, encompasses unincorporated County land and the Cities of Santa Clarita, Palmdale, and Lancaster. North Los Angeles County also includes the unincorporated Towns of Gorman, Neenach, Lake Hughes, Acton, and Castaic. The unincorporated Towns of Lebec and Frazier Park are within the regional vicinity of the Project site and are located in Kern County (see Exhibit 3-2, Project Vicinity Map).

The North Los Angeles County Subregion, which includes the Project site, had a population of approximately 658,755 people in 2010 (SCAG 2016b), which was 6.71 percent of the total County population of 9,818,605 persons (DOF 2016). From 2020 through 2040, the population is anticipated to grow considerably in the Cities of Santa Clarita, Lancaster, and Palmdale and in unincorporated areas of North Los Angeles County. The population of the North Los Angeles County Subregion is projected to increase by 32.97 percent between 2020 and 2040. Additionally, this subregion is projected to house approximately 8.56 percent of the County's entire population by 2040 (SCAG 2016b). This is up from 6.63 percent in 2012.

The North Los Angeles County Subregion had approximately 200,990 households in 2012. This is projected to grow to 245,473 households by 2020 and to 331,399 households by 2040. In turn, the County's estimated 2012 total of over 3.26 million households will increase to 3.49 million households by 2020 and to 3.95 million households by 2040 (SCAG 2016b). In order to meet future housing demand in the County, approximately 30,145 new housing units will be required in the unincorporated areas of Los Angeles County between 2014 and 2021 (DRP 2015a). The Project would aid in providing housing to North Los Angeles County, a subregion of the County that is projected to have an increased in demand for housing units over the next decades.

### **3.4.2 EMPLOYMENT**

Employment in Los Angeles County is estimated at over 4.24 million jobs in 2012 and is expected to increase by 415,900 jobs between 2012 and 2020 and by 563,300 jobs between 2020 and 2040 (SCAG 2016a). The North Los Angeles County Subregion had a 2012 job base of approximately 181,089 jobs, which is projected to increase to 211,300 jobs in 2020 and to 280,447 jobs by 2040 (SCAG 2016b). Additional information on employment growth and forecasts is provided in Section 5.9, Population, Housing, and Employment.

### **3.4.3 JOBS AND HOUSING BALANCE**

Jobs and housing are considered in balance when a subregion has enough employment opportunities for most people who live in the area and enough housing opportunities for most people who work in the area. A balanced condition would ultimately benefit the community by reducing the number of workers commuting to jobs outside the area and decreasing commuting times and distances for workers who do commute. This balance would minimize impacts to the regional transportation network and the quantity of related air emissions and would enhance the quality of life for Centennial residents.

No State, regional, County, or local requirements for a specific jobs/housing balance exist at the present time. The Economic Development Element of the AVAP states that the AVAP provides for a jobs/housing ratio of 1.3 jobs per dwelling unit in the unincorporated area of the Antelope Valley.

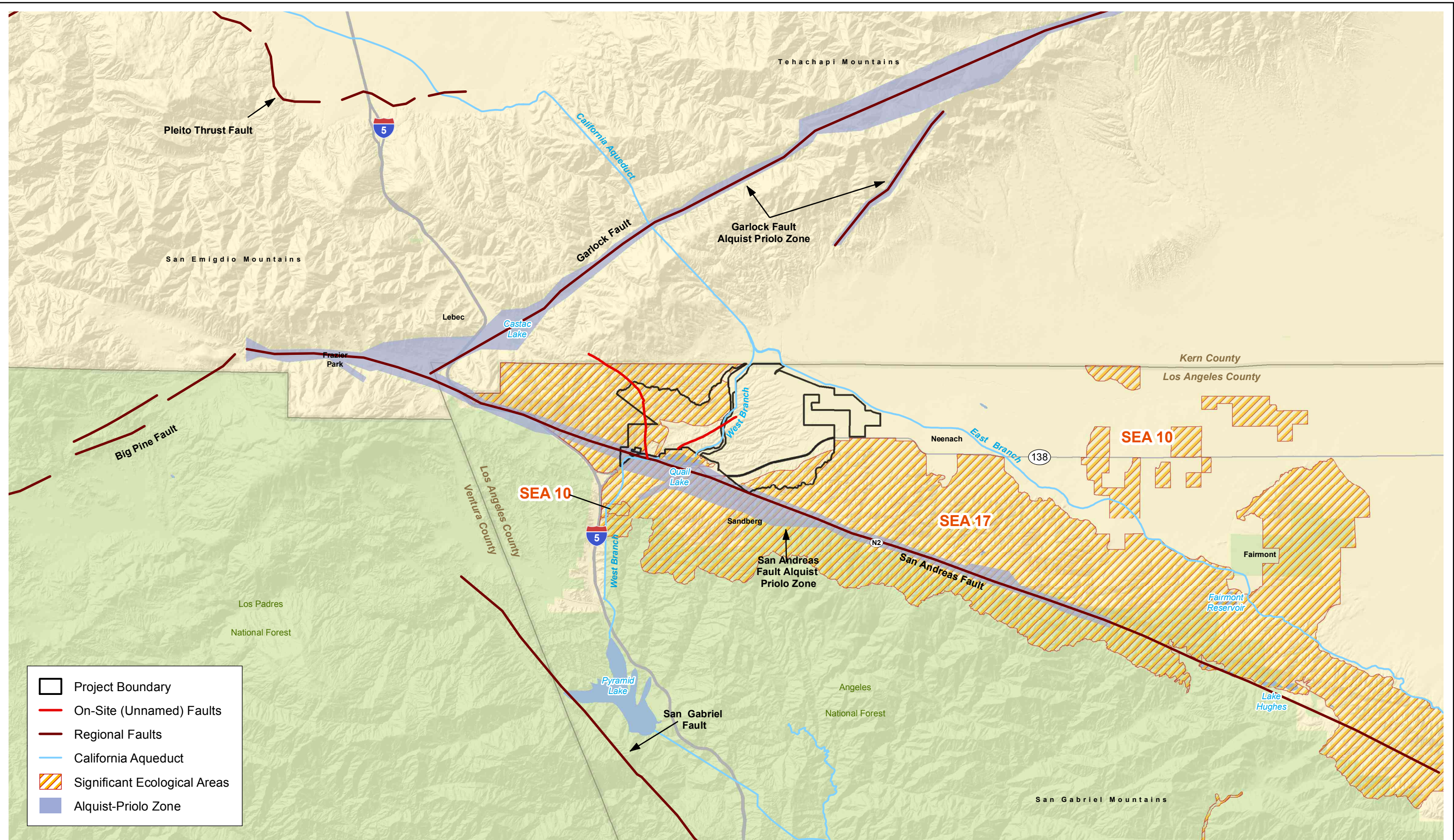
Details of the 2012 and 2040 projected jobs/housing ratios for the Project, the North Los Angeles County Subregion, and the County as a whole can be found in Section 5.9, Population, Housing, and Employment. As identified, the Centennial Project proposes development of 19,333 dwelling units and anticipates creation of approximately 23,675 permanent jobs within its commercial areas and employment centers. The projected jobs/housing balance for the Project would be approximately 1.22 to 1.







## **3.5 CONSTRAINTS AND OPPORTUNITIES**

### **3.5.1 CONSTRAINTS**

Exhibit 3-4, Local Area Constraints, provides a depiction of several physical and policy constraints to development on the Project site, including the Alquist-Priolo Zones and fault lines, the California Aqueduct, and designated Significant Ecological Areas (SEAs). The AVAP has designated a majority of the Project site as having Class 2 Constraints (i.e., moderate constraints), as depicted on their Map 4.1, Hazards and Environmental Constraints (DRP 2015a). The easternmost and northernmost portions of the Project site include small areas of land designated with Class 1 Constraints (i.e., minimal constraints), and the southwesternmost portion of the Project site includes small areas of land designated with Class 3 Constraints (i.e., severe constraints), which are related to the Alquist-Priolo Earthquake Fault Zone.

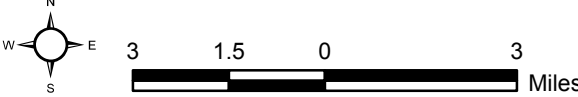




-  Project Boundary
-  On-Site (Unnamed) Faults
-  Regional Faults
-  California Aqueduct
-  Significant Ecological Areas
-  Alquist-Priolo Zone

**Local Area Constraints**

Centennial Project



(Rev. 1-20-2016 CJS) R:\Projects\CentFou (CEN)\3CEN000306\Graphics\EIR\Ex3-4\_local\_area\_constraints\_20150831.pdf



## **Geotechnical Features**

As discussed above, the southwestern corner of the Project site overlies the northern edge of the San Andreas Fault Zone (see Exhibit 3-4, Local Area Constraints). The San Andreas Fault runs an approximate length of 660 miles throughout California and is considered the longest active fault in the state. There is a designated Alquist-Priolo Earthquake Fault Zone associated with the San Andreas Fault (labeled Alquist Priolo Zone on Exhibit 3-4). The San Andreas Earthquake Fault Zone crosses the southwestern edge and southernmost point of the Project site. There are three faults on the Project site; site-specific geotechnical investigations identified that two of these three faults were previously unknown active faults (Geocon 2015). These unnamed faults traverse portions of the western half of the Project site (west of the California Aqueduct).

In addition to identifying the San Andreas Fault and the on-site faults, site-specific geotechnical investigations have identified a large ancient landslide in the northwestern portion of the Oso Canyon area (see Exhibit 5.1-2, Geologic Hazards). Please refer to Section 5.1, Geotechnical, for more information regarding the geotechnical features present on and around the Project site.

## **Hydrology and Flooding**

Numerous watercourses traverse the Project site, some of which are identified as blueline streams on the USGS Lebec and La Liebre Quadrangles (see Exhibit 5.2-3, Existing Watershed and Drainage Nodes). Notable drainages within the Project site include Oso Canyon and Tentrock Canyon. There are also a few springs scattered north and east of Quail Lake. The Federal Emergency Management Agency (FEMA) has identified the 100-year floodplain for Oso Creek as a flood-prone area subject to special requirements governing construction materials and methods, structure elevation and flood proofing, and utility standards. The FEMA 100-year floodplain traverses some northern portions of the Project site, both east and west of the Aqueduct (see Exhibit 4-5, Centennial Project - Safety Overlay Zones).

## **The California Aqueduct and National Cement Plant Road**

As mentioned above, the East Branch of the California Aqueduct is entirely off-site and runs in a northwest to southeast direction just north of the Project site. The West Branch of the Aqueduct bisects the Project site roughly north to south and widens at the southern Project boundary to empty into Quail Lake. Quail Lake, a part of the California Aqueduct system, is situated southwest of the Project site. The Aqueduct does not connect to any on-site drainages, but several drainages cross under the Aqueduct via culverts or flow over the Aqueduct siphon. The National Cement Plant Road runs north from SR-138 to the National Cement Plant, which is located approximately one mile north of the Project site. This road crosses over the West Branch in the southern portion of the Project site, just north of Quail Lake, and continues north running parallel to the West Branch along its western side.

## **Wildfires**

The Los Angeles County Fire Department (County Fire Department) designates lands within Los Angeles County that are determined to be highly vulnerable to wildfire as VHFHSZs (Los Angeles County Code, Title 32). The Antelope Valley area, including the Project site, is designated as a VHFHSZ. Project site characteristics that contribute to this designation include (a) access; (b) lack of existing adequate fire flows; (c) topography; and (d) vegetative cover. Because of this designation, development of the Project is subject to the County Fire Department's Fuel Modification Plan Guidelines and specific development standards. Please refer to Section 5.3.3, Fire Safety, for more information regarding wildfire potential on and around the Project site.

## **Cultural and Historic Resources**

The Project site as a whole contains numerous prehistoric and historic archaeological sites and paleontological localities. All but three of the sites in the western portion of the Project site have been determined not to be significant. The three significant sites will remain in open space and will not be affected by the current project. Prehistoric and historic archaeological sites in the eastern portion of the Project site are considered significant until further study confirms otherwise.

## **Biological Resources**

### ***Vegetation and Wildlife Habitat***

As discussed above in Section 3.1, Physical Setting, there is a variety of vegetation types on the Project site; however, the site is dominated by grasslands, with wildflower fields in some portions of the grasslands. The other main groups of vegetation types identified on the site include scrub and chaparral, oak woodland, riparian and bottomland habitat, and bog and marsh.

Some vegetation types are considered "special status" by various agencies, such as the California Department of Fish and Wildlife (CDFW). Special status vegetation types on the Project site include the following: Wright's buckwheat scrub; mixed oak woodland; alluvial scrub; cottonwood woodland; riparian herb; rush riparian grassland; southern arroyo willow riparian; southern cottonwood-willow woodland; southern willow scrub; unvegetated wash; valley oak riparian woodland; willow riparian forest; willow riparian woodland; alkali meadow; Baltic rush; coastal and valley freshwater marsh; seeps and ephemeral ponds; and native perennial grasslands and wildflower fields that are coincident and mixed with annual grasslands and other vegetation types.

### ***Special Status Plant and Wildlife Species***

The Project site supports a variety of special status plant and wildlife species either year round or seasonally. Populations of special status plants—including California androsace, round-leaved filaree, Mojave spineflower, Sylvan microseris, and Piute Mountains navarretia—occur in a patchy distribution scattered across the grassland areas of the site.

Most of the special status wildlife species are identified as species of concern by the CDFW. State- and or federally listed wildlife species may occur as flyovers, such as the California condor, or seasonal migrants, such as Swainsons hawk, but are not expected to breed on the site. However, focused surveys were negative for most special status species potentially occurring in the region.

### ***Wildlife Movement***

Due to the Project site's position at the edge of the Tehachapi Mountains and largely desert and high desert topography and vegetation, mountain wildlife species would not be expected to traverse the Project site with any regularity. The California Aqueduct and I-5 represent existing constraints to regional wildlife movement on the Project site. Because most of the larger wildlife species in the region do not typically cross large expanses of sparsely vegetated landscape (such as the majority of the Project site), the central and eastern portions of the Project site are not likely to be used by wildlife to move between and within the regional open space areas in the site vicinity. The Project site provides unobstructed local movement opportunities for small animals within large portions of the site. Therefore, wildlife movement at local scales would be expected to occur throughout the Project site.

### ***Significant Ecological Areas***

The southern and western portions of the Project site include lands designated as a SEAs. SEAs do not necessarily require protection or preservation, but instead require additional review of development proposals via the Significant Ecological Area Technical Advisory Committee (SEATAC) to ensure that heightened consideration is given to the biological resources that contribute to the long-term sustainability of the SEA. The objective of SEAs is to conserve genetic and physical diversity by designating biological resource areas that are capable of sustaining themselves into the future (DRP 2015b). There is one SEA-designated portion within the Project boundaries, SEA 17, San Andreas. SEA 17 would be conserved and would not be affected by Project-related grading or development.

### **Circulation**

Currently, access to the Project site can only be made from the south at SR-138, through the exit of Gorman Post Road south of the Project site and from 300<sup>th</sup> Street West. There are no access points in other directions. The West Branch of the California Aqueduct is another circulation constraint which runs in a north-south direction and bisects the Project site. Access across the Aqueduct will be limited to two bridges: one that will need to be widened and one new crossing that will be constructed as part of the Project. Because the Project site is currently used as grazing land, there is a network of unpaved private ranch roads that traverse the property. The Project's internal circulation system will be entirely new construction, with the exception of a portion of 300<sup>th</sup> Street West and the existing National Cement Plant Road, which is used to travel to the National Cement Plant located just north of the Project site's northernmost boundary.

## Noise

Because the Project site and surrounding areas are rural, they are relatively quiet. The primary source of existing noise in the Project area is traffic, both on the local streets and on major thoroughfares, including I-5 and SR-138. Other existing noise sources include activities at the Oso Pumping Station (located off site), at the Alamo Power Plant (located off site), at the SCE Bailey Substation (located on both Not a Part areas in the southwestern corner of the Project site), the Quail Lake Sky Park Airport (located off site and to the southeast of Quail Lake), the High Desert Hunt Club (south of SR-138, and farther to the southeast of the Project boundary), and the National Cement Plant (located in Kern County to the north of the Project). Detailed discussions of existing and projected noise conditions at the Project site are included in Section 5.12, Noise.

## Water Resources

The Project site is not within the jurisdiction of a public agency with responsibility for managing and delivering water supply and wastewater reclamation services to future residents. However, to address this constraint, Centennial Founders, LLC has requested the Golden Valley Municipal Water District (GVMWD or District) Board of Directors to consider annexing the Project area and operating the Project's proposed potable water, water recycling, wastewater, and, storm water facilities. The GVMWD is a California municipal water district formed and operated under Section 71000 of the *California Water Code*. The District's service area encompasses approximately 12.5 square miles and is adjacent to the Project's western boundary (GVMWD 2011). The GVMWD currently operates approximately 20 municipal water service connections and a wastewater treatment facility for the unincorporated community of Gorman. The GVMWD has approved the Centennial Project Water Supply Assessment, which contains the water demand projections that provide the basis for the Project's water supply need projections.

After completion of the annexation process, the Project's water, wastewater, and storm water systems would be owned and operated by the GVMWD or by another public utility district (PUD) that manages potable water supply systems and wastewater collection, treatment, recycled water, and storm water systems. Annexation of the Project into a PUD service area would require approval by the Los Angeles County Local Agency Formation Commission (LAFCO) and would occur after certification of this EIR.

### 3.5.2 OPPORTUNITIES

#### Hydrology and Flood

The Centennial Project's Green Development Program, in combination with the Drainage Plan will provide a combination of debris basins, water quality basins, infiltration and retention/detention basins, flood-control structures, and other Low Impact Development (LID) techniques to preserve natural drainage features, incorporating techniques that will mimic undeveloped storm water runoff rates and volumes and prevent water quality and hydromodification impacts to natural drainage systems. These systems, in combination with the Project's preservation of primary drainage corridors, would provide a storm water

management system that is highly sustainable because of its use of natural systems to control runoff rates and to promote groundwater recharge.

This integrated water resources management approach would promote natural hydrologic processes to manage storm water runoff, including implementation of the Floodplain Safety Overlay District, the Flood Control Systems Plan (Exhibit 4-16, Centennial Project - Conceptual Drainage and Flood Control System), specific Best Management Practices (BMPs), other requirements of the Standard Urban Stormwater Management Plan (SUSMP), and additional features. Implementation of these proposed storm water management features ensures that habitable structures are not constructed within a 100-year floodplain. The Project includes these storm water management techniques as Project Design Features (PDFs) and would incorporate these techniques into Project plans and specifications as part of the development plan approval process for building and grading permits.

## **Wildfires**

With development of the Project site, fire hazards associated with the natural vegetative cover would be reduced through its replacement with urban landscape vegetation. In accordance with State law, fire-safe landscaping and minimum clearance (defensible space) requirements will be used in areas susceptible to wildland fire. While the potential for fire hazards would still exist, the potential for fires to burn out of control through undeveloped land would be minimized with development. Detailed discussions of existing and projected fire hazard conditions at the Project site are included in Section 5.3, Hazards and Fire Safety.

## **Biological Resources**

Because the Project site is both large and undeveloped, there is an opportunity to preserve open space areas in perpetuity. The development of a planned community allows for the strategic incorporation of open space areas while still providing an appropriate mix of land uses needed for a new community. Conservation of open space areas also provides the opportunity to improve the biological value of these lands through habitat management, enhancement, and/or restoration. For appropriate portions of the preserved open space areas on the Project site and proposed conservation lands adjacent to the site, mitigation efforts would restore previously impacted biological resources, which would result in a higher biological value than currently exists given the history of grazing activity.

The proposed Grassland Adaptive Management Plan includes managed grazing activity as a component of maintaining the preserved grassland areas (refer to Section 5.7, Biological Resources, for more detail). However, this grazing activity would differ from current grazing activity in that the primary goal would be protection of the biological resources. Only the preserved grasslands would incorporate grazing as a management tool. Other vegetation types that would be preserved, such as oak woodlands and riparian habitat, would have limited grazing.

The location of proposed preservation areas presents an opportunity to support local wildlife movement because these areas are positioned contiguous to off-site open space areas, thereby providing a larger total area of continuous preserved open space for local



wildlife to use as habitat and for movement. The preservation of enhanced or restored open space is also an opportunity to preserve portions of SEA-designated lands. As discussed above, the SEA designation does not confer protection of those lands, but only designates these SEA lands as having high biological value. As such, development is not prohibited on SEA lands, but allowed only with a discretionary permit. Portions of the proposed preservation areas associated with the Project overlap portions of the San Andres SEA; therefore, these areas would preserve the biological resources important to the SEA in perpetuity, providing permanent protection.

## **Land Use and Planning**

As discussed above under Section 3.1.1, the Project site occupies 12,323 acres of the Antelope Valley with elevations that range from 3,635 feet above msl along a ridge overlooking Quail Lake to approximately 2,975 feet above msl in the alluvial drainage area in the east portion of the site. As such, the Project site occupies a large expanse of relatively flat topography, with the majority of the site having low rolling hills. Because of this, there is an opportunity to design a land use plan that harmoniously incorporates a wide variety of different land uses and sustainable features that are more difficult to achieve in a high-relief setting. As discussed earlier, the Project is designed to comply with the vision, assumptions, goals, and policies of the AVAP, which was approved by the Los Angeles County Board of Supervisors on June 16, 2015. The Project implements the requirements of the AVAP by including a balance of land uses consistent with the intent and the land use designations set forth in the West Economic Opportunity Area (EOA) and consistent with the AVAP.

## **Population, Housing, and Employment**

Because the Project site is largely undeveloped, development of a planned community would provide the opportunity to accommodate projected increases in population, housing, and employment in the region while allowing for a jobs/housing balance and the protection of open space and environmentally sensitive areas. The potential implementation of the Project was known at the time of the development of the AVAP and was accounted for in the AVAP's land use and population/employment growth assumptions.

The Project has been designed to provide a variety of housing stock ranging from estate to small lot single-family detached residences and single-family and multi-family attached residences (including townhomes, condominiums and apartments) in a region of Los Angeles County projected to experience substantial population growth through 2040 (see Table 5.9-2, Los Angeles County Population Projections, from Section 5.9, Population, Housing, and Employment).

The Project would include up to 19,333 housing units and would have a buildout population of approximately 57,150 residents. In addition, the Project would include the development of employment-generating uses, resulting in the creation of an estimated 23,675 permanent jobs. These jobs would be located in the West EOA, where future growth is planned and in accordance with the AVAP's Land Use Policy Map. This growth would also be consistent with adopted economic development as well as population and housing plans and projections included in the AVAP and SCAG's 2016–2040 RTP/SCS. By providing a mix of both residential

and employment-generating development on site, and in consideration of the Project's location in the vicinity of the Tejon Industrial Complex along the I-5, the Project would capitalize on the existing regional transportation network and would serve to implement regional policies aimed at environmental protection and the location of housing near job opportunities, thus reducing vehicle trips and related emissions.

## **Circulation**

The Project is adjacent to and will be served by SR-138, which removes the need for Project-generated vehicles to travel through existing neighborhoods and communities in order to access a major highway. SR-138 runs in an east-west direction and connects to I-5 to the west and SR-14 to the east. The Project site is also close to I-5, which runs the length of California. SR-14 provides access to the Palmdale-Lancaster area.

## **Existing Open Space and Recreation Areas**

The Project site is situated in northern Los Angeles County, an area with numerous public open space and recreation areas. There are federal, State-, County-, and privately operated open space and recreational areas in the Project site vicinity, including but not limited to the Angeles National Forest, the Los Padres National Forest, the Castaic Lake State Recreation Area, Quail Lake, Pyramid Lake, the Hungry Valley SVRA, the Antelope Valley California Poppy State Reserve, the Arthur B. Ripley Woodland State Park, the Fort Tejon State Historic Park, the Castaic Sports Complex, Frazier Mountain Park, the Wind Wolves Preserve, and a portion of the PCT (see Exhibit 5.14-1, Existing Open Space and Recreation Areas). Please refer to Section 5.14, Parks and Recreation, for more information on existing and proposed parks and other recreational facilities that would serve the Project site.

## **Water Resources**

Recognizing that various water sources vary in reliability and access difficulty from year to year in sometimes unpredictable ways, the Project relies upon multiple sources of water that collectively exceed the expected demand at full buildout: local groundwater, recycled water, AVEK water (including SWP water previously purchased by the Project), banked water, and imported water from sources other than the AVEK service area (described more fully in Section 5.18, Water Resources). This approach gives reliability to the Project in that, if one or more of its sources are not available in the expected amounts or in a given year, other sources of water are available to make up the difference until future years when the other sources become fully available again.

The Project's water strategy is based on principles that balance the following practices, which would ensure the Project will meet growth demands in a way that most efficiently uses scarce water resources:

- Incorporation of comprehensive water conservation design features to limit Project demand;
- Maximum use of recycled water to meet non-potable Project demands;

- California Department of Water Resources (DWR) supplies purchased or received, when available, and other AVEK (allocated or third party purchased) supplies; and
- Water banking for additional water supply security allowing for excess water supplies, when available, to be used as banked supplies in dry years to supplement or even entirely replace direct annual supplies.

## Existing Utility Infrastructure

Although the Project site is largely undeveloped, there is existing dry utility infrastructure on and immediately surrounding the site (see Exhibit 4-17, Centennial Project - Dry Utilities Plan) that could be extended to and/or upgraded, as necessary, to serve Project site development. Specifically, there are (1) SCE electric lines running north-south to the Oso Pumping Plant and National Cement Plant and east-west along SR-138 as well as the Bailey Substation located on an SCE-owned parcel in the southwestern portion of the Project site; (2) an AT&T underground telephone line running northwest to southeast across the western portion of the Project site, lines along National Cement Plant Road and the California Aqueduct, and a line along SR-138 along California Department of Transportation (Caltrans) right-of-way; (3) a SoCalGas high-pressure line along SR-138 and a line running north-south immediately west of the Project site; and (4) fiber-optic lines installed by Quest Communications adjacent to I-5. In addition, the Bailey Substation, also operated by SCE, is located adjacent to the southwestern corner but is not a part of the Project site. Please see Section 5.20, Dry Utilities, for more information regarding existing dry utility infrastructure.

Because the site is largely undeveloped, there is an opportunity to incorporate widespread energy conservation features into a planned development at several levels, from site planning to individual building construction. The Centennial Project incorporates a Green Development Program with an energy conservation element, which integrates required resource efficiency and conservation features throughout the Project (see Appendix 1-B of EIR Appendix 4.0-A).

## Climate Change

As previously discussed, the Project site is largely undeveloped; therefore, there is an opportunity to incorporate Project Design Features into a planned development that would minimize the Project's contribution to global climate change. The Project incorporates (1) a Green Development Program, which includes construction-related measures to reduce pollutant emissions from construction equipment and activity; (2) measures promoting reduction in local vehicle trips, including opportunities for pedestrian movement and reliance on public transportation; (3) required energy conservation measures intended to lower energy consumption, thereby reducing pollution associated with generation, storage, and distribution of power; (4) a community open space, landscaping, and urban forestry program to enhance greenhouse gas emissions reduction benefits; (5) water conservation measures to reduce the energy expenditures on water service; and (6) resource conservation measures to reduce the need for and associated energy cost of mining and extraction of raw materials.

Because the Project would be an entirely new and independent development, it would not rely on aging infrastructure systems, obsolete structural engineering, or land planning constraints associated with an existing urban environment. Rather, the Project will use cutting-edge technology and land use planning principles to create a balanced master-planned community where a mix of land uses are proximate to each other and connected by a network of pathways to reduce reliance on automobile use and offsite commuting in order to actively reduce greenhouse gas emissions.

## 3.6 REFERENCES

California Department of Conservation, Division of Land Resources Protection (DOC). 2015 (May 6, access date). Farmland Mapping and Monitoring Program: Los Angeles County, Important Farmland Data Availability (Land Use Conversion Tables for 2002–2004, 2004–2006, 2006–2008, 2008–2010, 2010–2012). Sacramento, CA: DOC. <http://www.conservation.ca.gov/dlrp/fmmp/Pages/LosAngeles.aspx>.

California Department of Finance (DOF). 2016 (May 1). E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011 – 2016, with 2010 Benchmark. Sacramento, CA: DOF. <http://www.dof.ca.gov/Forecasting/Demographics/Estimates/E-5/>.

California, State of. 2015a (access date). *California Code of Regulations* (Title 14, Natural Resources; Division 6, Resources Agency; Chapter 3, Guidelines for Implementation of the California Environmental Quality Act). Sacramento, CA: the State.

———. 2015b (access date). *California Public Resources Code* (Division 13, Environmental Quality; Sections 21000–21189.3). Sacramento, CA: California Resource Agency. [http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=PRC&division=13.&title=&part=&chapter=&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=PRC&division=13.&title=&part=&chapter=&article=)

———. 2015c (access date). *California Water Code* (Division 20, Municipal Water Districts). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=WAT&division=20.&title=&part=&chapter=&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=WAT&division=20.&title=&part=&chapter=&article=)

Golden Valley Municipal Water District (GVMWD). 2011 (May). *Centennial Water Supply Assessment and Verification Report, SB 610/221*. Gorman, CA: GVMWD (Appendix 5.18-A).

Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.

———. 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.

———. 2015c (May 27, last accessed). Town & County—Antelope Valley Area Plan Update. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.

- . 2004 (March 2004). *Notice of Preparation: Centennial Specific Plan Project Description* (Project Number 02-232, Specific Plan, Conditional Use Permits, Oak Tree Permit, Zone Change, Development Agreement, Vesting Tentative Tract Map Numbers 60020, 60021, 60023, and Vesting Tentative Parcel Map Number 60022). Los Angeles, CA: DRP (Appendix 2.0-A).
- Los Angeles, County of. 2015a (last accessed). *Los Angeles County, California – Code of Ordinances* (Title 26, Building Code). Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles. [https://www.municode.com/library/ca/\\_angeles\\_county/codes/code\\_of\\_ordinances](https://www.municode.com/library/ca/_angeles_county/codes/code_of_ordinances).
- . 2015b (last accessed). *Los Angeles County, California – Code of Ordinances* (Title 32, Fire Code). Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles. [https://www.municode.com/library/ca/angeles\\_county/codes/code\\_of\\_ordinances](https://www.municode.com/library/ca/angeles_county/codes/code_of_ordinances).
- Southern California Association of Governments (SCAG). 2016a (April 13). 2016-2040 RTP/SCS Final Growth Forecast by Jurisdiction. Los Angeles, CA: SCAG. [http://www.scag.ca.gov/Documents/2016\\_2040RTPSCS\\_FinalGrowthForecastbyJurisdiction.pdf](http://www.scag.ca.gov/Documents/2016_2040RTPSCS_FinalGrowthForecastbyJurisdiction.pdf).
- . 2016b (April 25). Personal communication. Email from Y. Zhou (SCAG) to J. Alido (BonTerra Psomas) with an attachment entitled “RTP12\_subregion\_021612v2.csv”.
- . 2012a (April). 2012 Regional Transportation Plan/Sustainable Communities Strategy – Growth Forecast Appendix. Los Angeles, CA: SCAG. [http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP\\_GrowthForecast.pdf](http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP_GrowthForecast.pdf).
- Western Regional Climate Center (WRCC). 2015a. (May 19). Tejon Ranch, CA—Monthly Average of Average Daily Temperature. Reno, NV: WRCC. <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca8839>.
- . 2015b (May 19). Tejon Ranch, CA—Monthly Sum of Precipitation. Reno, NV: WRCC. <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca8839>.

*This page is intentionally left blank.*

---

## 4.0 PROJECT DESCRIPTION

### 4.1 SECTION ORGANIZATION

The purpose of the Project Description section is to describe the Centennial Project in a way that will be meaningful to the public, reviewing agencies, and decision makers. The “Project” is defined as development of all of the land uses and of the associated actions identified in the Project’s Conceptual Land Use Plan, including all ministerial and discretionary actions required for short-term construction activities and long-term operation activities.

Section 15124 of the California Environmental Quality Act (CEQA) Guidelines (*California Code of Regulations* [CCR], Title 14) requires that an environmental impact report’s (EIR’s) project description contain (1) the precise location and boundaries of a proposed project; (2) a statement of objectives sought by the proposed project including the underlying purpose of the project; (3) a general description of the project’s technical, economic, and environmental characteristics; and (4) a statement briefly describing the intended uses of the EIR, including a list of the agencies that are expected to use the EIR in their decision making, a list of the permits and other approvals required to implement the project, and a list of related environmental review and consultation requirements required by federal, State, or local laws, regulations, or policies. An adequate project description need not be exhaustive, but should supply the detail necessary for project evaluation.

An EIR is the most comprehensive form of environmental documentation identified in CEQA and the CEQA Guidelines. This Project Description provides the information needed to assess the environmental effects associated with the planning, construction, and operation of the Project. The mitigation measures for the Centennial Project are listed in the Mitigation Monitoring and Reporting Program (MMRP) located in Appendix 2.0-C of this EIR.

This section is organized as follows:

- 4.1 Section Organization** – A statement of purpose for the Project Description and the organization of the section.
- 4.2 Project Location** – A description of the Project location, boundaries, and general site characteristics.
- 4.3 Project Objectives** – A statement of the Project objectives, including overall planning goals and implementation objectives.
- 4.4 Project Overview** – An overview of the Project’s required entitlements (*Centennial Specific Plan, General Plan Amendment, Zone Change, Development Agreement; Conditional Use Permits [CUPs] for Grading and Infrastructure, and Vesting Tentative Parcel Map.*)
- 4.5 Centennial Project Components** – A description of the various Project characteristics including the conceptual land use plan designations, overlay districts, mobility plan, parks/recreation, open space, utilities and associated

infrastructure, public services/facilities, landscape and lighting, solid waste management, technology plan, affordable housing program, and construction and grading. Implementation of the Project through buildout is addressed in the EIR.

- 4.6 Phasing and Implementation** – A description of the development phasing of the Project and fiscal implementation.
- 4.7 Off-Site Project Features** – A description of Project features that occur outside the limits of the Project boundary.
- 4.8 Intended Uses of the EIR** – A listing of the requested Project actions to be considered by the County of Los Angeles along with permits and approvals that may be required from responsible and trustee agencies.
- 4.9 References.** Includes an alphabetical listing of all references used in this section.

## 4.2 PROJECT LOCATION

The Project site consists of approximately 12,323 acres (or approximately 19.3 square miles) and is located in the northwestern portion of the Antelope Valley in unincorporated Los Angeles County and is contiguous to the southern boundary of Kern County. The Project site's western boundary is approximately one mile east of Interstate (I) 5, and State Route (SR) 138 runs through the southern portion of the Project site. The Project site is located approximately 35 miles north of Santa Clarita, 5 miles east of Gorman, 36 miles west of Lancaster, and 50 miles south of Bakersfield. The community of Gorman in Los Angeles County is adjacent to I-5 approximately four miles north of the I-5/SR-138 junction. As presented in Section 3.0, Environmental Setting, Exhibit 3-1, Regional Location, and Exhibit 3-2, Project Vicinity Map, depict the Project site in a regional and local context, respectively.

As shown on Exhibit 3-2, the Project site is immediately south of the divergence in the California Aqueduct into its East and West Branches. The West Branch of the Aqueduct runs in a north-south direction and generally bisects the Project site. The East Branch runs off-site along the northern boundary of the Project site. Quail Lake is adjacent to the Project site's southern boundary. The Project site's eastern boundary is 290<sup>th</sup> Street West. The Project site extends for approximately seven miles between its western boundary (west of Quail Lake) and its eastern boundary near 290<sup>th</sup> Street West. Elevations range from approximately 3,000 feet above mean sea level (msl) on the floor of Antelope Valley in the northeastern portion of the site to approximately 4,250 feet above msl in the northwestern portion of the property.

The Project site is generally bound by the Tehachapi Mountains to the north, and the Antelope Valley to the east; the northern edges of the Liebre and San Gabriel Mountains (Angeles National Forest) are approximately one mile to the south, and privately owned vacant land is immediately adjacent to the site to the west. The Los Padres National Forest is approximately seven miles to the west.



There are two “Not a Part” (NAP) parcels located within the Project boundaries. These two parcels are in the western portion of the Project site, encompassing 25.2 and 1.9 acres, and are owned by Southern California Edison (SCE). One of these parcels includes an Edison substation (see Section 4.5.10, Dry Utilities, for more information about this substation), and the other is vacant. Additionally, although the California Aqueduct (West Branch) and the SR-138 pass through the Project site, they are not part of the Project site nor within the Project boundaries.

## 4.3 PROJECT OBJECTIVES

Section 15124(b) of the State CEQA Guidelines requires “a statement of the objectives sought by the proposed project” (14 CCR 15124[b]). Not only is the Project analyzed in light of its objectives, but compatibility with the Project objectives is one of the criteria used in selecting and evaluating a reasonable range of Project alternatives. Clear project objectives simplify the selection process by providing a standard against which to measure project alternatives. The Centennial Project objectives are detailed below in Section 4.3.2.

### 4.3.1 PURPOSE

According to Section 15124(b) of the State CEQA Guidelines, “the statement of objectives should include the underlying purpose of the project”. The underlying purpose for the Project stems from the need to develop a sustainable community in the greater Los Angeles County region that creates a balance among residential, commercial, and other employment-generating uses and institutional/public uses, all while being sensitive to the environment.

The Project is designed to be in compliance with the vision, assumptions, goals, and policies of the *Antelope Valley Area Plan (AVAP)*, which was adopted by the Los Angeles County Board of Supervisors on June 16, 2015 (LACDRP 2015c). The potential implementation of the Project was known at the time of the development of the AVAP and was accounted for in the AVAP’s land use and population/employment growth assumptions, as well as implementation program.

The AVAP sets forth a vision that includes the creation of opportunities for the Antelope Valley to change and grow while preserving the rural lifestyle enjoyed by current residents and support a vibrant economy. The AVAP was prepared to achieve this vision through the development of four types of environments that would facilitate the preservation of rural areas of the Antelope Valley, including:

1. Rural Preserve Areas, where residential densities would be reduced in order to protect important ecological and agricultural resources and to minimize development in very high hazard areas;
2. Rural Town Areas, where maximum residential densities and minimum lot sizes would be established to preserve rural character;
3. Rural Town Centers, where urban commercial uses would be discouraged but rural commercial uses would be incentivized; and

4. Economic Opportunity Areas (EOAs), where plans for major infrastructure development are underway that may create the need for more detailed planning activities for these areas in the future.

The AVAP identifies three EOAs, and the Project site is located entirely within the West EOA. EOAs are defined as clusters of land with higher development densities along the routes of two proposed major infrastructure projects in the Antelope Valley; the High Desert Corridor (HDC) and the Northwest 138 Corridor Improvement (NW138) Project. The West EOA is adjacent to the SR-138. This joint project (SCH No. 2013111016) between the California Department of Transportation (Caltrans) and the Los Angeles County Metropolitan Transportation Authority (Metro) proposes widening and slightly realigning SR-138. The Centennial Project complements the County's AVAP by capitalizing on the transportation infrastructure investment that State and regional agencies are bringing into the area, while still achieving the overall goal of rural preservation in the Antelope Valley.

Prior to any master-planned development approval in the West EOA, a specific plan, community plan, or other similar planning document is required to ensure orderly development. EOAs include land use designations that allow for a balanced mix of residential, commercial, and light industrial uses, while preserving the rural character and ecological resources of the surrounding areas. As such, the Project implements the requirements of the AVAP by including a balance of land uses consistent with the intent and the land use designations set forth for the West EOA in the AVAP.

### **4.3.2 OBJECTIVES OF THE PROJECT**

The Project demonstrates consistency with the AVAP through the following Project Objectives:

1. Implement the Antelope Valley Area Plan (AVAP) by creating an environmentally and economically sustainable master-planned community on the Project site to help accommodate planned regional population and economic growth within the West EOA.
2. Design the Project to maximize efficient utilization of regional infrastructure while preserving hundreds of thousands of acres of contiguous natural open space and important biological resources.
3. Size the Project to include a broad range of employment, residential, institutional, and recreational land uses to encourage walkability and wellness, while reducing off-site employment-related commuter trips.
4. Ensure that all Project site infrastructure and public services are funded by the Project to avoid creating any financial obligations on existing residents and other taxpayers.
5. Integrate a multi-modal transportation network, renewable energy, water conservation, community wellness, and other green development features into the Project's design, build out, and ongoing operations.

## **A Healthy Community**

The Project will provide the opportunity for a healthy and sustainable lifestyle for its residents and workers. Critical elements in reversing unhealthy lifestyle trends are design features that will allow children to walk or bicycle safely to schools and the placement of parks and recreational facilities near homes. The Project will provide an extensive system of community trails and greenways as well as a County multi-use (hiking, equestrian, and mountain biking) trail with connectivity to other (or non-County) proposed trails and greenways, the Pacific Crest Trail, and proposed open space. The Project includes 163 acres of public Park Overlay, which includes acreage to meet the County's Parkland Dedication Ordinance requirement through neighborhood parks, community parks, and community regional parks. The Project also includes private recreational facilities, including one or more community-wide recreation centers with pools and sports courts, among other amenities to meet the County's General Plan parkland requirement.

Planned uses such as schools, the library, greenways, open space, neighborhood retail, and parks will be integrated into a pedestrian-friendly network of streets that will safely and easily accommodate bicycles and pedestrians. These factors will encourage walking and bicycling within the community. Active and social infrastructure will be built into the community with the incorporation of commercial-recreation areas, parks, and greenways. This infrastructure will support programs that promote healthy lifestyles, education and lifelong learning, ranging from open space to public gathering spaces, farmer's markets, community center, and private schools and colleges, that could occur in the Project's planned commercial-recreation areas and supplement public open spaces and schools to promote community and civic engagement, and promote wellness including physical and mental health.

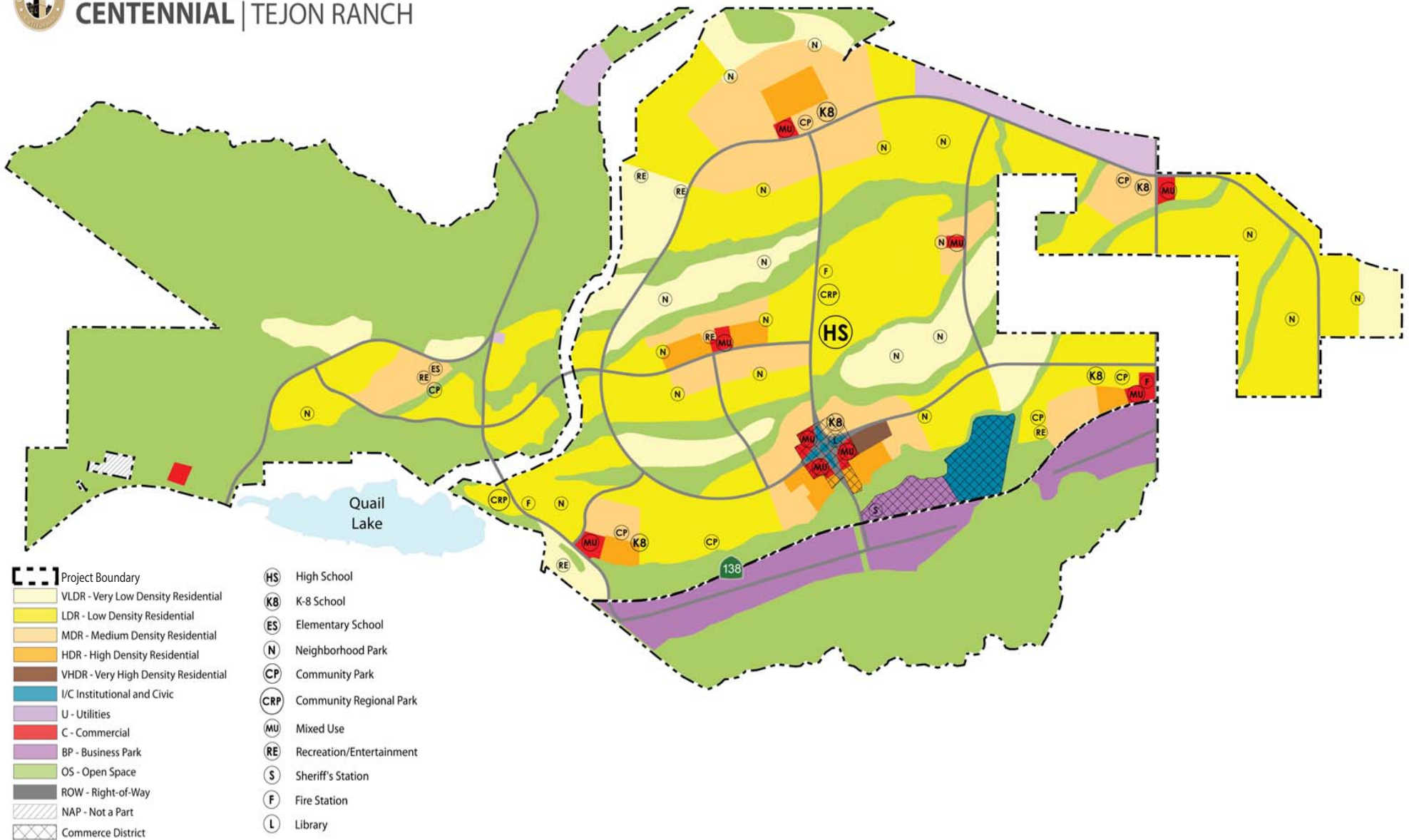
The Project Applicant/Developer has collaborated with the Los Angeles County Department of Public Health, the local educational/academic community, and others in an effort to optimize design and infrastructure amenities during planning efforts and to continue to encourage a healthy community. In addition, the Project Applicant/Developer will continually assess the needs of the community as a whole and the available resources in the area in order to understand its demographics and the programs its residents can use. The Project Applicant/Developer will also assess the needs of the different groups (e.g. retirees, working families, school-age children) within the Project in an effort to create programs for all groups within the community.

## **4.4 PROJECT OVERVIEW**

The Project involves the development of a new community with residential, commercial, business park, recreational/entertainment, and institutional/civic uses. The Project includes open space, parks, schools, utilities, and infrastructure to support the proposed land uses and future residents. The Project's land uses (including proposed land use designations) are depicted on Exhibit 4-1, Centennial Project – Conceptual Land Use Plan. As noted in Section 4.2 above, the NAP parcels shown on Exhibit 4-1 are not owned by the Project Applicant/Developer and are not included in the Conceptual Land Use Plan.



# LAND USE CENTENNIAL | TEJON RANCH



Source: Placeworks 2017

## Centennial Project – Conceptual Land Use Plan

Exhibit 4-1

Centennial Project



Map Not to Scale

The primary entitlement action associated with the Project includes the adoption of the *Centennial Specific Plan*, and, as described in Section 4.8, Intended Uses of the Environmental Impact Report, additional entitlement actions include a General Plan Amendment, Zone Change to Specific Plan; Development Agreement; Parcel Map; and Conditional Use Permits (CUPs) for Grading and Project-related infrastructure. Project buildout would be implemented in phases, based on future market conditions, over an approximate 20-year period through a series of future tract and parcel maps.

As identified in Table 4-1, Centennial Project Overview, the Project site encompasses approximately 12,323 acres and would allow up to 19,333 dwelling units (du) on approximately 4,987 gross acres<sup>1</sup> of land designated for residential uses. Other land uses include approximately 7,363,818 square feet (sf) of Business Park uses (office, research and development, and warehousing or light manufacturing uses) on approximately 597 gross acres; and approximately 1,034,550 sf of Commercial uses on approximately 102 acres. Proposed Institutional/Civic land uses (such as schools for higher education, medical facilities, library, and other civic uses) encompass approximately 1,568,160 sf on approximately 110 acres.

The Project includes approximately 130,680 sf of Recreation/Entertainment uses (clubhouse, farmers market, childcare facilities, health clubs) on approximately 75 acres. Proposed sites for major Utility facilities that would serve the entire community (e.g., wastewater reclamation facilities, water treatment facility, water bank, materials recovery facility) encompass approximately 191 acres, and Kindergarten through 12<sup>th</sup> grade (K-12 schools would be located on approximately 145 acres. Approximately 5,624 acres (approximately 45.6 percent) of the 12,323-acre Project site are proposed for Open Space for natural resource protection and greenways, and parks for active and passive recreational use. The Project also includes a vehicular and a non-vehicular circulation system.

The Project includes an integrated network of roadways, walking and biking trails to reduce automobile use and facilitate safe and efficient travel. An extensive network of sidewalks, greenway trails (approximately 13 miles), and community trails (approximately 60 miles) would link residential, schools, shopping, and employment areas. Consistent with State and regional planning objectives that focus on reducing the use of single occupancy vehicles (SOVs) for travel, the Project must meet the following mobility performance standards: (1) a minimum of 20 percent of total daily peak morning and afternoon external (e.g., commuting) trips must be completed by using non-SOV transit modes; and (2) a minimum of 30 percent of total daily internal (e.g., local) trips must be completed by using non-SOV transit modes.

---

<sup>1</sup> Acreages for all categories are considered gross acreage and does not account for transitional slopes or internal slopes. Actual developable acreage may be reduced with future detailed planning.

**TABLE 4-1  
CENTENNIAL PROJECT OVERVIEW**

Land Use	Gross Acres	Maximum Permitted Density/Intensity	
		Units	Square footage
Residential	4,987	19,333	-
Business Park (BP)	597	-	7,363,818
Commercial (C)	102	-	1,034,550
Institutional/Civic (I/C)	110	-	1,568,160
Recreation/Entertainment (R/E)	75	-	130,680
Utility (U)	191	-	-
Right of Way (ROW) <sup>a</sup>	327	-	-
School (S) Overlay	146	-	-
Open Space (OS) Overlay	5,624	-	-
Park (P) Overlay	163	-	-
<b>TOTAL</b>	<b>12,323</b>	<b>19,333</b>	
Source: Placeworks 2017. Note: totals may not add due to rounding.			
<sup>a</sup> The ROW include acreage for the arterials and collectors identified in the Centennial Circulation Plan.			

This EIR addresses the development of the Conceptual Land Use Plan, including all ministerial and discretionary actions required for short-term construction activities and long-term operation activities. In the future, the Project Applicant/Developer will submit applications for tentative tract maps (TTMs) and other approvals needed for the development (“future approvals”), and/or the Project Applicant/Developer may request changes in the Conceptual Land Use Plan or other aspects of the Project in accordance with Chapter 4 of the *Centennial Specific Plan*. Implementation of the Project, including subsequent County approvals, are described in Chapter 4 of the *Centennial Specific Plan*.

#### 4.4.3 LAND USE PLANS

Section 5.8, Land Use, Entitlements, and Planning, provides a detailed discussion of these planning documents and goals and policies relevant to the Project.

#### Regional Transportation Plan- Sustainable Communities Strategy

On April 4, 2012, SCAG adopted the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The RTP/SCS provides a plan for meeting greenhouse gas (GHG) emissions reduction targets set forth by the California Air Resources Board (CARB) through the integration of land use, housing, transportation, and environmental planning strategies. SCAG was tasked with the development of the SCS through the mandate set forth in Sustainable Communities and Climate Protection Act of 2008 (Senate Bill [SB] 375), which is expected to help California reach its GHG reduction goals in per capita transportation emissions of 9 percent by 2020 and 16 percent by 2035 (from a 2005 base year).

The RTP/SCS's Integrated Growth Forecast reflects the 2010 Census, employment data from the California Employment Development Department (EDD), and population and household data from the California Department of Finance (DOF). Discussions with local jurisdictions led to some adjustments, which resulted in SCAG's ability to obtain a consensus on the Integrated Growth Forecast to serve as the foundation for the 2012–2035 RTP/SCS.

On April 7, 2016, the SCAG Regional Council adopted the 2016–2040 RTP/SCS. The RTP/SCS combines the need for mobility with a “sustainable future” through a reduction in the amount of emissions produced from transportation sources. This would be made through the operation of low or no emission transportation systems by 2040. The 2016–2040 RTP/SCS, like the 2012–2035 RTP/SCS, includes population, household, and employment projections in Traffic Analysis Zone (TAZ) maps. TAZ projections for the area that includes the Project site, which were also reflected in corresponding figures included in SCAG's 2012 RTP/SCS (SCAG 2012a) and 2016 RTP/SCS (SCAG 2016), are consistent with the household and employment components of the Project.

## **Los Angeles County General Plan**

The *California Government Code* (Section 65300) requires that each City and County adopt a comprehensive, long-term General Plan that provides a blueprint for the growth and development of the jurisdiction. The General Plan is implemented through the zoning and subdivision processes and other subordinate land use entitlements and approvals. The *County of Los Angeles General Plan “Update 2035” (General Plan)* was approved by the Los Angeles County Board of Supervisors (Board) on March 24, 2015 and adopted by the Board on October 6, 2015. The *General Plan* became effective on November 6, 2015.

The *General Plan* provides the policy framework and establishes the long range vision for how and where the unincorporated areas of the County will grow; it establishes goals, policies, and programs to foster healthy, livable, and sustainable communities. The *General Plan* is the foundational document for all 11 community-based Area Plans in the County. The purpose of an Area Plan is to establish standards and criteria that are responsive and tailored to the unique conditions in a specific community, and which are also consistent with the general countywide provisions. The Project site is located in the area covered by the AVAP, which is a component of the *General Plan*, and was adopted by the Board on June 16, 2015. The AVAP became effective on July 16, 2015 (LACDRP 2015c).

The Project includes internal roadways which are required to be added to the General Plan Circulation Map, and thereby requires a conforming General Plan amendment since this internal roadway circulation information was not known and could be approved for inclusion in the County Highway Plan (filling in internal project roadways to Figure 7.3 in the General Plan) until the CEQA review process is completed and the Project entitlements (including the amendment to Figure 7.3) is approved by the County.

## **Antelope Valley Area Plan (AVAP)**

An Area Plan sets forth goals and policies to achieve the communities' shared vision of how growth and development should occur into the future. The AVAP's vision is centered on the

preservation of the rural lifestyle and rural character of the region. As previously discussed, the AVAP describes four types of environments, including Rural Preserve Areas, Rural Town Areas, Rural Town Centers, and EOAs. EOAs are adjacent to major infrastructure projects being planned by State and regional agencies, which would bring opportunities for growth and economic development in the vicinity of these projects.

The Project site encompasses the majority of the land within the designated West EOA and is also adjacent to the SR-138. SR-138 runs in a general east-west direction through the southern section of the site and is currently a two-lane highway, but the California Department of Transportation (Caltrans) is proposing to widen and realign SR-138 into a four- to six-lane highway through and near the site, as part of its comprehensive Northwest 138 Corridor Improvement Project. As such, the Project anticipates and would complement the planned SR-138 improvements, as intended by the West EOA.

The Project is consistent with and proposed to implement a development that meets the requirements of the AVAP by including a balance of land uses set forth within the West EOA. Allowed land use designations in the West EOA include:

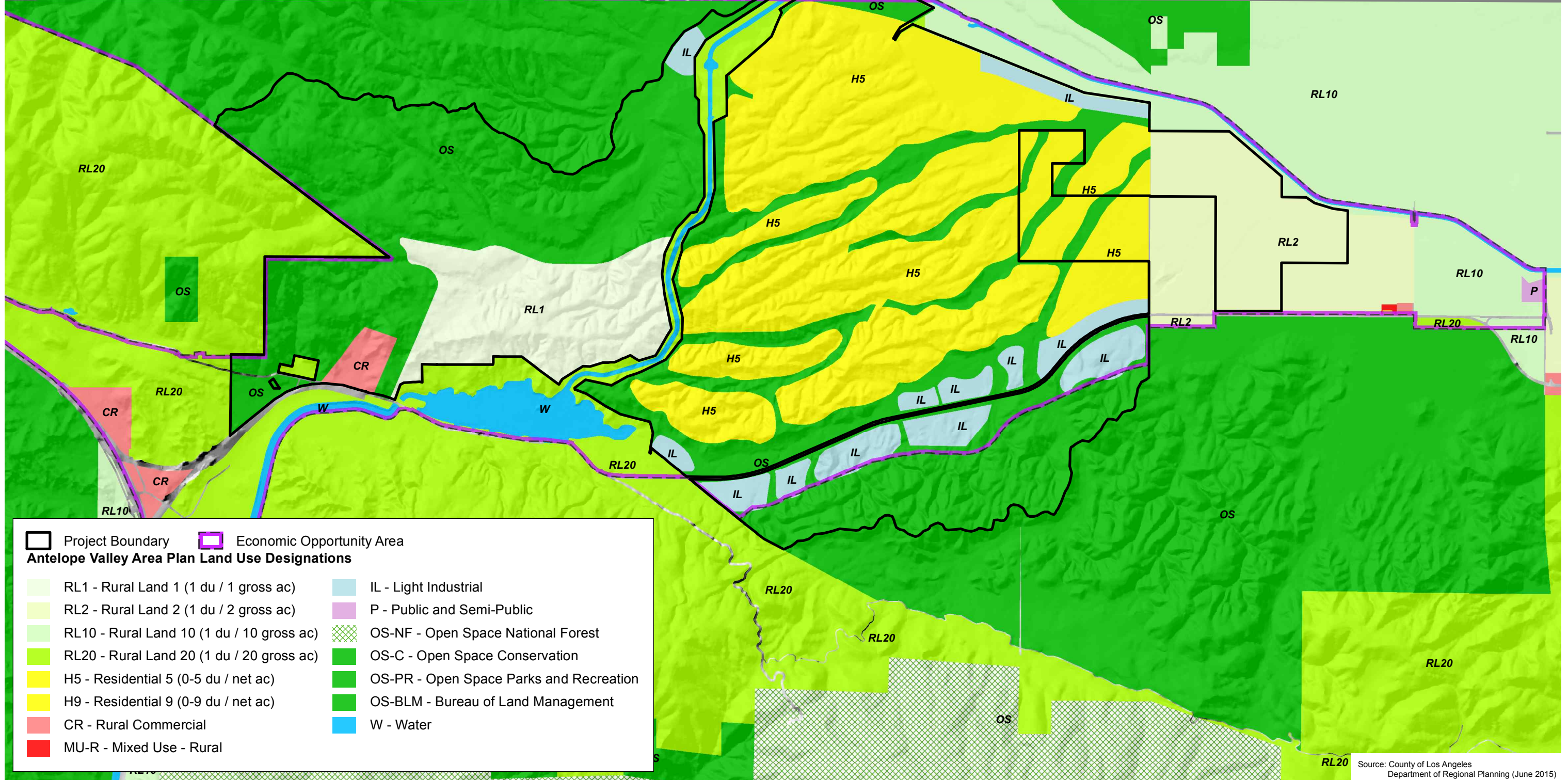
- Residential 5 (H5) – Maximum density of 5 residential units for each 1 net acre
- Rural Land 1 (RL1) – Maximum density of 1 residential unit for each 1 gross acre
- Rural Land 2 (RL2) – Maximum density of 1 residential unit for each 2 gross acres
- Rural Land 10 (RL10) – Maximum density of 1 residential unit for each 10 gross acres
- Rural Land 20 (RL20) – Maximum density of 1 residential unit for each 20 gross acres
- Conservation (OS-C)
- Rural Commercial (CR)
- Mixed Use – Rural (MU-R)
- Light Industrial (IL)

Exhibit 4-2a, Antelope Valley Area Plan Land Use Designations, illustrates the land uses for the Project site. Per the AVAP, current land use designations on the Project site include H5: Residential 5 (0–5 du/net acre); OS-C: Open Space Conservation; CR: Rural Commercial; RL1: Rural Land 1 (1 du/1 gross acre); IL: Light Industrial; RL2: Rural Land 2 (1 du/2 gross acres). The AVAP requires that prior to any master-planned development approval in the West EOA, a specific plan, community plan, or other similar planning document is required to ensure orderly development.

The Project is consistent with the land use designations of the AVAP and no General Plan Amendment to change the land use designations for the site is required. The Project Applicant/Developer's Project application was deemed complete on May 31, 2008; therefore, the potential implementation of the Project was known by the Los Angeles County Department of Regional Planning (LACDRP) and was accounted for in the development of the AVAP. As such, the potential benefits and impacts associated with the Project



KERN COUNTY



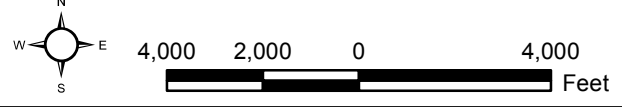
Project Boundary	Economic Opportunity Area
<b>Antelope Valley Area Plan Land Use Designations</b>	
RL1 - Rural Land 1 (1 du / 1 gross ac)	IL - Light Industrial
RL2 - Rural Land 2 (1 du / 2 gross ac)	P - Public and Semi-Public
RL10 - Rural Land 10 (1 du / 10 gross ac)	OS-NF - Open Space National Forest
RL20 - Rural Land 20 (1 du / 20 gross ac)	OS-C - Open Space Conservation
H5 - Residential 5 (0-5 du / net ac)	OS-PR - Open Space Parks and Recreation
H9 - Residential 9 (0-9 du / net ac)	OS-BLM - Bureau of Land Management
CR - Rural Commercial	W - Water
MU-R - Mixed Use - Rural	

Source: County of Los Angeles Department of Regional Planning (June 2015)

Antelope Valley Area Plan Land Use Designations

Exhibit 4-2a

Centennial Project



implementation as reflected on the AVAP Land Use Policy Map, is considered within the AVAP and within the AVAP's EIR and are further considered in this EIR.

The Project includes the development of nine Villages that will each contain a mix of land uses that enable residents to live near schools, shopping, neighborhood businesses and services, civic buildings, medical facilities, and employment centers. The Project includes a mix of housing options within each Village, ranging from apartment homes close to the Town Center to single-family homes in lower-density areas. A full range of light industrial, business, and other commercial uses are planned that are intended to yield a broad range of employment opportunities, from retail services to large corporate employers. The opportunities for employment diversity increase the overall economic sustainability of the Project and the West EOA.

In support of the AVAP's prioritization for the preservation of natural open space resources, development in areas of significant biological value would be minimized and there would be no disturbance or development within the designated Significant Ecological Area (SEA) on the Project site.

AVAP designates the Project site as within the West Economic Opportunity Area (EOA); AVAP also requires approval of a Specific Plan for a new master planned community in this EOA. Further, the Land Use Map includes an SP overlay designation over the site. In compliance with the County's Specific Plan requirements and State law, the *Centennial Specific Plan* includes the location of the Project's internal circulation network of roadways. Some of these internal roadways that meet the criteria for being included in the Antelope Valley Area Plan Highway Plan (Map 3.1 of the Antelope Valley Area Plan, which includes major highways, secondary highways, limited secondary highways, parkways, and expressways). Amending Map 3.1 of the Antelope Valley Area Plan and Figure 7.3 of the County General Plan is being proposed to fill in the above roadways that are interior to the Project site, consistent with AVAP's requirement for a Specific Plan for a new master planned community in this EOA. The Project remains consistent with the AVAP as described above, and no text amendments to the AVAP or County General Plan are proposed.

In support of the AVAP's goal of reducing single-occupancy vehicle use, the Project includes alternatives to automobile travel (e.g., public transit, bicycle network, and pedestrian system) that would minimize traffic, pollution, and greenhouse gases. Efficient use of land and a balance of uses that result in a jobs/housing balance would reduce single-occupancy automobile travel and vehicle miles traveled.

#### **4.4.4 ZONING**

The Los Angeles Zoning Code is adopted by ordinance and promotes the implementation of the County General Plan. Zoning regulates permitted and prohibited land uses and establishes development standards for land uses. Exhibit 4-2b, Antelope Valley Area Plan Zoning, illustrates the zoning for the Project site. Current zoning on the Project site includes O-S: Open Space; A-1-2: Light Agricultural – Two Acre Minimum Required Lot Area; RPD: Residential Planned Development; CPD-DP: Commercial Planned Development – Development Program; and MPD-DP: Manufacturing Industrial Planned Development –

Development Program. The Project site is designated on the AVAP zoning map as within the West EOA.

As discussed in Chapter 8, Plan Implementation, of the AVAP, the preparation and adoption of a specific plan or similar planning document is required for property within the West EOA before any development of five or more residential dwelling units, any commercial use, any industrial use, or any combination thereof can be approved. The AVAP further clarifies the requirements for the specific plan:

In order to allow for more flexibility in the future detailed site design of specific neighborhoods in this area, a Specific Plan for a project in the West EOA may be allowed to convert the areas designated as Residential 5 (H5) to General Commercial (CG) or Public and Semi-public (P) designations without amending this Area Plan, so long as the resulting residential densities do not exceed those provided for by this Area Plan and no change in unmitigated significant impacts occurs. The Specific Plan may also include provisions for the conversion of residential to commercial areas, provided the amount of planned commercial building square footage does not result in any new unmitigated significant impacts. The Specific Plan shall also stipulate that these provisions (i.e., converting residential to commercial or other designations) are subject to a traffic study that confirms that no new unmitigated significant traffic impacts will occur.

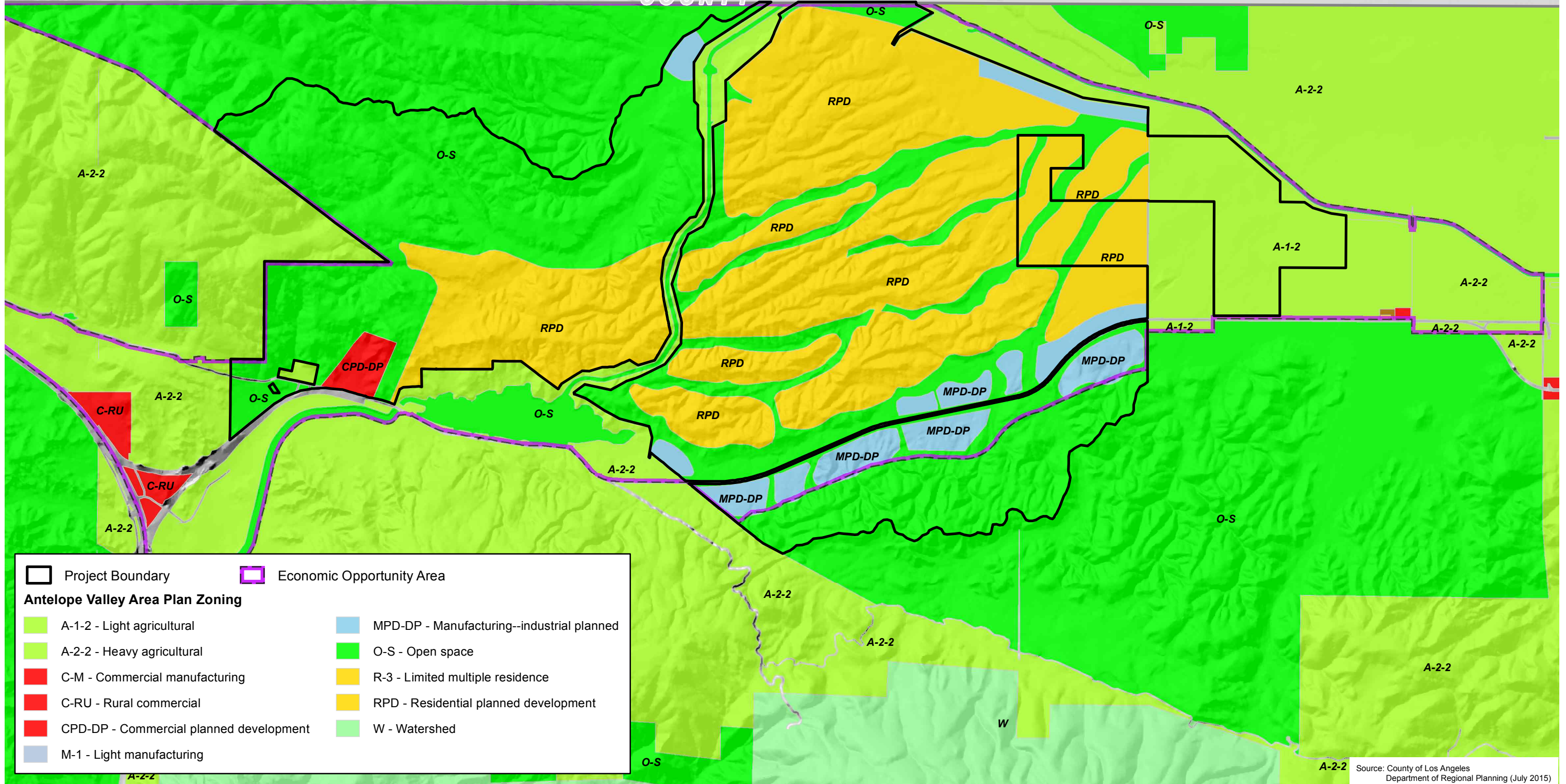
Overall, land use adjustments within designations are permitted as part of a Specific Plan provided that the adjustments: 1) do not increase the total number of developable acres, dwelling units or square footage; 2) increase the total amount of open space and do not decrease the total amount of natural open space; and 3) do not result in new unmitigated significant impacts.

As set forth in Chapter 2, Land Use, of the AVAP, a Specific Plan is an Overlay on the Land Use Policy Map. As such, a “Specific Plan Overlay” must be placed on the Land Use Policy Map for an adopted specific plan. To implement the Project, a zone change to “Specific Plan” is proposed for the entire Centennial Project site, as depicted on Exhibit 3-2, Project Vicinity Map. The development standards and land use designations described in the *Centennial Specific Plan* will apply to the site upon adoption of the *Centennial Specific Plan* rather than the zoning standards established by Title 22 of the Los Angeles County Code. Topics not addressed by the *Centennial Specific Plan* shall be governed by the rules and regulations of Title 22 of the Los Angeles County Code.

Since a Specific Plan would be adopted for the site, the Project would be consistent with the County’s Hillside Management Areas (HMA) Ordinance and no Hillside Management conditional use permit (CUP) is needed. The Project’s Hillside Design Guidelines in Appendix 1-B of the Specific Plan would be consistent with the County’s Hillside Design Guidelines by (1) locating development outside HMAs to the extent feasible; (2) locating development in the portions of HMAs with the fewest hillside constraints; and (3) using sensitive hillside design techniques tailored to the unique site characteristics. However, proposed grading on the site would exceed 100,000 cubic yards and a CUP would be needed pursuant to Section 22.56.217 of the Los Angeles County Code. The Project also requires a CUP for approval of



KERN COUNTY



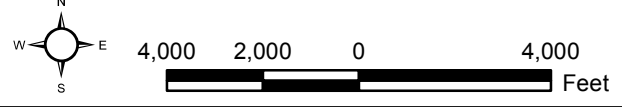
Project Boundary	Economic Opportunity Area
<b>Antelope Valley Area Plan Zoning</b>	
A-1-2 - Light agricultural	MPD-DP - Manufacturing--industrial planned
A-2-2 - Heavy agricultural	O-S - Open space
C-M - Commercial manufacturing	R-3 - Limited multiple residence
C-RU - Rural commercial	RPD - Residential planned development
CPD-DP - Commercial planned development	W - Watershed
M-1 - Light manufacturing	

Source: County of Los Angeles  
Department of Regional Planning (July 2015)

Antelope Valley Area Plan Zoning

Exhibit 4-2b

Centennial Project



D:\Projects\3\CEN\Center\MI\XIER\EX\_AVAP\_Zoning\_20160606.mxd

Project-related infrastructure, including roadway circulation system, gas, telephone, cable and internet and electric lines within road right-of-way, a water system including domestic and recycled water tanks and pipelines and accessory booster pumps and storage ponds, sewage disposal pipelines and waste water reclamation facilities, water banks, water wells, flood control and drainage facilities, water treatment facilities, wireless communication facilities, green waste composting, solid waste and materials recovery facilities and recycling centers and an electrical substation.

#### 4.4.5 CENTENNIAL SPECIFIC PLAN

The *California Government Code* establishes the authority for cities and counties to adopt specific plans either by resolution as policy or by ordinance as regulation. Specific plans are customized regulatory documents established to provide a framework for the planning and development of multi-use projects. They provide more focused guidance and regulations by detailing the permitted uses of specific areas. They describe a project’s purpose, vision, and features and present the project description including type and distribution of land uses (which constitutes zoning, infrastructure plans, development standards, and implementation measures).

The *Centennial Specific Plan* is a regulatory document that would be considered for adoption by either resolution (as policy) or by ordinance by the Board of Supervisors. Upon adoption of the *Centennial Specific Plan*, the development standards and zoning of the *Centennial Specific Plan* become the zoning for the site. (Chapters One through Four of the *Centennial Specific Plan*—including Appendices 1-A, 1-C, and 1-D—would be adopted by ordinance, and Appendix 1-B, 2-A, and 2-B of the *Centennial Specific Plan* would be adopted by resolution.)

A statistical summary of the *Centennial Specific Plan* is provided in Table 4-2, Centennial Specific Plan Statistical Table. The *Centennial Specific Plan* has organized the development into nine “Villages” as well as areas designated as Public Facilities, Civic, and Business Park (described below and in Section 2.1 of the *Centennial Specific Plan*). A detailed description of the Project components outlined in various sections of the *Centennial Specific Plan* (including graphic representations) is provided in Section 4.5, Centennial Project Components, including the subsections noted below. Specific Plan implementation procedures are also described in Chapter 4 of the Specific Plan.

- 4.5.1 Project Design Features
- 4.5.2 Conceptual Land Use Plan
- 4.5.3 Vesting Tentative Parcel Map
- 4.5.4 Conceptual Land Use Plan and Development Standards
- 4.5.5 Mobility Plan
- 4.5.6 Parks/Recreation
- 4.5.7 Natural Resources/Open Space
- 4.5.8 Integrated Water Resources Management Approach
- 4.5.9 Water-Related Utilities and Infrastructure
- 4.5.10 Dry Utilities
- 4.5.11 Green Development Program
- 4.5.12 Public Services/Facilities

- 4.5.13 Landscape, Fuel Modification, and Lighting  
 4.5.14 Solid Waste Management Plan  
 4.5.15 Communication Based Technology Plan  
 4.5.16 Affordable Housing Program  
 4.5.17 Grading and Construction

**TABLE 4-2  
 CENTENNIAL SPECIFIC PLAN STATISTICAL TABLE**

Land Use	Gross Acres	Dwelling Units	Square Feet
<b>Village 1</b>			
<i>Residential</i>			
Very Low Density	89	126	-
Low Density	371	1,210	-
Medium Density	36	234	-
High Density	23	255	-
Commercial	13	-	141,570
Recreation/Entertainment Overlay	50	-	87,120
School Overlay	15	-	-
Park Overlay	38	-	-
Right-of-Way	26	-	-
<b>Subtotal</b>	<b>661</b>	<b>1,825</b>	<b>228,690</b>
<b>Village 2</b>			
<i>Residential</i>			
Low Density	313	930	-
Medium Density	139	873	-
High Density	45	480	-
Commercial	10	-	98,010
Recreation/Entertainment Overlay	4	-	6,970
Park Overlay	12	-	-
Right-of-Way	29	-	-
<b>Subtotal</b>	<b>552</b>	<b>2,283</b>	<b>104,980</b>
<b>Village 3</b>			
<i>Residential</i>			
Medium Density	155	972	-
High Density	58	600	-
Very High Density	18	300	-
Commercial	30	-	294,030
Institutional/Civic	8	-	139,392
School Overlay	15	-	-
Park Overlay	3	-	-
Right-of-Way	33	-	-
<b>Subtotal</b>	<b>320</b>	<b>1,872</b>	<b>433,422</b>

**TABLE 4-2  
CENTENNIAL SPECIFIC PLAN STATISTICAL TABLE**

<b>Land Use</b>	<b>Gross Acres</b>	<b>Dwelling Units</b>	<b>Square Feet</b>
<b>Village 4</b>			
<i>Residential</i>			
Very Low Density	295	410	-
Low Density	168	560	-
Recreation/Entertainment Overlay	10	-	17,424
Park Overlay	9	-	-
Right-of-Way	12		
<b>Subtotal</b>	<b>494</b>	<b>970</b>	<b>17,424</b>
<b>Village 5</b>			
<i>Residential</i>			
Very Low Density	87	116	-
Low Density	454	1,495	-
Medium Density	427	2,709	-
High Density	52	555	-
Commercial	9	-	87,120
School Overlay	15	-	-
Park Overlay	22	-	-
Right-of-Way	35	-	-
<b>Subtotal</b>	<b>1,101</b>	<b>4,875</b>	<b>87,120</b>
<b>Village 6</b>			
<i>Residential</i>			
Very Low Density	207	286	-
Low Density	283	1,080	-
Medium Density	44	279	-
Commercial	5	-	54,450
School Overlay	60	-	-
Park Overlay	34	-	-
Right-of-Way	14	-	-
<b>Subtotal</b>	<b>647</b>	<b>1,645</b>	<b>54,450</b>
<b>Village 7</b>			
<i>Residential</i>			
Very Low Density	80	112	-
Low Density	235	845	-
Medium Density	51	324	-
High Density	16	165	-
Commercial	16	-	163,350
Recreation/Entertainment	5	-	8,712
School Overlay	15		

**TABLE 4-2  
CENTENNIAL SPECIFIC PLAN STATISTICAL TABLE**

<b>Land Use</b>	<b>Gross Acres</b>	<b>Dwelling Units</b>	<b>Square Feet</b>
Park Overlay	12	-	-
Right-of-Way	12	-	-
<b>Subtotal</b>	<b>443</b>	<b>1,446</b>	<b>172,062</b>
<b>Village 8</b>			
<i>Residential</i>			
Very Low Density	69	96	-
Low Density	738	2,450	-
Medium Density	46	297	-
Commercial	10	-	108,900
School Overlay	15	-	-
Park Overlay	19	-	-
Right-of-Way	20	-	-
<b>Subtotal</b>	<b>917</b>	<b>2,843</b>	<b>108,900</b>
<b>Village 9</b>			
<i>Residential</i>			
Very Low Density	88	124	-
Low Density	335	1,090	-
Medium Density	65	360	-
Recreation/Entertainment Overlay	6	-	10,454
School Overlay	10	-	-
Park Overlay	13	-	-
Utility	3	-	-
Right-of-Way	14	-	-
<b>Subtotal</b>	<b>534</b>	<b>1,574</b>	<b>10,454</b>
<b>Land Use Areas Not Within a Village</b>			
Commercial	9	-	87,120
Institutional/Civic	102	-	1,428,768
Business Park	597	-	7,363,818
Open Space	5,624	-	-
Utility	188	-	-
Right-of-Way	132	-	-
<b>Subtotal</b>	<b>6,652</b>	<b>-</b>	<b>8,869,453</b>
<b>Totals</b>	<b>12,323</b>	<b>19,333</b>	<b>10,097,208</b>
Source: Placeworks 2017			



## 4.5 CENTENNIAL PROJECT COMPONENTS

### 4.5.1 PROJECT DESIGN FEATURES

The Project has been planned with design elements called Project Design Features (PDFs). The Project Applicant/Developer has planned the Centennial Project to include the design elements listed as PDFs listed in each section; these PDFs have been incorporated into the Project to prevent the occurrence of or to reduce the significance of potential environmental effects. Because PDFs have been incorporated into the Project, they do not constitute mitigation measures as defined by CEQA. However, if the PDFs have mitigation value to reduce a potentially significant impact, then a corresponding mitigation measure (MM) has been prepared to ensure the implementation of the measure through the Mitigation Monitoring and Reporting Program (MMRP). The PDFs are generally described in this section, and are specifically itemized and numbered within each topical issue addressed in Section 5.0 (i.e., Sections 5.1 through 5.21) of this Draft EIR.

### 4.5.2 CONCEPTUAL LAND USE PLAN

Exhibit 4-1, Centennial Project – Conceptual Land Use Plan, depicts the Project boundary and conceptual-level locations and distributions of the proposed land uses, as well as the main roadways throughout the Project site. The Conceptual Land Use Plan provides one possible interpretation of site development in compliance with the AVAP, and is the basis for the environmental analysis set forth in this EIR.

The Project has been designed to respect the existing landforms and to consider the topography, elevation, presence of the Aqueduct, major roadways, drainages, and biologically sensitive areas. As such, development has been organized into nine “Villages” as shown in Exhibit 4-3, Centennial Project – Villages and Core Areas. Villages 1 through 8 are located east of the West Branch of the California Aqueduct and Village 9 is located west of the Aqueduct.

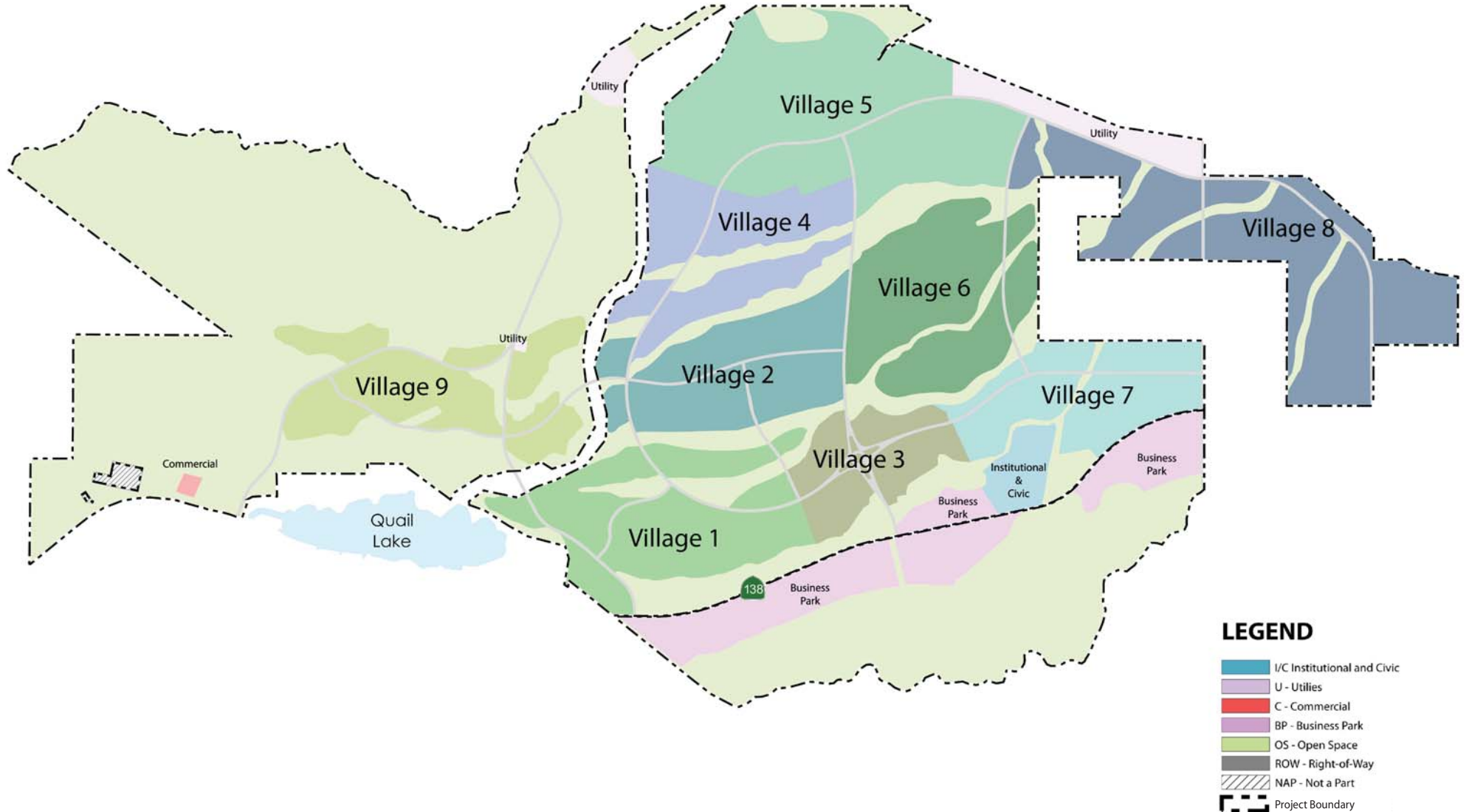
The Villages have been designed to incorporate the main principles of “Smart Growth”. Smart Growth is a movement in land use and transportation planning that formally began in the early 1990’s. It promotes compact, transit-oriented, walkable, bicycle-friendly communities, including “Complete Streets” and mixed-use neighborhoods and with a range of housing choices. Smart Growth emphasizes the connection between preservation of open space and smaller community footprints. Medium- to very high density development is generally included in the central area of each Village, and the density of development progressively lowers with increased distance from core areas, called the Village Core, Town Center or Neighborhood Center<sup>2</sup>. The Town Center of Centennial is located in Village 3, and is the “downtown” area of the Project. Villages 1, 2, 5, and 7 have a Village Core. Villages 6, 8, and 9 have a Neighborhood Center. As shown in Exhibit 4-3, Villages and Core Areas, 100 percent of all residential development (i.e. total number of dwelling units) will be located within ¼

---

<sup>2</sup> A Village Core/Town Center/Neighborhood Center areas are defined by having a combination of uses, including retail, office, civic, and higher density residential, that are supported by adjacent residential areas that transition out to low density development. These areas vary in size and intensity, and generally extend two blocks in any direction from the activity center of each core including the block (or blocks) containing some mixed-use development.



# VILLAGES OF CENTENNIAL CENTENNIAL | TEJON RANCH



## LEGEND

- I/C Institutional and Civic
- U - Utilities
- C - Commercial
- BP - Business Park
- OS - Open Space
- ROW - Right-of-Way
- NAP - Not a Part
- Project Boundary

Source: Placeworks 2017

## Centennial Project – Villages and Core Areas

## Exhibit 4-3

Centennial Project



Map Not to Scale

mile walking distance of a park, trailhead, club house or other public amenity; and an 80 percent average, but no less than 50 percent of residential units will be located within ½ mile of a Village Core or the Town Center. Village Cores will have a public gathering space (e.g., square or plaza) of 10,000 sf or more, with street frontage on at least one side and at least two points of access from a sidewalk, trail, or other pathway. The Town Center shall have a public gathering space of 1 acre or more, with street frontage on at least two sides. Additionally, 30 percent of Village 3 residential units will be within the Town Center; and 15 percent of the residential units within Villages 1, 2, 5, and 7 will be within the Village Core.

Residential land uses are designated as either Very Low Density Residential (VLDR), Low Density Residential (LDR), Medium Density Residential (MDR), High Density Residential (HDR), or Very High Density Residential (VHDR). Other land uses in the Villages include Commercial (C) and Institutional/Civic (I/C). Overlays in the Villages include the Recreation/Entertainment Overlay (R/E), School Overlay, and Park Overlay. Designated land uses that are excluded from the Villages acres include Open Space (OS), Business Park (BP), Right-of-Way (ROW), and Utility (U).

Exhibit 4-1, Centennial Project – Conceptual Land Use Plan also depicts the current alignment of SR-138, which runs adjacent to the Business Park land use in the southern portion of the Project site and is excluded from the Project boundary.

### **4.5.3 VESTING TENTATIVE PARCEL MAP**

To facilitate the overall phasing of Project development, the Project Applicant/Developer proposes to subdivide the entire 12,323-acre property into 20 parcels through Vesting Tentative Parcel Map (VTPM) No. 060022. The minimum parcel size on VTPM No. 060022 is 102 acres. Exhibit 4-4, Centennial Project – Vesting Tentative Parcel Map No. 060022, depict the proposed subdivision, which may correspond to future TTMs. The VTPM is intended to create parcels that can be used for finance and conveyance purposes only. Construction of residential and nonresidential buildings will require further subdivision of the large parcels created by the VTPM, as well as other subsequent land use permits and approvals.

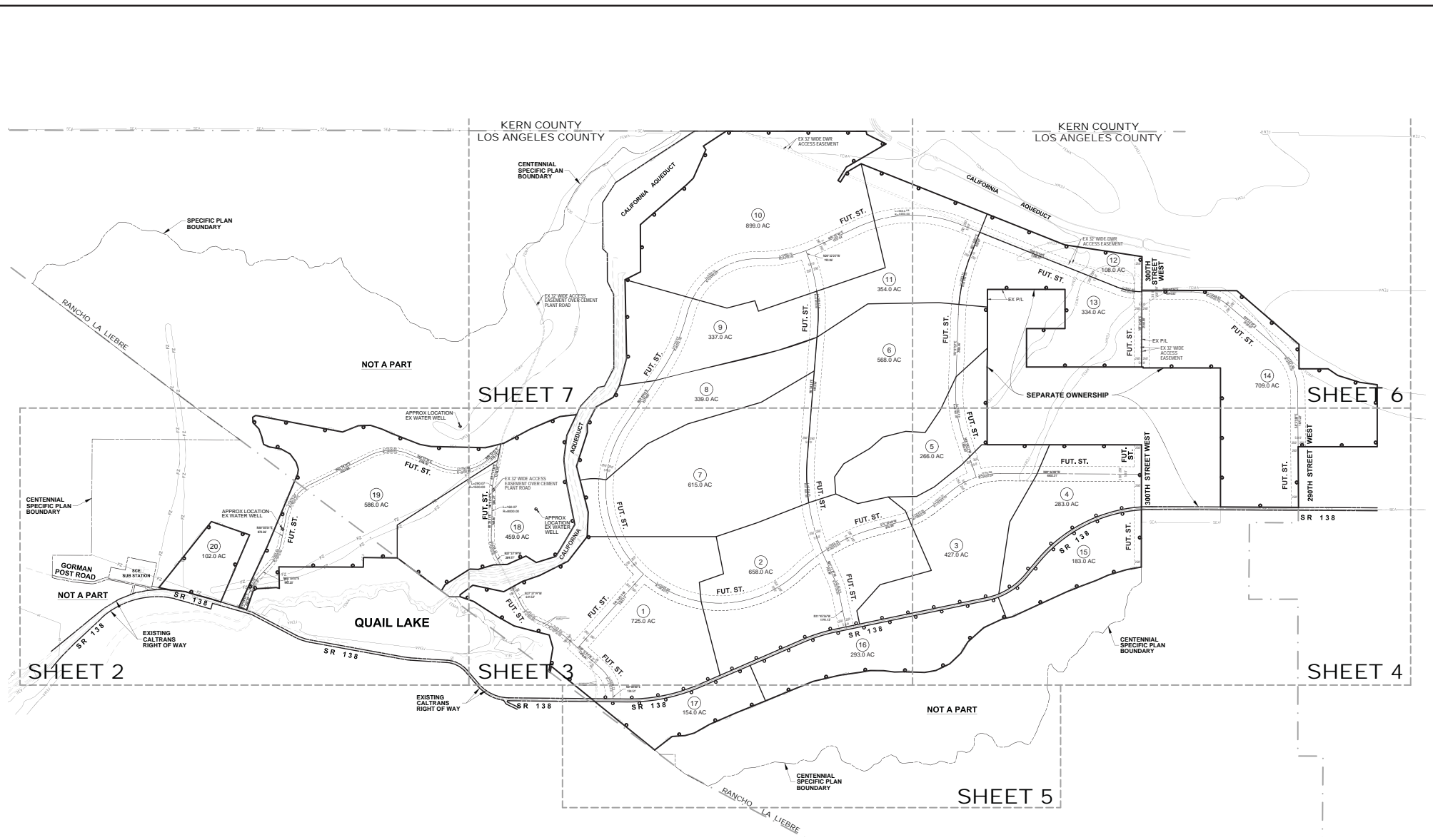
### **4.5.4 CONCEPTUAL LAND USE PLAN AND DEVELOPMENT STANDARDS**

The Conceptual Land Use Plan (also referred to herein as the Land Use Plan), as shown in Exhibit 4-1, was developed to create a self-sustaining community through the development of various land use designations. The *Centennial Specific Plan* establishes development standards to regulate minimum lot areas and average lot widths, building setbacks, height limits, and landscaping and parking requirements for each permitted land use designation. Table 2-16 of the *Centennial Specific Plan* (Land Use Matrix) provides a detailed breakdown of uses that are permitted; that are permitted under a substantial conformance review process; that are permitted with a ministerial or discretionary interim use permit; or that are permitted with a conditional use permit.<sup>3</sup> The complete list of uses that may be permitted in each land use designation, as presented in the Land Use Matrix, is extensive but includes the following general categories: residential, agricultural, public and semi-public,

---

<sup>3</sup> Uses not listed in Table 2-16 of the *Centennial Specific Plan* are not permitted unless approved through the administrative processes outlined in Chapter 4, Administration and Implementation.

D:\Projects\CEN\Centennial\Graphics\EIR\Ex\_parcels\_20170207.ai



Source: Psomas 2017

# Vesting Tentative Parcel Map No. 060022

# Exhibit 4-4

Centennial Project



Map Not to Scale

commercial, open space/recreation, manufacturing, light industrial, accessory, interim, and temporary. Section 4.6 of the *Centennial Specific Plan* provides information on guidelines for adjustments, transfers, and conversions that respond to the needs to maintain the goals of the Project, subject to County approval.

The Land Use Plan, development standards and permitted and conditional uses are summarized below and are discussed in detail in Section 2.2.1, Land Use Designations and Development Standards, of the *Centennial Specific Plan*. The number of dwelling units by residential land use designation described in the following discussion is based on the *Centennial Specific Plan*, as summarized in Table 4-2, Centennial Specific Plan Statistical Table. For reference, Land Use designations can be found on Exhibit 4-1, Centennial Project – Conceptual Land Use Plan.

## Residential Land Uses

### ***Very Low Density Residential (VLDR)***

As detailed in Table 4-2, Centennial Specific Plan Statistical Table, the *Centennial Specific Plan* proposes a total of 1,270 Very Low Density Residential (VLDR) units throughout the Project area. The VLDR designation provides for larger lot, single-family detached (fee lot) homes ranging in density up to and including 2.0 du/gross acre (du/ac) of land. The lot area is a minimum of 10,000 sf when non-clustered and 5,250 sf when clustered. The *Centennial Specific Plan* would allow for a maximum building height for a home or garage of 40 feet, and of 17 feet to 35 feet for a second unit, in the VLDR designation. For non-clustered/clustered development (shown as #/# feet), respectively, the minimum front yard setback is 40/20 feet to habitable structure or to front entry garage, 33/25 feet to a habitable structure on a cul-de-sac or knuckle, 35/25 feet to covered porch, 40/20 feet to a front entry garage, and 15/10 feet to a front or side entry garage. Side yards for lots located adjacent to a public street (corner lot) are a minimum of 20 feet from the lot line. The minimum side yard setback to habitable structure is 15/10 feet; to a covered porch is 10/5 feet; to a front- or side-entry garage is 15/10 feet, to the front entry of a garage in the rear half is 10/5 feet, and to a corner lot is 20/15 feet. The minimum interior side yard setback to a habitable structure or second unit is 30/15 feet, and to a front entry garage (no second unit) is 15/10 feet.

Second units, also known as accessory dwelling units,, Living Suites or “granny flats” (collectively, “ADUs”) on the same lot, are allowed in this designation, subject to the overall maximum building site coverage. The total number of allowable ADUs must be specified in, and will be approved as part of the processing of, each Tentative Tract Map application, ADUs are subject to the applicable design standards in the Specific Plan. The second units may be detached or attached to the primary unit or garage and must meet setback requirements for habitable structures. As described in the Table 2-3 in the *Centennial Specific Plan*, VLDR (less than or equal to 2 du/ac), second units shall comply with Section 22.20.105 of the *Los Angeles County Code (as it may be amended) and applicable state law*. Under the Specific Plan, reconfiguring an existing single family home to create an ADU is permissible and does not create a new dwelling unit or new parcel, and cannot be sold separately from the single family lot; instead, an ADU is a building space configuration for the single family home allowed on this lot. No new environmental impacts occur as a result of the ADU configuration

option, since variations in household occupancy (e.g., the number of adults and children allowed in each household) always exist and are taken into account in the average household size estimates evaluated in this EIR. There is also no basis for estimating whether or when an ADU would be built by any given homeowner, and CEQA does not require speculation. Without regard to whether a state density bonus is ever used on the Project site, the total number of dwelling units, inclusive of all product types, cannot exceed the maximum number of 19,333 dwelling units.

The VLDR land use designation is typically located in areas with slopes generally ranging from 15 percent to 25 percent and is intended to provide a transition between the development and adjacent natural hillside areas. Development in the VLDR-designated areas is required to conform with the hillside development criteria contained in Section 3.13.7, Hillside Preservation and Section 3.1.1, Grading Goals and Guidelines, of the *Centennial Specific Plan*), which encourages the use of contour landform grading techniques in order to maintain a natural appearance.

### ***Low Density Residential (LDR)***

The Project includes 9,660 Low Density Residential (LDR) units that are intended to provide a buffer between more intense residential and commercial/retail development in the core areas and the open space areas on the Project site. The LDR designation provides for single-family detached homes on lots with a minimum area of 3,000 sf. ADUs are allowed on single-family detached LDR parcels or lots, and ADUs are not considered a separate unit (e.g., are on the same legal parcel or lot and cannot be independently sold). The density for this land use category ranges from two to seven du/ac. Other products typically associated with a condominium map or plan may occur within the LDR residential designation—such as single-family detached cluster, cottage, 2-pack, and single family attached, duplex, triplex, and townhome—are allowed so long as the density within the total area as shown in Exhibit 4-1, Centennial Project – Conceptual Land Use Plan, falls within the LDR residential designation range of two to seven du/ac. Residential architectural styles vary, with at least 25 percent of homes incorporating rear-entry (alley loaded), side-entry, split, or front-entry garages located in the rear of the lot.

The *Centennial Specific Plan's* development standards allow a maximum building height of 40 feet. The minimum front yard setback permitted is 15 feet with a provision to allow a shorter setback (10 feet) when a front- or side-entry garage is used or in the case of alley-loaded residential product design. The minimum interior side yard setback is either five feet or there is no setback where one side of the structure is placed on the lot line. Side yards for lots located adjacent to a public street (corner lot) are a minimum of ten feet from the lot line. The minimum rear yard setback is 15 feet to a habitable structure or second unit, 10 feet to a garage in the rear, and 3 feet to an alley-loaded garage.

### ***Medium Density Residential (MDR)***

The Project includes 6,048 Medium Density Residential (MDR) units that are generally within walking distance of the commercial uses, schools, and services provided in the Village Cores. The MDR designation is intended to provide for mostly single-family attached units

but also some tradition and non-traditional arrangements of single-family detached housing types at a density of 7 to 15 du/ac. Detached homes may either be part of a subdivision map providing fee lots for each unit or may be constructed as part of a condominium map or plan on a single large lot or multiple large lots. ADUs are allowed on single-family detached MDR parcels or lots, and ADUs are not considered a separate unit (e.g., are on the same legal parcel or lot and cannot be independently sold). The minimum lot area for the MDR designation is 2,000 sf.

Typical detached housing types proposed for this designation include single-family homes with zero lot line or reciprocal easements (such as cottage homes or 2-pack), alley loaded (garage in rear), motor court cluster, and green court cluster configurations. Typical attached housing types proposed for this designation include single family detached cluster, cottage, and 2-pack, and single-family attached, townhome, duplex, and triplex. Examples of these product types are provided in Appendix 2-B of EIR Appendix 4.0-A, which is not intended to provide an all-inclusive list. Products may range in density, both as low as 0 du/ac and higher than 15 du/ac, so long as the density within the total area as shown in Exhibit 4-1, Centennial Project – Conceptual Land Use Plan, falls within the MDR residential designation range of 7 to 15 du/ac.

Building heights, whether for detached or attached units, are restricted to 40 feet. The minimum street frontage for fee lots only is 30 feet for a straight street, 25 feet for a cul-de-sac or knuckle, 25 feet for a flag lot with a shared driveway, and 20 feet for a flag lot with a single entry. The minimum front yard setback is 10 feet to a habitable structure, 5 feet to covered porch, 18 feet to a front-entry garage, 5 feet to a front-entry garage on a private driveway, and 5 feet to a side-entry garage. The minimum interior side yard setback would be zero or five feet to a habitable structure, five feet to a covered porch, three feet to a garage in the rear half, and ten feet where adjacent to a public street or lot line. All front/side setback requirements for dwelling units on private driveways are measured from the back of the curb. The minimum rear setback is 10 feet to the habitable structure or front-entry garage in the rear half, 3 feet to alley-entrance garage, and 15 feet to habitable structure or front-entry garage in the rear half at the edge of open space or a trail. The minimum building separation is 30 feet front to front, 20 feet from rear to rear, and 10 feet from side to side of habitable structures.

### ***High Density Residential (HDR)***

The Project includes 2,055 High Density Residential (HDR) units. The HDR land use category is proposed in the Village Cores adjacent to commercial and employment areas. The HDR designation provides for a wide range of single-family or multi-family attached residential products at densities ranging from 15 to 25 du/ac. The minimum lot area for the HDR designation is 0.5 acre. Typical attached housing types provided in this designation include rowtown, garden court, greencourt, town/flat, and apartments. Other single family attached products that may be provided in this designation are duplex, triplex, and townhomes. Examples of these product types are provided in Appendix 2-B of EIR Appendix 4.0-A.

A maximum building height of 50 feet is allowed under this land use designation. The minimum front yard setback is 10 feet to habitable structure; 5 feet to covered porch; and

18 feet to front-entry garage on a public street. The minimum interior side-yard setback is 10 feet, 5 feet to front-entry/alley-loaded garage in rear, and 10 feet adjacent to a public street or lot line. The minimum rear-yard setback is 3 feet to the alley-loaded garage. The minimum building separation is 10 feet side to; 20 feet rear to rear; and 30 feet front to front of habitable structures.

### ***Very High Density Residential (VHDR)***

The Project includes 300 Very High Density Residential (VHDR) units. The VHDR designation is intended to provide for attached residential dwelling units within or close by the Town Center at densities of 25 to 50 du/ac. Typical housing types provided in this designation include multiple-story apartments with a variety of parking arrangements, including remote carports, tuck under, podium and wrap. Other single-family attached products that may be provided in this designation are townhomes, rowtown, garden court, green court, and town/flat. The minimum lot area in the VHDR designation is 1.0 acre.

The VHDR designation establishes a maximum building height of 80 feet and a minimum usable common open space coverage of 10 percent with. The minimum front yard setbacks adjacent to a public street must be ten feet to habitable structure and five feet to covered porch; setback for a private driveway is measured from the back of the curb. The minimum side-yard setback is ten feet to a habitable structure or adjacent to a public or private street or lot line. The minimum rear setback is ten feet to a habitable structure or three feet to an alley-served garage. The minimum building separation is 10 feet side to side; 20 feet rear to rear; and 30 feet front to front of habitable structures.

Table 4-3, Summary of Residential Development, provides the breakdown of the proposed residential units by Village and by residential land use category.

**TABLE 4-3  
SUMMARY OF RESIDENTIAL DEVELOPMENT**

<b>Village</b>	<b>Residential Land Use</b>	<b>Gross Acres</b>	<b>Dwelling Units</b>
<b>Village 1</b>			
	Very Low Density	89	126
	Low Density	371	1,210
	Medium Density	36	234
	High Density	23	255
	<b>Subtotal</b>	<b>519</b>	<b>1,825</b>
<b>Village 2</b>			
	Low Density	313	930
	Medium Density	139	873
	High Density	45	480
	<b>Subtotal</b>	<b>497</b>	<b>2,283</b>



**TABLE 4-3  
SUMMARY OF RESIDENTIAL DEVELOPMENT**

<b>Village</b>	<b>Residential Land Use</b>	<b>Gross Acres</b>	<b>Dwelling Units</b>
<b>Village 3</b>			
	Medium Density	155	972
	High Density	58	600
	Very High Density	18	300
	<b>Subtotal</b>	<b>231</b>	<b>1,872</b>
<b>Village 4</b>			
	Very Low Density	295	410
	Low Density	168	560
	<b>Subtotal</b>	<b>463</b>	<b>970</b>
<b>Village 5</b>			
	Very Low Density	87	116
	Low Density	454	1,495
	Medium Density	427	2,709
	High Density	52	555
	<b>Subtotal</b>	<b>1,020</b>	<b>4,875</b>
<b>Village 6</b>			
	Very Low Density	207	286
	Low Density	283	1,080
	Medium Density	44	279
	<b>Subtotal</b>	<b>534</b>	<b>1,645</b>
<b>Village 7</b>			
	Very Low Density	80	112
	Low Density	235	845
	Medium Density	51	324
	High Density	16	165
	<b>Subtotal</b>	<b>382</b>	<b>1,446</b>
<b>Village 8</b>			
	Very Low Density	69	96
	Low Density	738	2,450
	Medium Density	46	297
	<b>Subtotal</b>	<b>853</b>	<b>2,843</b>
<b>Village 9</b>			
	Very Low Density	88	124
	Low Density	335	1,090
	Medium Density	65	360
	<b>Subtotal</b>	<b>488</b>	<b>1,574</b>
	<b>Totals</b>	<b>4,987</b>	<b>19,333</b>
Source: Placeworks 2017			

---

## Commercial Land Uses

### *Commercial (C)*

The Project includes 1,034,550 sf of Commercial (C) uses on 102 gross acres. It is estimated that approximately 2,913 employment opportunities would be created by such uses. This land use is intended to provide for the retail commercial, office and service needs of the community. The commercial designation is intended to accommodate commercial centers or freestanding buildings that are designed to minimize impacts on adjacent residential uses and to complement the physical character each village.

A maximum floor area ratio (FAR) of 0.70 is allowed with a minimum FAR of 0.20. The maximum building height for a habitable structure allowed is 120 feet, with an additional 10 feet allowed above the maximum for non-habitable structures. Minimum front setbacks allowed are 50 feet to the SR-138 right-of-way (edge of pavement), 10 feet to the front without parking, and 50 feet with perpendicular front parking, 15 feet to the side, and 25 feet to the rear. The Centennial Project also proposes development standards for outdoor display, outdoor dining, outdoor storage, and landscape coverage; it also restricts the locations of certain uses.

### *Business Park (BP)*

The Project includes 7,363,818 sf of Business Park (BP) uses on 597 gross acres. Business parks are primarily concentrated along SR-138, which is the major east-west transportation corridor. The BP designation is intended to provide for research and development (R&D), light industrial, manufacturing, professional office, private educational and trade schools, hotels, and the smaller commercial services required to support these uses. It is estimated that approximately 14,513 employment opportunities would be created by such uses. If hotel(s) are developed, approximately 300 additional employment opportunities would be provided.

A maximum FAR of 1.0 is allowed with a minimum FAR of 0.25. The smallest sized BP project that can be submitted as a Tentative Tract Map is five acres. The maximum building height for a habitable structure allowed is 150 feet, with an additional 10 feet allowed above the maximum for non-habitable structures. Minimum front setbacks allowed are 50 feet to the SR-138 right-of-way (edge of pavement), 10 feet to the front without parking, 50 feet with perpendicular front parking, 25 feet to the side, and 25 feet to the rear where adjacent to non-BP use or a public road. Setbacks apply to public streets or lot lines. The Centennial Project also proposes development standards for outdoor display, outdoor dining, outdoor storage, and landscape coverage; it also restricts the locations of certain uses.

## Other Non-Residential Land Uses

### *Institutional/Civic (I/C)*

The Project includes 1,568,160 sf of Institutional/Civic (I/C) land uses on 110 gross acres. This designation accommodates higher education facilities, postsecondary schools,

hospitals/medical centers, libraries, and other public/institutional safety facilities. It is estimated that approximately 4,608 jobs would be created by such uses. Institutional development requirements will be determined on a case-by-case basis through the development review process. Issues that may affect development requirements include compatibility with surrounding uses and adjacent structures. Proposed public facilities are further discussed in Section 4.5.10, Public Services/Facilities.

The requirements for this land use designation are to be determined on a case-by-case basis through the development review process depending on the type of use proposed. Structures in the designation have 50-foot minimum front, rear, and side setbacks from habitable structures to SR-138 (from edge of roadway); these can include fencing, fencing or a solid wall as well as landscaping as a screen is required. The minimum front setback from all other public streets is ten feet. The minimum side or rear setback from adjacent to non-institutional uses is 25 feet. The maximum building height is 75 feet.

### ***Open Space (OS)***

The Project's Open Space (OS) designation includes 5,624 acres of land that would remain as permanent open space, including significant drainages, sensitive habitat areas, and steep slopes. This designation also encompasses significant drainages that are referred to as drainage corridors. Public access and improvements to the drainage corridors will be limited to trails, habitat enhancement, and flood control improvements. This designation allows for passive recreation uses such as hiking, picnicking, an interpretive (educational) center or nature center, and continued grazing in certain areas, as discussed in Natural Resource/Open Space Management Plan (see Section 3.13 of EIR Appendix 4.0-A). The permitted and conditionally permitted uses for the OS designation are contained in Table 2-16, Land Use Matrix, in Section 2.2.7, Permitted and Conditional Uses of the *Centennial Specific Plan* (see EIR Appendix 4.0-A). The maximum height for habitable structures in the OS designation is 40 feet. The larger Open Space areas are located south of SR-138 and in the northwestern portion of the Project area. There would be limited public access to these areas in an effort to protect the natural resources present. The OS designation is intended to preserve and/or enhance the natural features and resources in Oso Canyon and the oak woodlands and oak communities south of Oso Canyon and south of SR-138.

### ***Utility (U)***

The Project includes approximately 191 gross acres designated for Utility (U) uses located along the northern portion of the Project site and also on the west side of the West Branch of the Aqueduct. This designation provides a location for necessary public infrastructure facilities, including but not limited to wastewater reclamation facilities, water recharge facilities, recycled water storage, solid waste facilities, water treatment facilities, materials recovery facilities, recycling centers, and maintenance yards for the County of Los Angeles Departments of Public Works and Parks and Recreation. In the event that the public or semi-public use of mapped facilities is terminated, alternative uses that are compatible with the surrounding development, in keeping with community character, are permitted, as set forth in Section 4.0 Administration and Implementation of the *Centennial Specific Plan*.

As specified in Section 2.2.8, General Development Standards, of the *Centennial Specific Plan*, U-designated uses are sited to be compatible with adjacent properties through use of site planning, architectural design, and use types in addition to features such as landscaped areas, walls, and similar border features to make the development adequately buffered. The minimum front, rear, and side setback under the Utility land use designation is 30 feet. The maximum height allowed is 55 feet.

### ***Right of Way (ROW)***

The Project's Right-of-Way (ROW) designation includes 327 acres of land that would be required to develop the Project's internal roadway system of arterials and collectors, as depicted on the Conceptual Land Use Plan (see Exhibit 4-1).

### **Overlays and Zones**

The Project includes several Overlays and Zones applied throughout the Project site. These are described in Section 2.2, Land Use Plan, of the *Centennial Specific Plan* and are intended to either address specific environmental conditions on the Project site or the potential for mixed-use development within the Commercial areas. Overlays and Zones have additional requirements that must be followed in addition to the Development Standards discussed above.

#### ***Centennial Commerce District (CCD) Overlay***

Portions of Village 3 and nearby Business Park and Civic/Institutional development areas make up the Centennial Commerce District (CCD). This district, which can also be thought of as a central business district, is the core of business activity for Centennial. Consistent with the Metrics of the Specific Plan, the majority of office space, shall be planned near the Town Center, as well as in the Business Park, and the Institutional/Civic designated areas located north of SR-138.

Uses in the CCD include Commercial (C), Mixed-Use (MU), Residential (MFR and HDR), Business Park, and Institutional/Civic. The CCD Overlay also includes a proposed transit hub. This land use mix is the foundation for a strong commercial base and institutional uses, such as a medical center or center for higher education, all of which will be supported by nearby residential development.

#### ***School (S) Overlay***

The Project includes seven public school sites (five K–8, one K–5 and one high school) in the School (S) overlay. The specific design and student capacities of the school facilities are subject to Title 5 of the *California Government Code*, which contains standards for school site selection, site planning, and construction of school facilities in the State of California. The locations of school sites take into consideration the standard requirements of Title 5. Approximately 146 gross acres have been set aside to accommodate schools. Potential school sites are further discussed in Section 4.5.13, Public Services/Facilities and Section 5.15, Education.

A K–8 school would be developed in the first phase of site development to be available at the first occupancy of the Project; decisions regarding the location and configuration of this school would ultimately be made by the Gorman Joint School District. The K–8 school is initially intended to serve grades through-K–12, then revert to a K–8 school once the high school that is able to adequately serve grades 9 through 12 has been constructed on the Project site and is operational. With the consent of the Gorman Joint School District, the Antelope Valley Union High School District (AVUHSD) students will be housed in the first school.

The second and subsequent K–8 schools are to be constructed subject to the terms of the mitigation agreement with the Gorman Joint School District, and the timing depends on the rate of Project development and actual demand for school facilities, as determined by the Gorman Joint School District. It is anticipated that one high school would provide sufficient capacity to accommodate anticipated high school students. The high school is expected to open in compliance with school district mitigation agreements; however, the actual implementation timing of school facilities depends on the rate of Project development and actual demand for school facilities, as determined by the AVUHSD. As identified in the *Centennial Specific Plan*, any rejected school site shall revert to residential land use at the density of the surrounding residential designation; however, the maximum number of units allowed by the *Centennial Specific Plan* would not be exceeded.

### ***Park (P) Overlay***

The Project includes 163 acres of Park Overlay, which would include neighborhood parks, community parks, and community regional parks that would be dedicated to the County of Los Angeles in a fully developed condition. In addition to the 163 acres of Park Overlay, the Project would also provide pocket parks (public and private); private commercial recreation facilities; private community recreation facilities (e.g., in multi-family complexes); and the regional hiking trail.

Per the Los Angeles County General Plan, neighborhood parks are typically between three and ten acres and are located to serve surrounding neighborhoods within a 1/2-mile radius. Neighborhood parks are intended to provide the daily recreation needs of children as well as residents within the immediate vicinity of the park.

Community parks are typically 10 to 20 acres, and serve several neighborhoods within a 1 to 2-mile radius, and are intended to provide a wide variety of active and passive recreation activities, including group activities that may not be feasible in a neighborhood park. Community parks typically provide neighborhood-level facilities, such as tot lots, barbeque areas, and informal play areas (open lawn areas), combined with other types of community-serving facilities, such as sports parks with athletic fields, soccer, softball, tennis and basketball courts, community/centers, cultural/interpretive centers, and other specialty uses. Community parks also incorporate trails and picnic facilities for more limited, passive use and scenic enjoyment. The parks are located adjacent to, and connected by, the Centennial trail system in order to facilitate connectivity among open space elements, as shown on the Land Use Plan.

Community regional parks are typically 20 to 100 acres, and have a service radius of 20 miles. Amenities for community regional parks can include sports facilities, a jogging exercise course, informal open play areas, children's playground equipment, group picnic areas, barbecues, public restrooms, a concession building, recreation offices, maintenance buildings, and on-site parking areas. Community regional parks may also have one or more of the following features: multiple sports facilities, an aquatics center, a fishing lake, a community building and gymnasium, and scenic views and vistas.

As shown in Exhibit 4-1, there is a combined total of 30 neighborhood, community, and community regional parks proposed for the Project, which equate to the 163 acres of Park Overlay. Because this designation is an overlay, the sizes, distribution of each park type, and location that would ultimately be developed in consultation with the County may vary from the conceptual land use plan, but would remain a total of 163 acres. The minimum front, rear, and side setback is 30 feet to a habitable structure, and the maximum building height is 45 feet. Proposed park uses are further described in Section 4.5.6. Section 5.14, Parks and Recreation, describes the impact analysis related to the parks proposed within the Project.

### ***Recreation/Entertainment (R/E) Overlay***

The Centennial Specific Plan's Recreation/Entertainment (R/E) Overlay includes approximately 75 gross acres and accommodates a variety of potential recreational uses, including a clubhouse with pool/spa and other recreation facilities, restaurants, golf course, ancillary pro shop and administrative offices, greenhouse/nursery areas, childcare facilities, fitness and health clubs, convenience markets/general stores or farmer's market/fresh fruit and vegetable stands, wine and beer tasting rooms, and community gardens. The western Recreation/Entertainment Overlay area would be sited on both sides of the Cement Plant access road and would include a portion of the Oso Canyon Drainage. The eastern area is in the southeastern portion of the Project site, north of SR-138.

Minimum front, rear, and side setbacks for would be 30 feet to a habitable structure, except for along SR-138 where the minimum setback would be 50 feet. The maximum permitted building height would be 55 feet, with an additional 15 feet for architectural features such as towers, roof peaks, and parapets. Should a golf course be developed within the R/E Overlay, it would be required to meet the certification standards of Audubon International's Cooperative Sanctuary Program or equivalent standards. Any use built in the R/E Overlay would be required to comply with appropriate regulations associated with significant drainages, as further described in Section 5.7, Biological Resources.

### ***Mixed-Use (MU) Overlay***

The Mixed-Use (MU) Overlay is an optional designation for uses within the Commercial areas. The MU Overlay is intended to allow for a combination of commercial, office, and residential uses in either vertically or horizontally (uses side by side) integrated projects, as an optional land use in select Commercial areas. Such a mixture in the same area enhances the vitality of businesses, creates an active street life, and offers additional housing types. This overlay may be applied to all or portions of the designated area. The MU Overlay allows for a live/work/environment; adds diversity and walkability to the Village Cores; and

reduces reliance on the automobile and the associated costs of energy and pollution. The overall design of Commercial areas may include a “main street” atmosphere with on-street parking; wider sidewalks; safe and convenient pedestrian and vehicular access into and around the area; quality streetscape features; attractive storefronts; integrated sign programs; public plazas; courtyards; and architecture that creates a strong indoor/outdoor relationship.

The *Centennial Specific Plan* proposes a minimum 0.25 FAR and maximum 2.0 FAR for commercial uses where the MU Overlay is applied. The front setback would be 10 feet minimum without parking; however, if there is perpendicular parking in the front, then the setback would be 50 feet minimum. The side and rear setbacks would be ten feet minimum; however, no minimum rear or side yard setback applied between adjacent vertical mixed-use development. The maximum building height for habitable structures, which includes parking structure heights, would be 60 feet; and the maximum building height for non-habitable structures, including towers and other architectural elements, may be extended an additional 10 feet for a total maximum height of 70 feet. Setbacks would apply to public streets or lot lines. The maximum residential density would be up to 50 du/ac so long as the maximum number of residential units within the village is not exceeded. The *Centennial Specific Plan* also proposes development standards for open space (10 percent minimum), outdoor display, outdoor dining, outdoor storage, separation of commercial and residential uses, sound attenuation, and parking design.

### ***Potential Civic Site (CI) Overlay***

An overlay for a potential civic building is also shown at the Town Center (see Figure 3-30, Conceptual Public Services Plan of the Specific Plan), which reflects the Metrics of the Specific Plan for the Town Center to include a site for a potential civic building on approximately two acres of land; the civic site shall be located adjacent to the Town Center’s public gatherspace; and the civic site shall be shown as an overlay on the Land Use Plan map and its potential location depicted on the tract map.

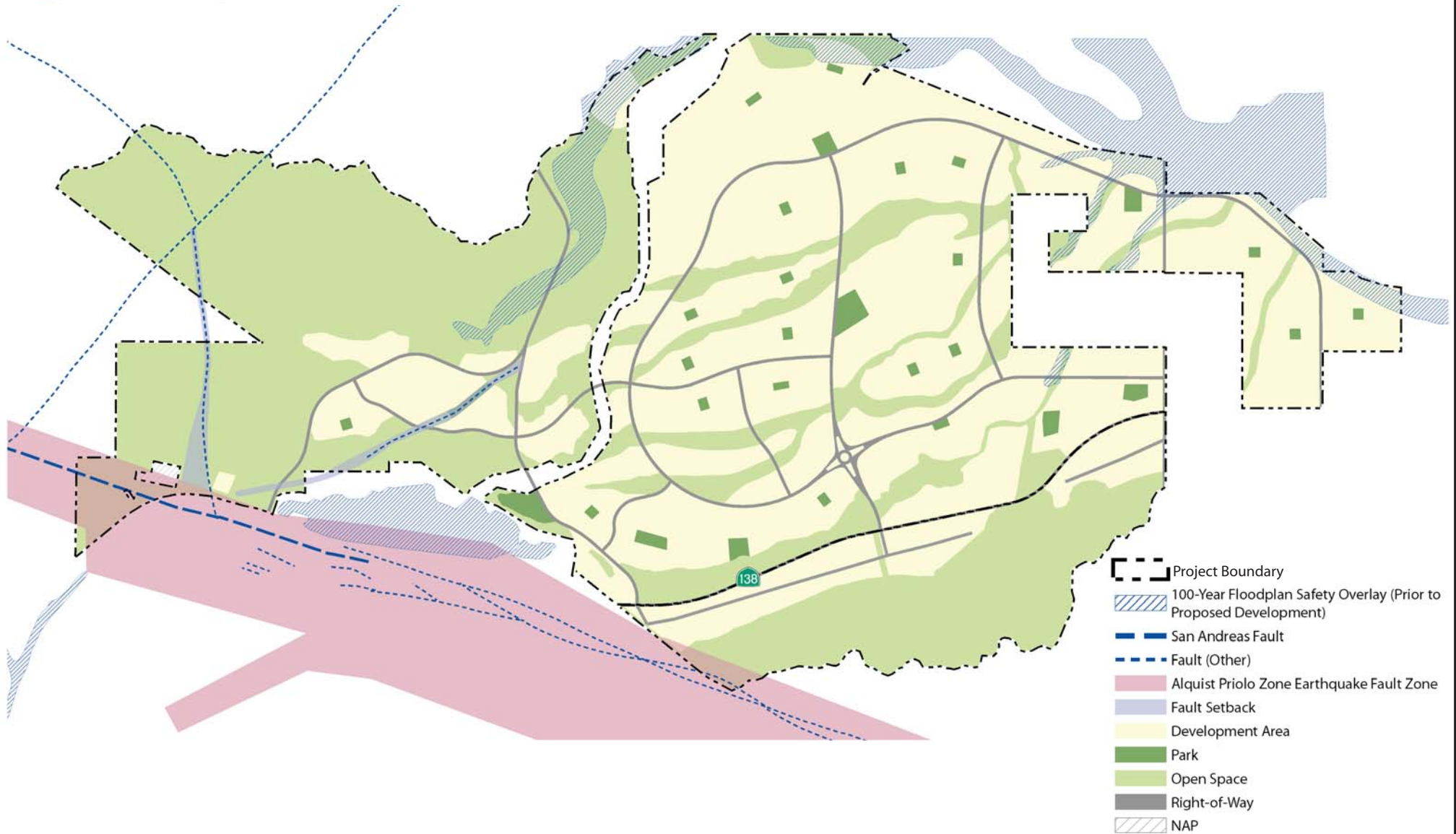
### ***Floodplain Safety Zone***

The Floodplain Safety Zone is described in Section 2.3.1 of the *Centennial Specific Plan*. The intent for the Floodplain Safety Zone (100-year floodplain), as shown on Exhibit 4-5, Centennial Project – Safety Zones, is to identify the areas with potential for flooding prior to the development. Existing regulations applicable to development within potentially flood-prone areas to protect public safety, promote public health, and minimize economic loss would apply. This zone applies to areas that the Federal Emergency Management Agency (FEMA) considers to have a special flood hazard or that the Flood Insurance Administration has or will define in their Los Angeles County Flood Insurance Study. Because these areas have special building requirements set forth by governing agencies, new construction within these areas “shall be subject to the provisions of the County Code relating to construction materials and methods, elevation and flood proofing, and utility standards” (Placeworks 2017). Flood hazards identified on the Project site would be mitigated through the drainage



# SAFETY OVERLAY DISTRICTS

CENTENNIAL | TEJON RANCH



Source: Placeworks 2016

## Centennial Project – Safety Zones

Exhibit 4-5

Centennial Project



Map Not to Scale



concepts and hydrology review. Additional discussion of the hydrology is presented in Section 5.2, Hydrology and Flood.

### ***Geologic Safety Zone***

The Geologic Safety Zone is described in Section 2.3.2 of the *Centennial Specific Plan* and is depicted on Exhibit 4-5, Centennial Project – Safety Zones. An overlay for the fault setback zone and Alquist-Priolo Zone was created in an effort to provide greater public safety by establishing review procedures and setbacks for areas that are subject to potential surface fault rupture. The areas within the currently designated Alquist-Priolo Earthquake Fault Zones and within new fault hazard areas (identified as part of the site-specific geotechnical investigations conducted during environmental review of the Project site) have been given the Geologic Safety Zone designation. Additional discussion of the seismic conditions present on site is presented in Section 5.1, Geotechnical.

Section 2690 of the *California Public Resources Code* specifies that no human-occupied structures can be located within an Alquist-Priolo-designated Earthquake Fault Zone unless specific investigations prove these areas to be free of active faulting. The San Andreas Fault, which crosses the southwestern most tip of the Project site, is located within a designated Alquist-Priolo Earthquake Fault Zone.

To promote avoidance of fault-related hazards, the *Centennial Specific Plan* requires a minimum setback of 100 feet in each direction from faults determined to be active. The Geologic Safety Zone delineates a zone with a setback of 100 feet in each direction from the 2 active on-site faults as a conservative measure and includes the location of the Alquist-Priolo Earthquake Fault Zone for the San Andreas Fault. The width of the setback may be reduced to 50 feet with the concurrence of the County of Los Angeles Department of Public Works, based on more specific evidence of fault activity from further trenching that would be performed as part of the site development process.

### ***Significant Ecological Area Zone***

The Significant Ecological Area (SEA) Zone is described in Section 2.3.3 of the *Centennial Specific Plan* and is depicted on Exhibit 4-6, Centennial Project – Significant Ecological Area Zone.

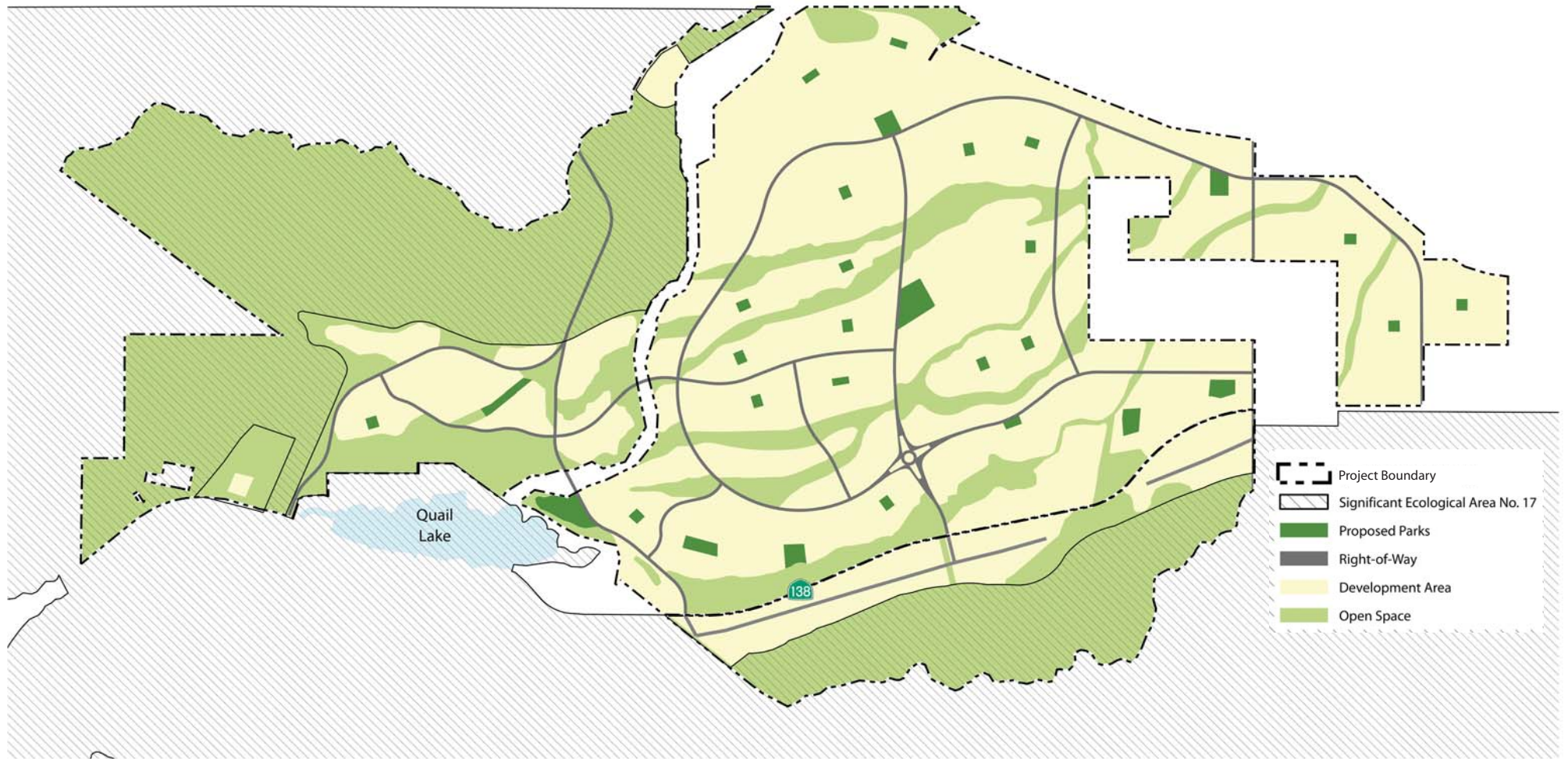
The SEA designation does not confer protection or preservation nor does it prohibit development. Instead, it requires additional review by the Significant Ecological Area Technical Advisory Committee (SEATAC); SEATAC reviews development proposals according to specified design compatibility criteria in order to ensure heightened consideration of the biological resources that contribute to the long-term sustainability of the SEA. The SEA Overlay's purpose is to ensure that the portions of the site within an SEA designation are appropriately considered as part of Project development.

A portion of SEA No. 17, San Andreas, is located on the Project site. SEA No. 17 encompasses a small portion of the western Tehachapi foothills then stretches in a southeasterly direction to include Quail Lake; the northern foothills of Liebre and Sawmill Mountains; large portions of Portal Ridge; Leona Valley; Ritter Ridge; Fairmont and Antelope buttes; Anaverde Valley;



# SIGNIFICANT ECOLOGICAL AREAS

## CENTENNIAL | TEJON RANCH



- Project Boundary
- Significant Ecological Area No. 17
- Proposed Parks
- Right-of-Way
- Development Area
- Open Space

Source: Placeworks 2016

### Centennial Project – Significant Ecological Area Zone

Exhibit 4-6

Centennial Project



Map Not to Scale

and Lake Palmdale. This SEA was designated to support a unique mosaic of plant communities, flora, and fauna representing a transitional area between the Mojave Desert, the Transverse Range, and the Tehachapi Mountains; it provides a wildlife movement linkage between these mountain ranges. This SEA No. 17 incorporates two former SEAs (i.e. SEAs 58 and 59). The Project would not include any development within the SEA No. 17.

#### **4.5.5 MOBILITY PLAN**

The Project's Mobility Plan includes four sections: (1) Performance Standards; (2) Street/Trail Design; (3) Urban Design, Planning, Land Use; and (4) Transportation Demand Management Program. The Mobility Plan for Centennial is an integral part of the Land Use Plan and provides for an integrated network of roadways, walking and biking trails to reduce automotive use and facilitate safe and efficient travel.

The Mobility Plan also requires the formation and funding of a Transportation Management Agency (TMA) prior to the issuance of the first occupancy permit. The TMA is responsible for monitoring the form of travel, or transit modes, used by the people who live and work in Centennial. Consistent with state and regional transportation, air quality and greenhouse gas planning objectives that focus on reducing the use of single occupancy vehicles (SOVs) for travel, Centennial must meet the following mobility performance standards: (1) a minimum of 20 percent of total daily peak morning and afternoon external (e.g., commuting) trips must be completed by using non-SOV transit modes; and (2) a minimum of 30 percent of total daily internal (e.g., local) trips must be completed by using non-SOV transit modes.

The TMA is responsible for conducting travel mode surveys and implementing transportation demand management (TDM) measures as required to verify the achievement with these minimum mobility performance standards. The Mobility Plan strives to achieve the following objectives:

- Reinforce and serve the Land Use Plan;
- Ensure the development of a “complete streets” network;
- Provide an environment that encourages for the use of alternative modes of transportation;
- Provide options to reduce vehicle trips and emissions by linking effective travel demand management with transportation systems and parking policies; and
- Provide an aesthetically pleasing environment that is consistent with the Specific Plan goals and still meets the required Centennial mobility objectives.

#### **Mobility Performance Standards**

Reducing demand for single occupancy vehicle use is one of the eight Guiding Policies in the 2016-2040 RTP/SCS. California's landmark Sustainable Communities and Climate Protection Act of 2008 includes multiple provisions to reduce SOV use within the State (c.f. Cal. Gov't Code Sections 65081 (d), (f) and (i)(4)) The Centennial Mobility Plan is also consistent with AVAP's Chapter 3: Mobility Element goals and policies (1.1, 1.3, 1.4, 1.5, 2.1,

2.2, 2.4, 2.5, 3.3, 3.4, 4.2, 4.3, 6.9, 7.5, 8.1, 8.2, 9.2, 9.3, 9.4, 10.4, 10.5, 10.7, 10.8, 11.3, 11.5). There is a broad consensus that encouraging non-SOV transportation options, such as walking, biking, carpools, bus and train travel, alternative work schedules, and telecommuting is essential to reduce congestion, improve air quality, and address climate change as well as promoting healthy living and affordable housing.

Consistent with these well-established objectives, Centennial must achieve the following external and internal trip mobility performance standards for non-SOV transit:

- **External Trip Mobility Performance Standard:** External trips refer to travel either into or out of Centennial. These are trips with either an origin within and destination outside, or an origin outside and destination within Centennial. These trips are primarily associated with employment-related travel and reach their highest levels during morning and afternoon peak commute periods. Centennial must ensure that a minimum of 20 percent of all peak morning and afternoon external trips use non-SOV transit modes, such as carpools, transit, telecommuting, or alternative work schedules.
- **Internal Trip Mobility Performance Standard:** Internal trips refer to travel that occurs within Centennial. These are trips with both origins and destinations within Centennial. These trips typically include shopping, recreational, employment, and educational-related travel. Centennial must ensure that at least 30 percent of all internal trips use non-SOV transit modes, such as walking, biking, carpools, or local transit.

## **Street/Trail Design**

The Mobility Plan proposes a multi-modal transportation system with various components (Roadways, Transit, Bicycle, and Pedestrian) and is designed to provide safe and efficient mobility throughout the community. Centennial will implement a system of complete streets and multi-mode, non-motorized transportation facilities consistent with the California Complete Streets Act of 2008 and in accordance with applicable County policies. The objective of complete street design is to provide safe, efficient and accessible mobility for all motorized and non-motorized users, including motorists, cyclists, pedestrians, and transit riders. Non-motorized transportation planning elements are integrated into the Centennial Circulation Plan to encourage non-automotive transit modes, including the following design criteria:

- Small- to medium-sized streets and blocks that allow for shorter walking distances to retail, parks, schools, and other destinations;
- Facilities that make walking, cycling and transit use safe, comfortable, attractive, and efficient transportation options;
- Parking behind buildings to encourage walking in retail areas along street frontage;
- Streetscapes designed as public spaces to promote social interaction and physical activity;

- Context sensitive design to respect adjacent land use types and neighborhood character and aesthetics

### **Roadway Classification**

The Project's Circulation Plan is provided in Exhibit 4-7, Centennial Project – Circulation Plan, and contains a hierarchy of roadways (each with a specific function), consistent with the County Subdivision Code. The circulation system has been designed to accommodate all users, the estimated vehicular traffic volumes, and the roadway function in relation to the part of the community that is being served. Therefore, based on roadway characteristics, different roadways would have different median widths, parking, sidewalk widths, bicycle amenities, and landscaped areas. As proposed, the Project's system of roadways is designed to effectively distribute vehicular, bicycle, and pedestrian traffic. The five categories of roadways are discussed below.

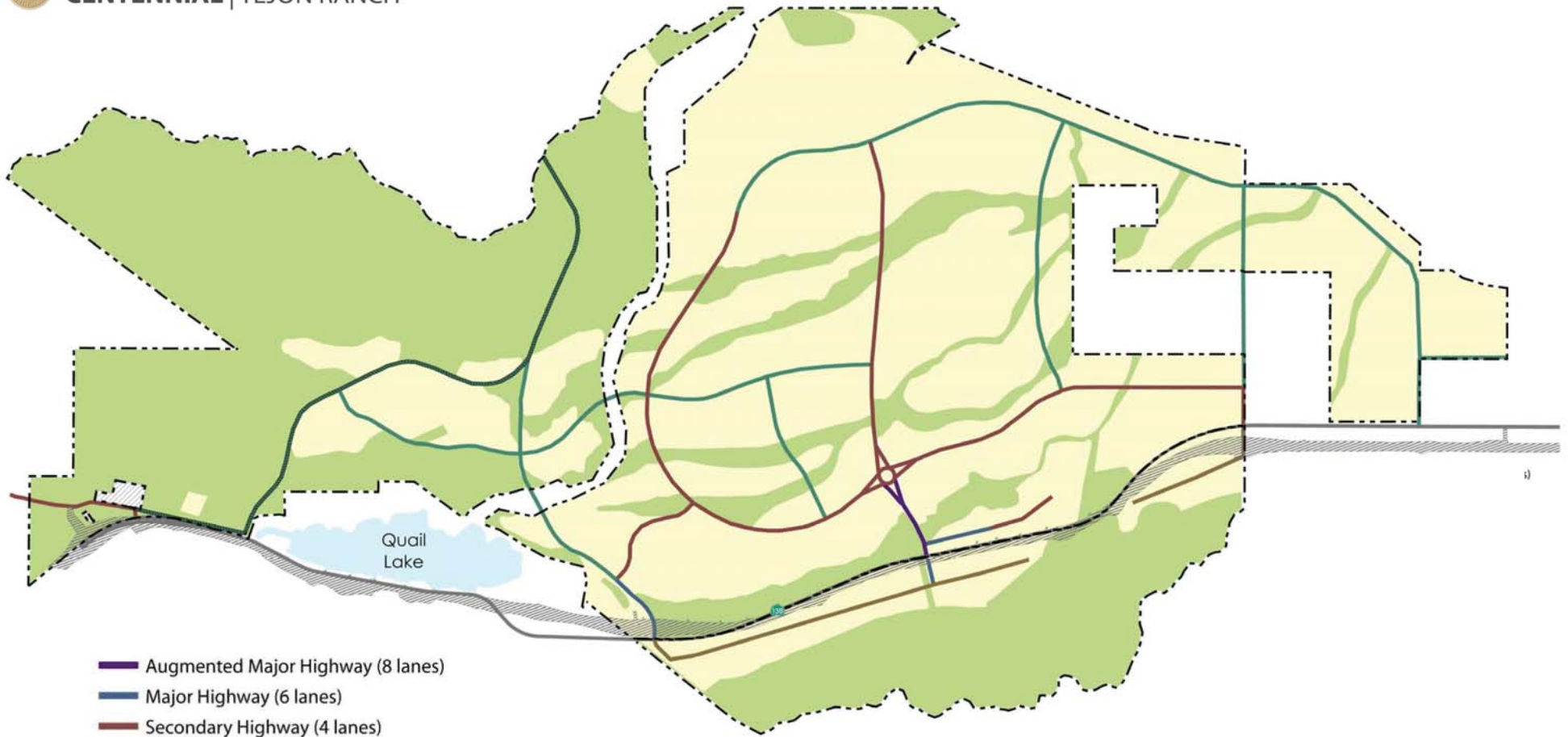
- **Major and Secondary Highway.** Roadways designed for the highest volume of use include Major and Secondary Highways. A Major Highway generally consists of six to eight lanes and Secondary Highways typically consist of four lanes. All Centennial roadways that are classified as a highway will be constructed with a raised median.
- **Collectors.** Collectors are designed for moderate levels of use and include two to four lanes with varying cross-sections. Designated Centennial Collector roadways conform with the County collector classifications and also may include additional special design features such as wider parkways or raised medians for landscaping. The Industrial Collector classification features four lanes with or without a raised median and will also be constructed with Class II Bike Lanes.
- **Local and Private Roadways.** Local and private two-lane roadways are designed to serve the lowest volume of use and vary in design in accordance with the presence or absence of allowed parking. Local and private road residential, commercial and business park serving cross-sections are also variable to reflect different patterns of automobile and truck traffic.

For any gated community approved, certain roads that meet County standards for a “private and future street” could be incorporated, with controlled access and would be maintained by an HOA as long as the roads remain private streets. Please refer to Section 3.2, Mobility Plan, of the *Centennial Specific Plan* for conceptual roadway cross-sections. There are a number of different sections featured within the basic roadway categories; the two-lane local roadways, in particular, have several variations, each of which would be deployed according to the characteristics of the area being served. Table 4-4 provides a summary of the Roadway Standards for the *Centennial Specific Plan*.





# CIRCULATION PLAN CENTENNIAL | TEJON RANCH



-  Augmented Major Highway (8 lanes)
-  Major Highway (6 lanes)
-  Secondary Highway (4 lanes)
-  Industrial Collector (4 lanes)
-  Collector (2 lanes)
-  Collector- Private (2 lanes)
-  SR-138 Alignment Study Area
-  State Route 138
-  Project Boundary

Source: Placeworks 2017

## Centennial Project – Circulation Plan

## Exhibit 4-7

*Centennial Project*



Map Not to Scale

D:\Projects\Centfoun\J001\Exhibits\_graphics\Ex\_Circulation\_20170510.ai

**TABLE 4-4  
CENTENNIAL PROJECT ROADWAY STANDARDS**

Description	Right-of-Way (ft)	Lanes	Raised Median	Class II Bike Lane	Parking
8-Lane Major Highway	150 (max)	8	Yes	No	No
6-Lane Major Highway	136 (max)	6	Yes	Yes	No
4-Lane Secondary Highway	116 (max)	4	Yes	Yes	No
Collector 1-with Median	84	2	Yes	Yes	No
Collector 2-with Bike Lane	63	2	No	Yes	No
Collector 3-with Parking	63	2	No	No	Yes
Industrial Collector	94	4	Yes	Yes	No
Local Street	56	2	No	No	Yes
Private Driveway-Alley	26	1	No	No	No
Private Driveway-Alley with Crown	26	2	No	No	No
Opt.: Optional					
a Bike lanes can either be Class I, II, or IV.					
b Secondary is a 4-lane roadway; Limited Secondary is a 2-lane roadway.					
Source: Placeworks 2017					

### ***Intersection Controls***

Intersection controls will be provided to safely and efficiently manage vehicular and non-vehicular traffic throughout the community. Major Highways use features such as, but not limited to, traffic signals, separated bike lanes and crossings (e.g. bridges and tunnels) at intersections and limited access is provided between signalized intersections.

Modern roundabouts are used at certain secondary and collector road intersections where four-lane and two-lane or two two-lane roadways connect. All roundabouts within the project will be designed to help traffic flow better while making sure all pedestrian and bike crossings are well marked and safe. Roundabouts also may be landscaped to increase aesthetic values. Several figures in the Specific Plan illustrate configurations for roundabout design. Other intersections within the community will be controlled with features such as, but not limited to, stop sign and yield sign controls. As shown on Exhibit 4-7, in addition to the intersections proposed on the Project site, two new intersections are proposed with SR-138, as discussed further below.

### ***Traffic-Calming Measures***

Traffic-calming measures are roadway designs that control excessive speeds and ensure compatibility with multiple users, such as emergency-service vehicles, pedestrians, joggers, and cyclists. Traffic-calming design measures that may be incorporated into the street improvement plans the following:

- Narrower street widths.

- Roundabouts in place of traditionally controlled intersections.
- Speed tables (long, raised speed humps with a flat section in the middle and ramps on the ends, sometimes referred to as flat top speed bumps or raised crossings).
- “Bulb-outs” or curb extensions at intersections to narrow the pedestrian’s crossing distance and restrict roadway width.
- Raised intersections and/or raised crosswalks where the roadway is raised vertically as with speed tables.
- Chokers that narrow the roadway at mid-block and facilitate mid-block pedestrian crossings.
- Chicanes or lateral shifts that result in a narrower street width while also providing space for on-street parking or landscaping on alternate sides of the street.
- Textured pavement and cul-de-sacs.

Traffic calming and control measures associated with any gated residential community would include an entry guard-house with gates or a card-entry control system. Traffic-calming measures are appropriate in many situations and when incorporated into new construction, will result in a roadway system that is accommodating to all users. Design details should be coordinated with those responsible for managing the street system (e.g., Department of Public Works, Fire Department, law enforcement, and paramedics). The actual location and specific traffic-calming measures would be incorporated into street improvement plans as part of the subdivision map approval process.

## **Urban Design, Planning, Land Use**

Centennial’s unique land planning has created an urban design integrated throughout each Village to allow people to work, live and play without having to drive to experience them. Centennial has been designed with a metrics that will guide all development that occurs within the Project. The following design criteria will reinforce the goals of the Mobility Plan:

- An 80 percent average, but no less than 50 percent of all residential units located within one-half mile of a Village Core or Town Center that includes retail and services uses;
- All residential units located within a 5-minute walk (0.25 mile) of a park of 10,000 sf or more, trailhead, clubhouse, or other public amenity;
- Parks located within a 5-minute walk (0.25 mile) of 80 percent all residential units;
- All neighborhoods within each village connect to each other via a network of trails;
- An extensive network of sidewalks, greenway trails (approximately 13 miles), and community trails (approximately 60 miles) that link residential, schools, shopping, and employment areas;
- Two underpasses and one overpass bridge crossing over SR-138 to facilitate both pedestrian and bike access to employment area.



- High-density residential uses located adjacent to commercial centers and a Mixed-Use Overlay areas permits residential uses in commercial centers.
- Implementation of a community intranet system (Section 3.9 of the Specific Plan) to reduce demand for automobile travel to obtain information, provide easily accessible information to facilitate telecommuting and non-automotive transit mode use.

### ***Bikeways***

The Project contains a non-vehicular circulation system that consists of bikeways and pedestrian access/trails. A system of bikeways would serve the community, as shown in Exhibit 4-8, Centennial Project – Conceptual Bicycle Plan. The following types of bikeways would be provided:

- *Bike Path (Class I Bikeway/Multi-Use Trail)*. A bike path (multi-use trail) that provides a completely separated right-of-way for the exclusive use of bicycles and pedestrians, with cross-flow minimized. These bikeways are found in community and greenway trails (described below).
- *Bike Lane (Class II Bikeways)*. A bike lane that provides a striped lane for one-way bike travel on a street or highway (refer to the roadway standards provided in Table 4-4, Centennial Project Roadway Standards, and the roadway cross-sections provided Section 4.7). When roadways contain additional rights-of-way, a painted or physical separation may be included to buffer bicyclists from automobiles and transit. This buffered design is commonly referred to as an Enhanced Class II Bikeway.
- *Bike Route (Class III Bikeway)*. A bike route that provides for shared use with motor vehicle traffic and routes that are marked with appropriate signage. Painted shared lane markings on pavement, commonly referred to as sharrows, may also be incorporated into Class III bikeways.
- *Protected Bike Lane (Class IV Bikeway)*. A protected bikeway (cycle track) that combines the user experience of a separated path with the on-street infrastructure of a conventional bike lane. Cycle tracks vary in configuration, but consistently provide a physical separation from motor vehicle traffic through such means as raised medians, on-street parking, bollards, or elevated pathways. They may be one-way (one direction on each side of the street) or two-way (both directions side-by-side on one side of the street). The buffers shown for Class IV bikeways may be raised to provide additional safety for cyclist and vehicular traffic.
- *Trails*. Community, Greenway, and Regional trails within Centennial provide for shared use trails by bicycle, pedestrian, and in some cases equestrian activities.

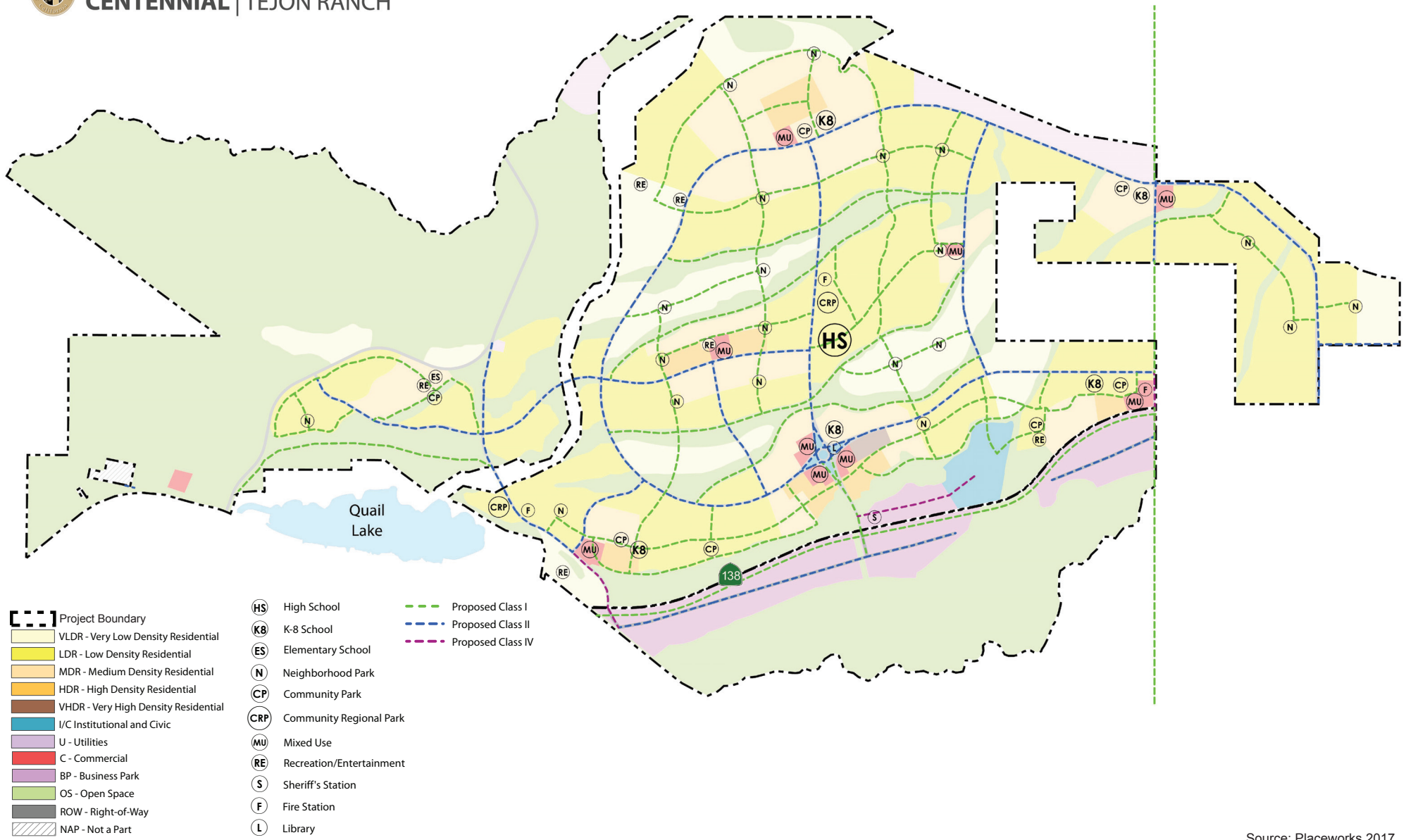
It is important to note that the designation of bikeways by class should not be construed as a hierarchy in which one is better than the other. Each class of bikeway has its appropriate application based on context.

Pedestrian amenities throughout the community include specific allocations of land to greenway and community trails (described in Section 3.11.7, Trails Plan of the *Specific Plan*) so that pedestrians can circulate throughout the community. The pedestrian system is



# BICYCLE PLAN

## CENTENNIAL | TEJON RANCH



- Project Boundary
- VLDR - Very Low Density Residential
- LDR - Low Density Residential
- MDR - Medium Density Residential
- HDR - High Density Residential
- VHDR - Very High Density Residential
- I/C Institutional and Civic
- U - Utilities
- C - Commercial
- BP - Business Park
- OS - Open Space
- ROW - Right-of-Way
- NAP - Not a Part
- High School
- K-8 School
- Elementary School
- Neighborhood Park
- Community Park
- Community Regional Park
- Mixed Use
- Recreation/Entertainment
- Sheriff's Station
- Fire Station
- Library
- Proposed Class I
- Proposed Class II
- Proposed Class IV

Source: Placeworks 2017

### Centennial Project – Conceptual Bicycle Plan

Exhibit 4-8

Centennial Project



Map Not to Scale

D:\Projects\CEN\Centennial\GRAPHICS\EIR\Ex\_Bikeways\_20170203.ai

designed to avoid roadway crossings to the extent feasible. Sidewalks will be provided on all streets. Additionally, two underpasses and one overpass bridge crossing will be constructed to cross the SR-138 to facilitate both pedestrian and bike access to employment centers.

## **Transportation Demand Management**

Transportation demand management refers to strategies that increase mobility efficiency by discouraging SOV trips, encouraging non-SOV transit modes, and by reducing auto trips during peak periods. TDM measures include increasing non-SOV travel options, providing incentives and information to encourage travel behavior changes, and by reducing the physical need to travel through telecommuting and other online and remote media. Potential future mobility innovations that could further reduce inefficient transit modes and associated emissions, such as intelligent transit systems (ITS) technologies, have been discussed in the 2016-2040 RTP/SCS.

A Transportation Management Association (TMA) will adaptively manage compliance with the Centennial internal and external mobility performance standards by conducting transit mode surveys and other appropriate monitoring activities. Additional TDM measures will be implemented by the TMA as may be required to ensure that minimum of 20 percent of total daily peak morning and afternoon external trips and a minimum of 30 percent of total daily internal trips are completed by using non-SOV transit modes. The TMA will be a non-profit entity that is formed and funded prior to the issuance of the first occupancy permit for Centennial. Other TMA activities include the following:

- Coordinate with regional and local transit providers to develop transit service for Centennial;
- Provide transit fare media for all transit service providers and end users;
- Support the formation of vanpools/carpools and rideshare matching databases;
- Develop transit affordability measures and/or incentives;
- Prepare custom transit itineraries for larger employers;
- Provide transit route maps and schedules;
- Required employee commute reduction programs for employers with 250 or more employees;
- Conduct transit network meetings/workshops; and
- Monitor transportation-related technological developments for potential deployment in Centennial.

Street network transit facilities will be developed in conjunction with the Project's transportation demand management (TDM) program and will include the following:

- Partner with Antelope Valley Transit Authority to provide bus service within Centennial and to the rest of the Antelope Valley.

- Partner with Santa Clarita Transit Authority to provide bus service within Centennial and to the rest of the Santa Clarita Valley.
- Partner with Kern Transit to provide bus service between Centennial and the neighboring communities of Tejon Mountain Village, Tejon Ranch Commerce Center and Grapevine to the north.
- Provide ride-share program, on demand pick up, shuttle service or similar methods to employment, commercial and residential areas of Centennial.
- Identify locations for transit centers in proximity to village cores and employment centers such as business park and institutional/civic land uses.

The Project includes a comprehensive system of public transit and other forms of transportation that provides alternatives to the automobile through a coordinated network of public transit routes, bikeways, and pedestrian trails. The Project would accommodate local (internal) and external trips, as described below.

- **Local Backbone and Feeder System.** A transit route easement no less than 25 feet wide shall be reserved in the CCD (connecting the Town Center, BP and I/C areas) and also run northerly connecting to the Village 5 Core. At buildout, a local backbone route along the major north/south collectors would be provided connecting from SR-138 to the northern end of the Project site. This backbone route would be supplemented by feeder lines that loop through the Project (local transit routes). The transfer locations along the backbone route would provide connectivity to the local system (shown on Exhibit 4-7). The exact route alignments and operational characteristics are conceptual at this time and would be determined as the community builds out. The local transit system would operate more as a demand-responsive system, at least initially.

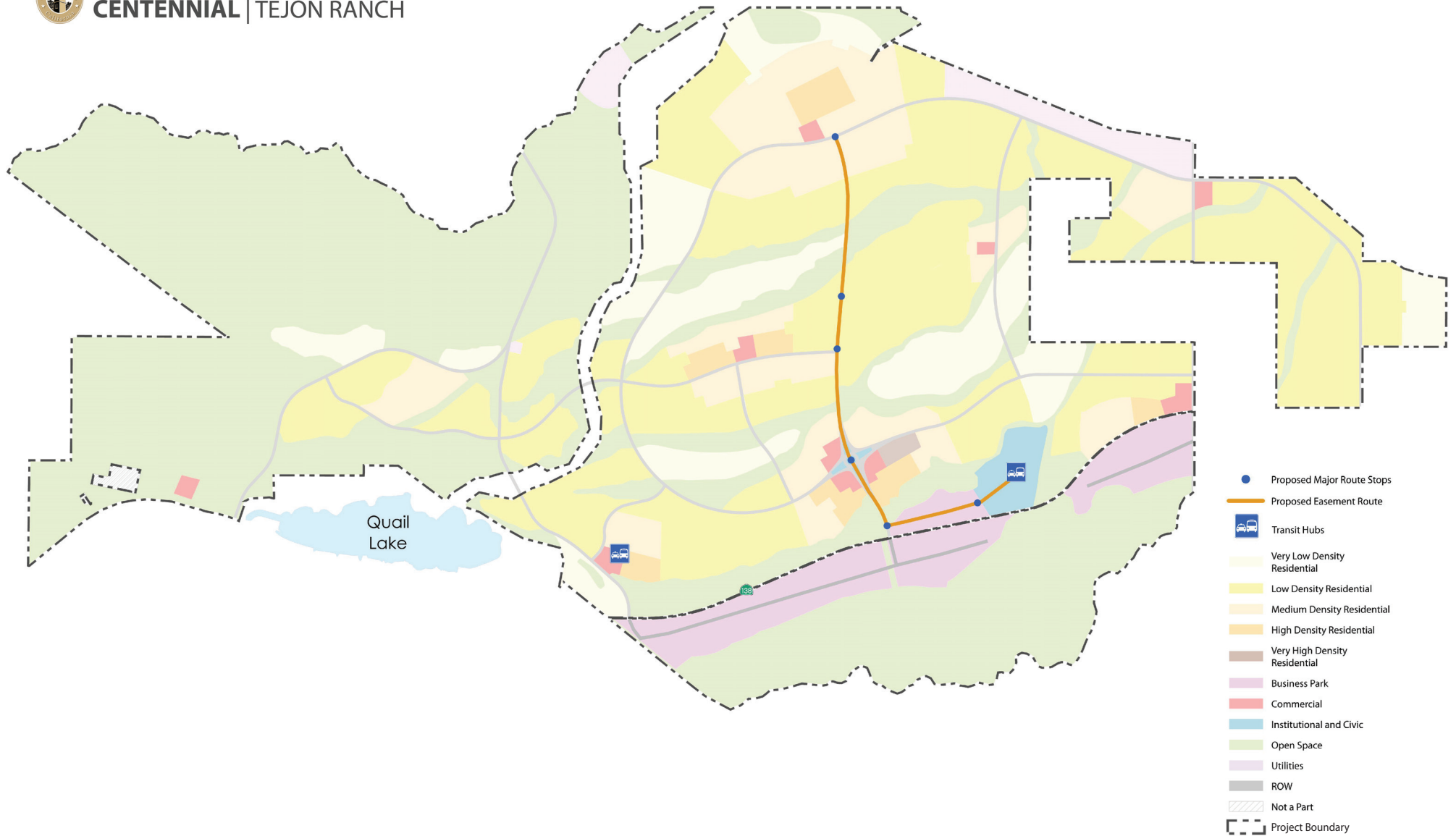
As with other unincorporated areas of Los Angeles County, funding for the local transit system would come from a combination of Proposition A and property taxes. The operation of this transit service may be contracted with an existing service provider, or a newly formed operator serving Centennial may be established. The decision of either establishing a new operator or contracting with an existing operator would be made by Los Angeles County Department of Public Works.

- **External Trips.** As shown in Exhibit 4-9, Centennial Project- Conceptual Transit Plan, two transit centers are proposed to be located north of the SR-138 and would be connected by the backbone transit system traveling through the site. The transit centers would cater to a variety of transportation activities and would include other compatible uses allowed on site (e.g., business park, retail services, institutional and civic uses). The centers would provide convenient access to public bus transportation, carpooling, park and ride, special charter operations, and/or similar types of activities related to local or off-site transit usage. An information center would be an important part of the services offered. The primary objective of such centers is to provide focal and gathering points for a variety of private and public transportation activities, all of which reduce dependency on the private automobile.



# TRANSIT PLAN

## CENTENNIAL | TEJON RANCH



Source: Placeworks 2017

### Centennial Project – Conceptual Transit Plan

### Exhibit 4-9

Centennial Project



Map Not to Scale

D:\Projects\CEN\Centennial\GRAPHICS\EIR\Ex\_Bikeways\_20170203.ai

The transit centers are intended to be accessible for both Centennial residents and residents of nearby communities.

Commuter service may be provided by Santa Clarita Transit, Antelope Valley Transit, or a combination of both. It is envisioned that commuter service from Centennial would be integrated with existing services provided by these operators and would connect Centennial to existing Metrolink service, future high speed rail service, and employment centers throughout the region. These centers would, at least initially, be used to promote carpooling and vanpooling until such time as ridership justifies commuter service. The majority of the operating costs for this service would come from farebox revenues (i.e., fares from the riders). Existing commuter service provided by Antelope Valley Transit recovers approximately 90 percent of its operating cost from farebox revenue. It is anticipated that, at buildout, Centennial would be able to approach similar numbers from farebox revenue. The short fall in operating cost would be covered through Proposition A and/or property tax revenue. A bus storage and maintenance facility would be provided in future phases of development, if necessary. The location would be determined at a later phase; however, it is anticipated that this type of facility would be accommodated within areas designated for Institutional land uses. There is sufficient land available within these areas to accommodate such a facility.

- ***Pedestrian Access/Trails.*** Pedestrian amenities are proposed throughout the community and include specific allocations of land to sidewalks and greenway trails. The trails system is comprised primarily of a County multi-use (hiking, equestrian, and mountain biking) trail and a system of community trails within the street right-of-way that can also be used as a bike path, as trails within the greenways (also considered bike paths), and as Class II Bicycle Lanes. The trail system would connect residential neighborhoods to commercial, employment, school, parks, civic, and institutional land uses.

Exhibit 4-10a, Centennial Project – Recreation and Trails Plan shows the Project's non-vehicular circulation system components, including the two underpasses and one overpass bridge crossing will be constructed to cross the SR-138 to facilitate both pedestrian and bike access to employment centers.

- *Greenway Trails.* These are improved trails within greenways that traverse the Project site. Greenway trails are located along the edges of the Open Space and residential designations. The trails may be constructed of poly-pavement, decomposed granite, soilcrete, asphalt, concrete, or other pervious surface. Signs would be posted along trails cautioning against disturbing any sensitive drainages. The cross-section for a typical greenway trail is provided in Exhibit 4-10b, Centennial Project – Greenway Trails.
- *Regional Trail.* A regional multi-purpose trail extending across the Project site, connecting to the town of Gorman through the residential development on the west side of the Specific Plan area across SR-138 and across the BP designation in the southern portion of the site and ultimately connecting to the realigned Pacific Crest Trail. In the open space areas, this trail will be a porous surface





# RECREATION PLAN CENTENNIAL | TEJON RANCH



Source: Placeworks 2016

## Centennial Project – Recreation and Trails Plan

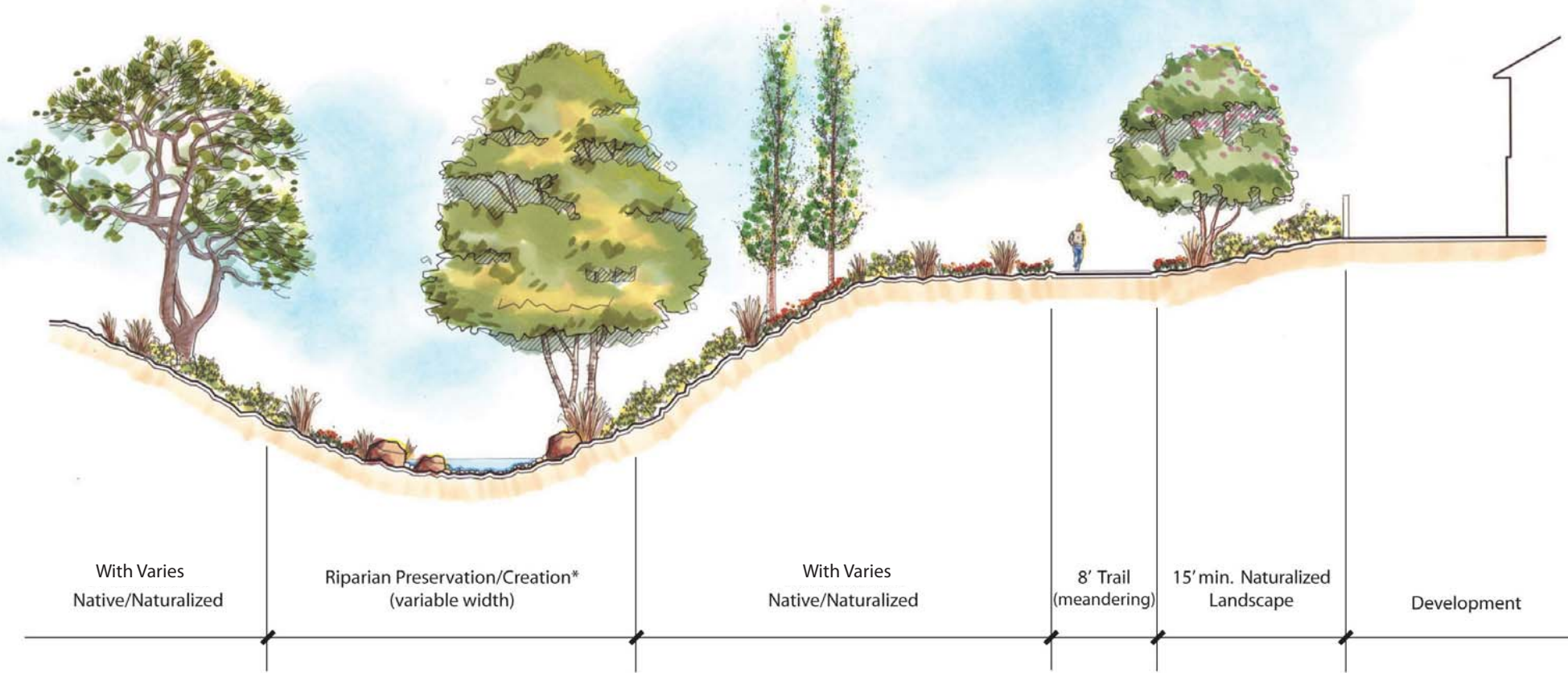
Exhibit 4-10a

Centennial Project



Map Not to Scale

# Typical Greenway Trail (along Open Space/Drainage)



With Varies  
Native/Naturalized

Riparian Preservation/Creation\*  
(variable width)

With Varies  
Native/Naturalized

8' Trail  
(meandering)

15' min. Naturalized  
Landscape

Development

\* Zone only for riparian features  
Buffer may include transition slopes.

Source: Placeworks 2015

## Centennial Project – Greenway Trails

Exhibit 4-10b

Centennial Project



Not to Scale



trail, such as decomposed granite. It will be a minimum of eight feet wide and will accommodate pedestrians and cyclists, as well as equestrian use.

- *Community Trails.* The Project will include the development of community trails, in addition to the greenways, that would be a minimum of eight-foot-wide and be shared bike and pedestrian paths, conceptually located adjacent to the backbone road system. These trails are shown on Exhibit 4-10a, Centennial Project – Recreation and Trails Plan. A cross-section is depicted on Exhibit 4-10c, Centennial Project – Typical Community Trail.

Also, Pacific Crest Trail (PCT), which is designated as a National Scenic Trail that traverses approximately 2,650 miles through 3 states (California, Oregon, and Washington) will be relocated to the west side of 300<sup>th</sup> Street West, which travels through the Project site. This realignment is not a part of the Project, but is assumed to be the future alignment for evaluation purposes in this EIR. Cross-section graphical depictions of these trails are included Section 5.14, Parks and Recreation.

### **National Cement Plant Road Re-Alignment**

The current alignment of National Cement Plant Road traverses from the off-site National Cement Plant in Kern County, through off-site open space areas in Los Angeles County, through the Project area and over the West Branch of the Aqueduct, ultimately connecting to SR-138. A portion of the roadway alignment within the Project boundaries is planned to be re-aligned through the Project site to access the SR-138 from the western side of Quail Lake rather than from the current connection on the east side of Quail Lake. This realignment serves the purpose of providing a shorter route of access for the cement trucks to the I-5, eliminates concrete truck travel over the bridge that crosses the West Branch of the Aqueduct, and eliminates cement truck traffic from traversing through one of the entrances to the Project site. The proposed re-alignment of National Cement Plant Road will be consistent with Caltrans' SR-138 intersection spacing requirements.

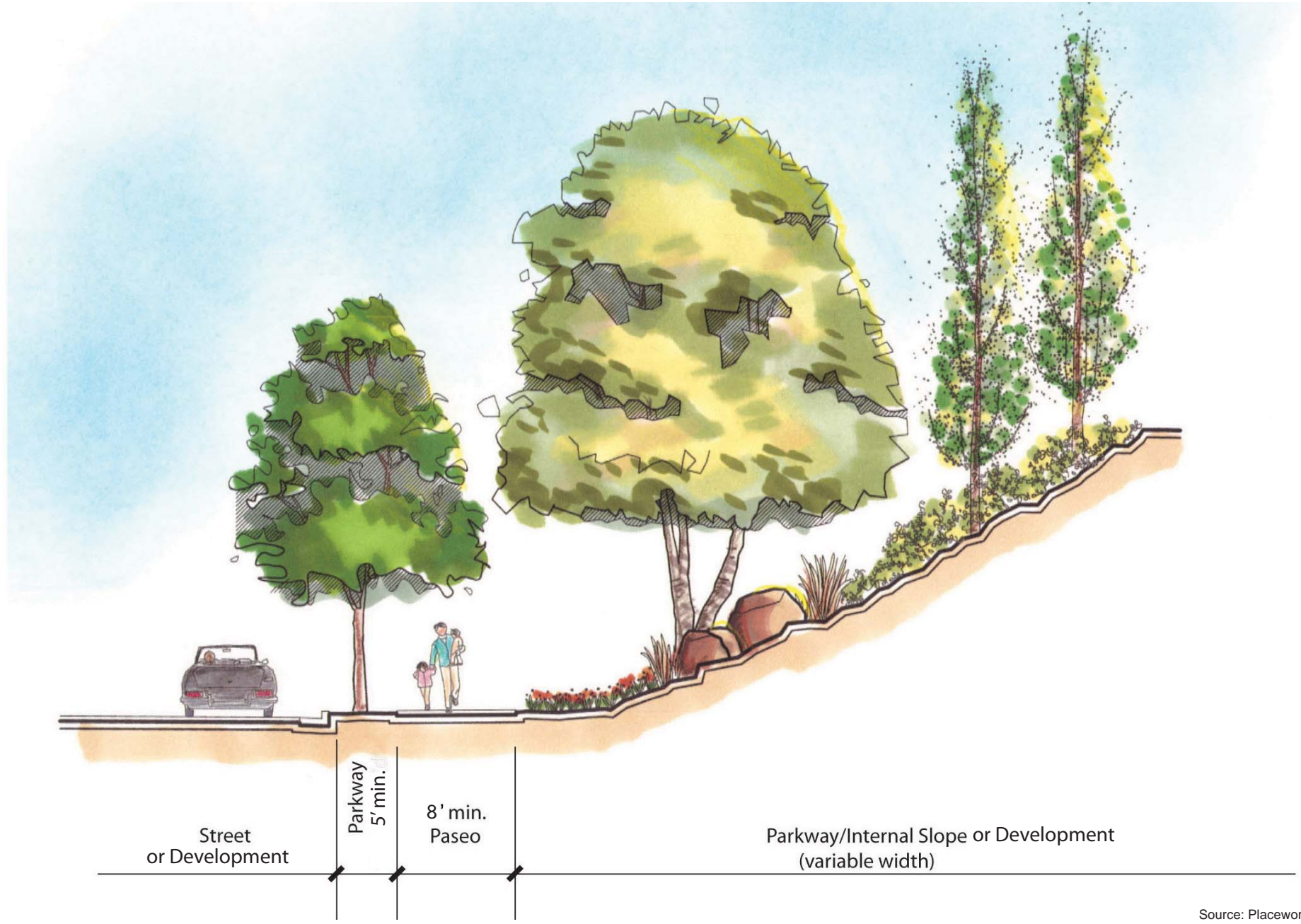
The re-alignment of the National Cement Plant Road will occur entirely within Tejon-owned property within Los Angeles County. The new alignment will intersect with SR-138 on the western side of Quail Lake. Intersection improvements (e.g. deceleration lane, an acceleration lane, turn pocket) would be constructed within the Caltrans right-of-way to allow for safe ingress/egress to the re-aligned National Cement Plant Road from SR-138, as discussed in Section 4.8, Off-Site Project Features.

Upon completion of the re-alignment, Project-related traffic would use the remaining portions of the existing National Cement Plant Road, which currently connects to SR-138 just east of Quail Lake and the Quail Lake Skypark, as one point of access into the Project site.

### **Intersection Improvements at State Route -138**

In anticipation of necessary regional improvements, Caltrans has prepared a Project Study Report/Project Development Support (PSR/PDS) for the NW138 Project that addresses the long-term alignment and right-of-way needs of SR-138 between I-5 and SR-14. There is no implementation schedule in the PSR/PDS for the improvements along SR-138. A portion of

D:\Projects\CEN\Centennial\GRAPHICS\EIR\Ex\_Paseo\_Trail\_20160606.ai



Source: Placeworks 2015

# Centennial Project – Typical Community Trail

# Exhibit 4-10c

Centennial Project



Not to Scale

Caltrans' SR-138 study area and proposed re-alignment traverses the Project site, as depicted on Exhibit 4-7, Centennial Project – Circulation Plan.

Caltrans is the lead agency for the completion of the Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the NW138 Project. Metro is a funding partner and is responsible for transportation improvements in Los Angeles County. Together, Caltrans and Metro have identified specific roles and responsibilities, and with delegated authority from the Federal Highway Administration (FHWA), Caltrans will ensure that the Final EIS/EIR is in compliance with the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). As such, all aspects of the re-alignment and any other improvements to the SR-138 would be analyzed under the NW138 Project EIR/EIS. The NW138 Project environmental document considers a No Build Alternative and three other alternatives (Metro 2014).

Build (2040) Alternative 1 improvements would include modifying the existing SR-138 roadway into freeway (six-lane divided) and expressway (four-lane divided) sections, including changing the alignment in some areas. The portion of SR-138 between 300th Street West and I-5, which is applicable to the Project site, is envisioned by Caltrans to be a 6-lane divided freeway that includes a 22-foot median. As shown on Exhibit 4-7, Centennial Project – Circulation Plan, the proposed future alignment of the NW138 Project Alternative 1 is depicted as a “Caltrans Study Area”, which includes land owned by Caltrans within their right-of-way as well as land owned by Tejon Ranch, LLC. Build (2040) Alternative 2 considers the construction of an Expressway/Limited Access Conventional Highway. Caltrans also considered the implementation of a Transportation System Management (TSM) Alternative. Specified sets of improvements were analyzed as part of the build alternatives and included mainline widening, connector improvements, access type and intersection control treatments. The Transportation Analysis Report (TAR) also listed additional access types and control treatment options for the build alternatives. The analysis of the additional options is documented in the Supplemental Intersection Control Evaluation report (ICE Report).

The Centennial Project site has three existing intersections with SR-138: Gorman Post Road, the Cement Plant Road (identified as private road by Caltrans), and 300<sup>th</sup> Street West. Alternative 1 would involve a grade-separated undercrossing of the SR-138 at all three intersections. It is noted this would result in the largest SR-138 right-of-way among the alternatives. However, it does not include additional right-of-way for the inclusion of potential future commuter rail services (Metro 2015). If additional consideration of a rail component is pursued by Metro, it would require additional right-of-way that is outside of the currently depicted Caltrans Study Area, and would be outside of the scope of the Caltrans EIR/EIS.

Alternative 2 improvements would modify the existing SR-138 roadway into expressway (six and four-lane divided) and limited access conventional highway (four-lane) sections, including changing the alignment in some areas. Alternative 2 would involve a grade-separated undercrossing at Gorman Post Road, and at-grade intersections at Cement Plant Road and 300<sup>th</sup> Street West. The Transportation System Management (TSM) Alternative would provide operational improvements without adding capacity or access restrictions,

and would widen the shoulder through the majority of the corridor. This alternative would also provide a curve correction to a stretch of SR-138 immediately east of Quail Lake near the Ridge Route intersection.

Because the ultimate implementation of SR-138 is unknown, the Project depicts the current alignment of SR-138 on the Land Use Plan as being an “off-site” feature. For the purposes of this EIR analysis, all Caltrans right-of-way property up to the existing edge pavement of the SR-138 is considered to be “on-site”, whereas all existing paved areas of the SR-138 are considered “off-site” (see Exhibit 4-21, Centennial Project – Off-Site Project Components).

The Project will have five intersections that interface with SR-138. The connection of the proposed realigned National Cement Plant Road to SR-138 on the west side of Quail Lake, and the intersection of 290<sup>th</sup> Street West, are discussed as “off-site” improvements in Section 4.8, Off-Site Project Features below. The remaining three intersections include: slight relocation of the existing intersection of National Cement Plant Road with SR-138 approximately 580 feet to the east; a new connection with SR-138 in the central portion of the site near the main Town Center in Village 3; and the existing roadway connection with SR-138 at 300<sup>th</sup> Street West. Each of these five intersections would require roadway improvements, including the construction of acceleration/deceleration lanes and turning pockets within the Caltrans right-of-way. Improvements associated with these intersections are anticipated in this EIR and are based on the current SR-138 alignment.

The draft NW 138 EIR/EIS, TAR and ICE Report do not identify a preferred alternative and Caltrans has deferred the selection of a preferred alternative to the Final EIR/EIS. Caltrans has also reserved the right to determine the specific preferred intersection control based on the traffic and safety data at the time the improvements occur. Thus, depending on the timing of the implementation of the realigned SR-138; the timing of the implementation of the Project; and which Caltrans alternative is chosen, the ultimate connection requirements for Project roads to SR-138 may need additional future CEQA analysis in conjunction with future phases of development. All construction activities within Caltrans right-of-way would be closely coordinated with Caltrans, subject to their review and design standards, and subject to their approval.

## **Bridges Over West Branch of the Aqueduct**

In addition to the existing National Cement Plant Road bridge, the Project includes the construction of one new bridge over the West Branch of the Aqueduct. These are discussed further below in Section 4.7, Off-Site Project Features, because the California Aqueduct is not a part of the Project site. The new and existing bridge would span the width of the Aqueduct and would not interfere or intrude into the Aqueduct itself; however, construction activities on both bridges may require some grading within California Department of Water Resources (DWR) property adjacent to the West Branch. Bridge widths would be designed to accommodate the travel lanes identified on each highway classification and would have a separate road deck for the travel lanes on each side of the roadway median. A sidewalk area would be provided at the outer edge of each bridge section and would be wide enough to accommodate pedestrian and bicycle use. A raised barrier would be provided between the

travel lanes and greenways for protecting pedestrians. Aesthetically enhanced traffic barriers would be provided along both sides of each bridge structure.

#### 4.5.6 PARKS/RECREATION

Under the Parks and Recreation Plan, the Project devotes approximately 163 gross acres to Park Overlay, which would include public neighborhood parks, community parks, and community regional parks. In addition, 75 acres is designated Recreation/Entertainment, which would include private recreation facilities. The Project includes a County multi-use trail, that would connect to the realigned Pacific Crest Trail, and a system of community trails within the street right-of-way that can also be used as a bike path, as trails within the greenways (also considered bike paths), and as Class II Bicycle Lanes. The trail system would connect residential neighborhoods to commercial, employment, school, parks, civic, and institutional land uses. Section 5.14 of this EIR describes in detail how the Project satisfies the requirements of the *General Plan* and the County's Parkland Dedication Ordinance, located in Title 21 of the *Los Angeles County Code*. Exhibit 4-10a, Centennial Project – Recreation and Trails Plan, depicts the conceptual location of park uses.

There are three types of public parks that would be developed as part of the Project and dedicated to the County (neighborhood, community, and community regional), which are described above in the description of Park Overlay. In addition to the 163 acres of public parks, there are additional recreation amenities that would be developed including pocket parks (public and private), private commercial recreation facilities, private community recreation facilities (e.g., in multi-family complexes), and the County multi-use. The County multi-use trail and greenway trail system are described further below. Designated open space areas would also provide the Project area with passive and/or active recreational opportunities.

Pocket parks are typically less than ½-acre, and the intent is to provide an average of one 10,000-sf pocket park per 200 units. Amenities for pocket parks can include both active and passive features, such as (e.g., children's play apparatus, picnic areas, fountains and seating areas) depending on the community's setting and need. Pocket parks may be developed as both public and private parks, but do not count towards to Project's parkland obligation. Pocket parks would be privately owned, but open to the public, and would be maintained by the Homeowner's Association (HOA), Landscape and Lighting Maintenance District (LLMD), or other similar entity. Community gardens are edible gardens that can stand alone or be a component within a park. View Parks are another form of pocket park. Their purpose is for passive recreation like picnicking and the enjoyment of scenic vistas of the mountains and surrounding open space that frame Centennial.

Neighborhood parks are typically between three and ten acres and are located to serve surrounding neighborhoods within a ½-mile radius. Amenities can include informal open play areas, children's play apparatus, picnic facilities and barbeques, and sports fields.

Community parks are generally 10 to 20 acres and serve several neighborhoods within a 1- to 2--mile radius; they are intended to provide a wide variety of active and passive recreational activities, including group activities that may not be feasible in a neighborhood

park. Amenities can include those provided for neighborhood parks as well as group picnic areas with overhead shelters, lighted sports fields, basketball and tennis courts, concession buildings, maintenance buildings, on-site parking areas, and information kiosks.

Community regional parks are typically 20 to 100 acres and have a service radius of 20 miles. Amenities for community regional parks can include a jogging exercise course, informal open play areas, children's play apparatus, group picnic areas with overhead shelters, barbecues, lighted sports fields, basketball courts and tennis courts, information kiosks, public restrooms, concession buildings, recreation offices, maintenance buildings, and on-site parking areas. Community regional parks may also have one or more of the following features: multiple sports facilities, an aquatics center, a fishing lake, a community building and gymnasium, and scenic views and vistas.

Private commercial recreation facilities and private community recreation facilities could include pools, sports courts, workout equipment, crafts, meeting rooms, ballrooms, food service exclusive to a clubhouse, and banquet facilities, among other amenities. Other private recreational facilities could include a clubhouses for active adult communities and small recreation centers for multi-family developments that could include a pool, a cabana, a meeting room and a kitchen, among other uses. The private recreation facilities would provide a varied array of amenities. No specific locations for the commercial or community recreation facilities have been identified; locations would be determined as part of each future tract map.

#### **4.5.7 NATURAL RESOURCES/OPEN SPACE**

##### **Natural Resources/Open Space Management Plan**

The preservation and management of natural resources is an important component of the Project. The Open Space Management Plan (OSMP), as described in Section 3.13 of the *Centennial Specific Plan*, provides a set of standards by which the biological and natural resources in the Project area would be managed during the short-term construction activities and the long-term life of the Project. This Plan governs the Open Space designation areas within the Project site boundaries (see Exhibit 4-11, On-Site Open Space/Mitigation Area); specifies which land is to be protected; and discusses how the protected land (e.g. greenways, transition areas, hillsides, and wildfire modification zones) are to be maintained. The Plan governs the provisions of the oak tree resources program, recreation and access, riparian and other types of habitat enhancement or restoration, and long-term management of the open space.

The Project has been designed to preserve areas of higher biological value. As a result of this effort, all 3,861 acres of the County of Los Angeles' San Andreas Significant Ecological Area (SEA 17) that fall within the Project site boundaries are avoided. Preservation of these SEA lands provides a layer of protection for a unique assemblage of plant and wildlife populations known to occupy the area. The preservation also protects local wildlife movement on and off-site because these areas are positioned contiguous to off-site open space areas, thereby providing a larger total area of continuous preserved open space for local wildlife to use as habitat and for movement. No Project development would occur within SEA 17.





# OPEN SPACE PLAN CENTENNIAL | TEJON RANCH

## Open Space

-  Project Boundary
-  Significant Ecological Area #17
-  Quail Lake
-  Developed Area
-  Park
-  Open Space



D:\Projects\CEN\Centennial\GRAPHICS\EIR\Ex\_OnSite\_Preserve\_20160608.ai

Source: Placeworks 2016

## Centennial Project – On-Site Open Space/Mitigation Area

## Exhibit 4-11

Centennial Project



Map Not to Scale

The Project requires that some drainage corridors be modified to incorporate necessary flood-control or water quality features; whenever possible, these modifications will incorporate “naturalized features” to blend the improvements into the natural appearance of unmodified areas. In addition, implementation of the Project would avoid or minimally impact riparian resources along sensitive drainages. Of the 12,323 acres within the Project site, approximately 5,624 acres would be included in the Open Space land use designation. Of the 5,624 acres of designated Open Space, approximately 5,116 acres (42 percent of the total Project site) are intended to (1) remain in their original natural condition; (2) be restored; and/or (3) be enhanced by weed abatement, fencing, and native species planting, among other means. Of this amount, approximately 3,861 acres are designated as SEA 17 to be preserved in perpetuity within the Project site boundaries.

Additionally, approximately 23,547 acres of off-site areas would be set aside for preservation to mitigate impacts to biological resources, as discussed further in Section 4.7, Off-Site Project Features and depicted in Exhibit 4-12, Centennial Project – Off-Site Mitigation Preserve. The Developer would provide a conservation easement for both the 3,861 on-site preserved acres and the 23,547 off-site preserved acres to ensure preservation of the total 27,412-acre open space preserve in perpetuity. Importantly, contained within this 23,547 acres of off-site preservation are approximately 8,935 acres of SEA 17 lands, which contain high-value biological resources.

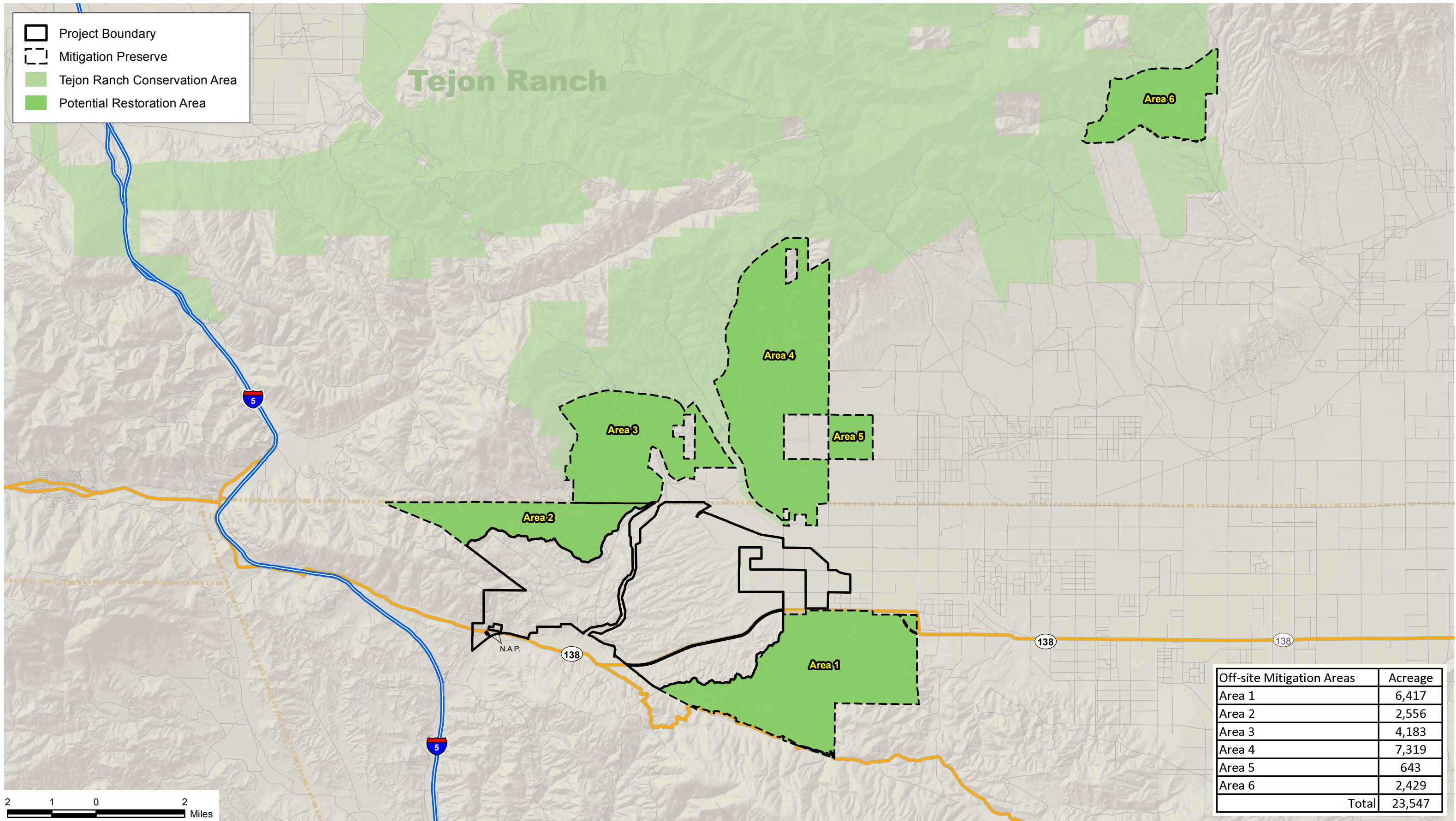
Therefore, when considering the amount of preserved on-site and off-site lands (i.e. 27,412 acres) compared to the total disturbed/developed areas within the Project site boundaries based on the Grading Plan (i.e., 7,751 acres), almost 3.5 times as much land would be preserved as would be developed.

### **Grassland Mitigation Plan**

The lands designated as Open Space (OS) on-site are generally divided into two large areas: the northwest portion of the Project site and the southeastern portion of the site. The area in the northwestern part of the site is comprised primarily of Oso Canyon, which includes a blueline stream and foothills/canyons with slopes of 25 percent or greater. The southeastern portion of the site contains similar vegetation and associated biological resources.

Grazing would occur within the OS designation. Grazing operations would be directed under the provisions of the Grassland Mitigation Plan, which is a component of the Mitigation Preserve Management Plan and/or the Ranch-Wide Management Plan (which is being prepared by the Tejon Ranch Conservancy); grazing would include temporary and long-term activities, possibly in perpetuity if determined necessary to maintain grassland values based on the Grassland Mitigation Plan (refer to Mitigation Measure [MM] 7-10 in Section 5.7, Biological Resources). The Grassland Mitigation Plan would preserve and manage existing native grasslands to ensure their sustainment in perpetuity. The Plan is intended to be a dynamic program that allows for incorporation of new restoration and enhancement treatments over time to determine the optimum methods of treatment for management and restoration of native grassland communities.





**Off-Site Mitigation Preserve**

Centennial Project

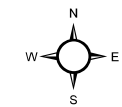


Exhibit 4-12



---

## Other Relevant Plans

### ***Tejon Ranch Conservation and Land Use Agreement (TRCRWA)***

On June 17, 2008, Tejon Ranch Company (TRC) entered into a Conservation and Land Use Agreement (Agreement) with Audubon California, the Endangered Habitats League, Natural Resources Defense Council, Planning and Conservation League and Sierra Club (Resource Groups) and the nonprofit Tejon Ranch Conservancy (Conservancy). Known as the Tejon Ranch Conservation and Land Use Agreement (TRCRWA), the Agreement allows TRC and its development partners to pursue approvals for development of portions of the Tejon Ranch (Ranch), including the Project, without opposition from the Resource Groups, while providing for the designation of Project open spaces and the dedication or sale of conservation easements over approximately 240,000 acres, or approximately 90 percent, of the 270,000-acre Ranch. Additionally, the Project Open Space Preserve includes areas of off-site preservation lands within Tejon Ranch lands. Areas 1 and 2 are located within Los Angeles County and include a total of 8,973 acres, as depicted in Exhibit 4-12, Centennial Project – Off-Site Mitigation Preserve. In total, the Off-site Mitigation Preserve includes 23,547 acres of off-site property that will be used to mitigate for Project-related biological impacts.

**Dedicated Conservation Areas.** The TRCRWA permanently protects approximately 145,000 acres through a series of phased dedications of conservation or other open space easements. Approximately 30,000 acres of the dedicated conservation areas are adjacent to or near the Project site. Dedications are phased to correspond to development approvals for the Project.

**Purchased Conservation Areas.** TRC provided options for the Resource Groups to purchase development rights, through acquisition of conservation easements, for five separate areas of the Ranch, totaling an additional 62,000 acres. The acquisition of the five conservation easements was completed in March 2011. Three of these areas, or approximately 20,000 acres, are located near or adjacent to the Project site.

**Project Open Space Areas.** The TRCRWA set aside approximately 33,000 acres within proposed development areas on the Tejon Ranch as prescribed open space areas. Some of this open space would be located within the Centennial Project boundaries, if approved, as shown on Exhibit 4-11, Centennial Project – On-Site Open Space/Preserve Area. Of the 12,323 acres within the Project site, approximately 5,624 acres would be included in the Open Space land use designation, and approximately 3,861 of the open space acres are designated as SEA 17 to be preserved in perpetuity within the Project site boundaries.

**Pacific Crest National Scenic Trail.** The TRC is working with the Conservancy, the US Forest Service and the Pacific Crest Trail Association to provide an approximate 10,000-acre easement on conserved lands to realign a 37-mile segment of the Pacific Crest National Scenic Trail through the Ranch. The majority of the realigned trail is located adjacent to the Project site and the nearby conserved lands described above. The siting and construction of this trail is subject to compliance with environmental review and other applicable laws.

The following uses for the conserved lands are also provided for in the Agreement:

**State Park.** The Resource Groups and TRC agreed to work with the Conservancy and the California State Parks Department to create a state park within the conserved lands.

**University of California Natural Reserve.** TRC agreed to work with the Conservancy and the University of California (UC) Natural Reserve System to determine whether portions of the conserved lands may be viable for a future UC Natural Reserve sponsored by University of California in Los Angeles as well as how the Conservancy and the UC Natural Reserve could partner on research projects in the Conservation areas.

The conserved lands identified above are managed pursuant to a Ranch-Wide Management Plan (RWMP) prepared by the Conservancy. The Conservancy bylaws provide for a 12-member board consisting of four members appointed by the Resource Groups, 4 members appointed by TRC and 4 independent members jointly appointed by the Resource Groups and TRC during the first 3 years and by the Conservancy Board thereafter. The Conservancy has hired experienced staff and consultants with expertise in land trust administration, conservation biology and open space land management.

The Conservancy updates, monitors and enforces implementation of the RWMP on conserved lands subject to conservation, preservation, mitigation and enhancement measures, as required under applicable law or imposed by federal, State or local agencies as part of any permit or approval for the Ranch or projects within the Ranch. The Conservancy manages and monitors natural resource conservation, preservation and mitigation measures required under applicable law or imposed by federal, State or local agencies as part of any permit or approval on conserved lands, including those associated with the Project. The Conservancy holds all conservation easements required by such permits or approvals.

Funding for the Conservancy is assured through a combination of advances from TRC and payment of conservation fees collected at the time of qualifying initial sales and resales of certain residential lots and units within the development projects. Conservancy activities are subject to all applicable federal, State and local laws and regulations.

#### **4.5.8 INTEGRATED WATER RESOURCES MANAGEMENT APPROACH**

Planning and engineering of the Project incorporates watershed management principles and related infrastructure and water resources planning into a comprehensive integrated water resources management approach as described below. A description of proposed infrastructure/facilities for the water-related components of the Project is presented in Section 4.5.9.

The concept of the integrated water resources management is defined as “a process, which promotes the coordinated development and management of water, land and related resources” (Rahaman and Varis 2005). The Project has been designed to optimize the use of currently available water resources and those generated by the Project's operations so as to

minimize its impact on potable and non-potable water resources. Incorporation of the Centennial Green Development Program requires reduced potable water consumption through the use of drought-tolerant or native plants in greenways, transition areas, and rights-of-way; low-flow showerheads, faucets and toilets; intelligent irrigation devices; and recycled water use primarily for landscape irrigation. Additionally, the Project's water resource management infrastructure for wastewater treatment, recycled water, flood control/drainage, water quality, hydromodification control, and sediment management are integrated to create a cohesive infrastructure system that minimizes the Project's effects on the environment.

For example, the Project includes two wastewater reclamation facilities for the tertiary treatment of all wastewater generated by Project uses. This recycled water will be delivered throughout the Project site for non-potable uses (e.g., irrigation), thereby reducing the Project's demand for imported water and groundwater resources. The Project will also use its underground aquifers to bank imported water supplies available but not needed during average and wet years to provide for Project uses in dry years. The Project's flood control/drainage and water quality facilities have been designed in such a way that they can increase groundwater recharge, thereby increasing the amount of groundwater available for Project uses and decreasing the Project's need for imported water resources. As a result of this integrated approach, the Project will be able to rely on its groundwater and wastewater resources, as well as its Green Development Program requirements to reduce the demand for imported water from the State Water Project (SWP) that the Project would otherwise create, and will be more protective of its natural drainages and sensitive habitats.

The key objectives of the integrated water resources management approach are listed below.

- Promote water conservation by
  - Minimizing water use.
  - Minimizing use of imported water supplies.
  - Maximizing water reuse.
- Promote Water Supply Reliability by
  - Providing potable water from a variety of sources (e.g., SWP water, groundwater, other non-SWP supplies, banked water) to address dry year conditions.
  - Purchasing surplus SWP water in years when it is available for storage in local water banks.
  - Monitoring water usage to ensure conservation benefits are achieved.
- Protect water quality on site and off site.
- Balance hydrologic factors by
  - Maintaining macro-drainage patterns on site and
  - Avoiding hydrologic impacts.
- Promote reliability of structural systems.

Consistent with the County’s CEQA Initial Study Checklist, the following topics are typically addressed separately in EIRs: water quality/runoff, wastewater generation and treatment, water supply, and flood control/drainage. Therefore, this Centennial Project EIR considers these topics separately in Sections 5.4, 5.19, 5.18 and 5.2, respectively. However, to recognize the environmental benefits that would result from implementation of the Integrated Water Resources Management Approach, each of these sections in this EIR also includes a description of how the traditional CEQA analysis topic contributes to the Integrated Water Resources Management Approach. These descriptions are provided below.

## **Water Supply Overview in Antelope Valley**

### ***Mandatory Water Conservation***

Governor Brown declared a State of Emergency on July 15, 2014, resulting in the State Water Board adoption of Resolution No. 2014-0038 prohibiting several activities, including (1) the application of potable water to outdoor landscapes in a manner that causes excess runoff; (2) the use of a hose to wash a motor vehicle except where the hose is equipped with a shut-off nozzle; (3) the application of water to driveways and sidewalks; and (4) the use of potable water in non-recirculating ornamental fountains. The State Water Board resolution also directed urban water suppliers to implement the stage of their water shortage contingency plans that impose mandatory restrictions on outdoor irrigation of ornamental landscaping or turf with potable water and report monthly water production information to the State Water Board.

On April 1, 2015, Governor Brown signed Executive Order (EO) B-29-15, which contains a total of 31 directives—the primary requirement being a 25 percent statewide water reduction in potable urban water use through February 28, 2016, as compared to the amount used in 2013. EO B-29-15 required the State Water Resources Control Board (SWRCB) to impose restrictions to achieve the 25 percent reduction, and is directed to consider the relative per capita water usage of each water supplier’s service area, as reported monthly to DWR. Those areas with high per capita use were required to achieve proportionally greater reductions than those with low use.

In May 2016, the Governor issued EO B-37-16, which continued the requirement for monthly reporting of water conservation levels versus 2013 use but allowed each urban water supplier to set its own target customized to fit its unique conditions. Following this EO, the State Water Board adopted a revised emergency regulation which extends restrictions on urban water use through January 2017. Under the new regulation, last year’s state-mandated conservation targets are being replaced with locally determined measures established under a self-certification approach (“Stress Test”). The Stress Test requires each water supply agency to ensure a three-year supply assuming three more years of drought conditions. Water agencies that would face shortages under three additional dry years are required to meet a conservation standard equal to the amount of shortage.

### ***Antelope Valley Groundwater Adjudication Judgment and Physical Solution***

The Antelope Valley Groundwater Basin is regulated in accordance with a Court-approved adjudication Judgment and Physical Solution entered in December 2015 in the consolidated complex proceedings commonly known as the “Antelope Valley Groundwater Cases”. In 2005, the Judicial Council of California consolidated several related lawsuits (Judicial Council Coordination Proceeding No. 4408) which were assigned to the Hon. Jack Komar in the Santa Clara County Superior Court (Case No. 1-05-CV-049053). Four trial phases were completed in the proceeding, including the determination of the adjudication basin boundaries (phase 1); the determination that all of the basin is hydrologically connected for adjudication purposes (phase 2); the determination that the basin is overdrafted and that the total sustainable yield, including native groundwater and return flows, is approximately 110,000 afy (phase 3); and the determination of groundwater production amounts for parties to the proceedings during 2011 and 2012 (phase 4).

A “physical solution” refers to agreed-upon or judicially imposed resolution of conflicting groundwater claims. The Judgment and Physical Solution adopted for the Antelope Valley establishes a regional watermaster to regulate groundwater use consistent with applicable law and the total sustainable yield of the basin under the auspices of the court. As of January 2016, all groundwater users in the basin are required to begin a 7-year “rampdown” period during which groundwater production will be reduced to levels consistent with the total sustainable yield of approximately 110,000 afy. Among other provisions, the Judgment and Physical Solution allows for interbasin groundwater transfers subject to watermaster approval; water banking in accordance with storage agreements with the watermaster; the production of return flows from imported water use within the Antelope Valley; the production of return flows from imported water use in the watershed surrounding the basin subject to watermaster approval; and the carryover and storage of unused groundwater allocations (see Section 5.18.3, “Antelope Valley Groundwater Basin”). The Judgment and Physical Solution approved by the court is attached as Appendix 5.18-D.

### ***Model Water Efficient Landscape Ordinance***

In response to the governor’s Drought Executive Order (B-19-15) the State DWR updated the Model Water Efficient Landscape Ordinance (MWELo), which was adopted by the State on July 15, 2015. This ordinance will effectively reduce water use for new landscaping and among other things, it effectively limits the use of turf in residential landscapes to 25 percent of the total landscaped area, and prohibits the use of turf in non-residential landscapes, except where irrigated with recycled water. Agencies have until February 1, 2016, to adopt this model ordinance or a similar ordinance and must start reporting on implementation and enforcement of the ordinance by December 31, 2015, and then by January 31 in subsequent years. The impact of this new MWELo will be reduced water demands in nearly all new and renovated landscapes, with the exception of areas irrigated with recycled water, as any area over 500 square feet must comply with the ordinance.

## Water Supply/Demand Element

Section 5.18, Water Resources, of this EIR includes a summary of the Water Supply Assessment (prepared pursuant to Senate Bill [SB] 610) for the Project. Key principles of the Centennial Water Supply/Demand element of the Management Strategy are:

- To comply with SB 610.
- To maximize water conservation.
- To maximize use of recycled water.
- To minimize use of SWP supplies,
- To incorporate water banking to provide supplies for Project demand during single and multiple dry year conditions.
- To provide water supplies from multiple sources, including local groundwater, recycled water, Antelope Valley - East Kern Water Agency (AVEK) water, banked water, return flows, and other purchased water supplies from outside the AVEK service area in order to increase water supply reliability in years of normal or average hydrology, as well as single- and multiple-dry year conditions.<sup>4</sup>

Demand for water supplies purchased from outside the AVEK service area would be minimized through water conservation, including using low flow and ultra-low flow fixtures; installing smart irrigation devices; planting drought-tolerant or low-water usage landscaping; and maximizing water reuse. Smart irrigation controller devices include but are not limited to (1) rain gauges or sensors attached to a dwelling unit with a controller that would shut off in a rain event and (2) controllers that receive real time data from weather stations and adjust irrigation quantities accordingly. Smart irrigation controller devices can be manipulated on site or by the Internet. Water use in the Project area would be reduced substantially over more traditional developments, and wastewater generated would be recycled for use in landscape irrigation throughout the community.

The Centennial Water Service Plan was created with Southern California's specific water challenges in mind. As described above, the Water Plan includes a mandatory water conservation program that uses a variety of techniques to minimize potable water demand; it also uses multiple sources of water such as local groundwater, SWP supplies from AVEK, surplus imported water when available, banked water, and recycled water for non-potable uses.

The Project site is within the AVEK service area; however, it is not currently within the boundaries of a retail water utility. Centennial Founders, LLC has requested the Golden Valley Municipal Water District (GVMWD or District) Board of Directors to consider annexing the Project area and operating the Project's proposed potable water, recycled water, and wastewater facilities. The GVMWD is a California municipal water district formed and operated under Section 71000 of the *California Water Code*. The District's service area

---

<sup>4</sup> Banked water is water purchased from within the AVEK service area during times of surplus for use in recharging the aquifer. Other purchased water is purchased from outside the AVEK service area.

encompasses approximately 12.5 square miles and is adjacent to the Project's western boundary (GVMWD 2011). GVMWD currently operates approximately 20 municipal water service connections and a wastewater treatment facility for the unincorporated community of Gorman.

The GVMWD qualifies as a Water Supply Assessment (WSA) preparer for the Project under Section 10910(b) of the *California Water Code*. If the Project is annexed into the jurisdiction of the GVMWD, it is proposed that the GVMWD would become the operator of the potable and recycled water systems servicing the Project. Once the Project is annexed into the GVMWD, the District will become a public water system as defined by Section 10912(c) of the *California Water Code*, as a result of supplying water to the Project. Annexation of the Project into the GVMWD service area would require approval by the Los Angeles County Local Agency Formation Commission (LAFCO) and would occur after the certification of this EIR.

The GVMWD adopted a WSA on May 18, 2011, for the Project that separately analyzes the water supplies required the full planned buildout of the Project and for implementation of the first phase of Project implementation. In the adopted WSA, full buildout was assumed to occur at the end of the 20<sup>th</sup> year of the Project, which is also reflected in the analysis shown in Table 5.18-16 in Section 5.18, Water Resources. The Project timing assumptions used in the WSA are conservative because the Project's construction and market absorption are likely to occur over a longer period than 20 years. If the Project's buildout occurs over more than 20 years, surplus supply will be available for potential banking until the first Project phase is developed and buildout water demands become available.

The adoption of a WSA does not create a right or entitlement to water service or impose, expand, or limit any duty concerning the obligation of a public water system to provide certain service because the lead agency has a separate (from the water provider's WSA) and independent obligation to assess the sufficiency of water supplies for the Project. The WSA is included in the Project EIR for consideration by the County in accordance with Section 10911(b) of the *California Water Code* (See Appendix 5.18-A). The GVMWD or an alternate qualified public utility district (collectively, "PUD") would serve as the Public Water Purveyor and would provide water service to the Project.

Subject to the factors described in the WSA and Section 5.18 of this EIR, Project water demand (potable and non-potable) will be met by utilizing several different supplies, including: (1) water currently banked at the existing TRC Water Bank (2) AVEK SWP Table A water supplies available to the Project; (3) previously purchased water supplies loaned to the AVEK; (4) new imported SWP water from transfers of SWP Table A Amounts from SWP contractors located outside the Antelope Valley and purchased from AVEK; (5) recycled water generated by the collection and tertiary treatment of Project wastewater; (6) return flows generated by Project imported water use that infiltrates into local groundwater; and (7) groundwater. To provide needed reliability through all water-year types, portions of the water derived from imported sources, and potentially recycled water, will be banked in local aquifers in wetter years or when surplus supplies are available.



The Project includes a “total water management” plan with a specific water budget (a conservative estimate of water demands) and a water supply strategy that identifies secure water sources to serve this demand over the long term. The amount of water obtained from each source may vary from year to year depending on availability, cost, demand and other factors, but the mix of sources is designed to ensure that adequate water for Project demand would be available under all conditions and circumstances. The storage (or “banking”) of water in the groundwater basin would provide for increased reliability during dry years. The total water management plan also includes water conservation and water reclamation strategies to minimize water demand. The analysis of water for the Project is located in Section 5.18, Water Resources, of this EIR.

## **Wastewater/Recycled Water Resources Element**

The Wastewater/Recycled Water Resources Element of the Centennial Management Strategy focuses on recycling and reusing all wastewater generated within the community. Two key principles of the Centennial Wastewater/Recycled Water Resources Element of the Management Strategy are summarized below and described in Appendix 5.2-H of the EIR:

- Maximize water reuse; and
- Minimize use of imported water.

Two wastewater reclamation facilities (WRFs) would be constructed (one to the west and one to the east of the West Branch of the Aqueduct) to provide tertiary treated recycled water for community landscaping throughout Centennial. The first WRF would be constructed on the east side of the Aqueduct and would be operational at the time of Project occupation. No temporary package plant is anticipated. Seasonal storage ponds would be provided at the WRF East to store recycled water during periods of lower demand (e.g., during winter months) for use during high-demand periods (e.g., during summer). Approximately 4.62 million gallons per day (mgd) of wastewater will be produced at Project buildout, which will result in a recycled supply of approximately 4.16 mgd (4,660 afy). Approximately 40 percent of the Project’s total annual water demand at buildout will be met by using recycled water. The analysis of wastewater for the Project is located in Section 5.19, Wastewater, of this EIR.

## **Flood Control and Drainage**

The County has traditionally required development projects to analyze hydrologic conditions on a Project site from both a pre-development and post-development perspective. These analyses have focused on the volumes and flow rates of storm water runoff before and after proposed development to ensure that downstream properties are not negatively affected. Drainage concepts are required to demonstrate the locations and sizing of necessary storm water facilities (e.g., debris basins, infiltration and retention/ detention basins, flood-control structures) to address the requirement that downstream areas would not be negatively affected by Project runoff.

As an integral component of the Project’s integrated water resources management approach, the drainage concept will comply with County requirements by considering the potential

negative effects of increased impervious areas on the environmental resources in on-site and downstream drainages (hydromodification). Hydromodification considerations control the basin size and type of facility required. Under the integrated water resources management approach, hydrology and flood-control considerations are addressed through compliance with Low Impact Development (LID) standards, source-control best management practices (BMPs), and treatment-control BMPs throughout the Project. The hydromodification BMPs for the Project would be consistent with County requirements for new development set forth in Section 8 – Hydromodification Impacts of the County LID Standards Manual and the Project will comply with all applicable storm water and sediment management requirements. As future tract maps are prepared for Project land uses, drainage concepts will be submitted for County approval as part of the tract map review process.

The potential hydromodification effects of the sequential phased development and buildout of the Project have been evaluated through the engineering design of the drainage features in the drainage concept in this EIR. As the first phase of development is implemented, adjustments to the traditionally required structures would be incorporated, as needed, in order to avoid downstream impacts to natural drainages and to create groundwater recharge potential. These adjustments, or Project Design Features (PDFs), incorporate flow-duration control basins (e.g., infiltration basins) and balance flow and sediment impacts using grade-control and in-stream flow structures to demonstrate that downstream natural systems would not be negatively impacted by the flood-control and drainage system improvements serving the proposed development. Similar features would be implemented in subsequent phases.

Providing flow-duration control basins, as designed in the drainage concepts, provides mechanisms for avoiding hydrologic source loading impacts to creek systems on the Project site. Under more traditional approaches in which only in-stream protection measures are provided, downstream erosion impacts can occur. Only through strategic placement of in-stream flow structures and flow-duration controls can impact avoidance be achieved. Implementation of the proposed system and facilities exceeds current County requirements. Furthermore, the facilities and structures associated with flood control and drainage that are not maintained by the Homeowners Association (HOA) would be operated and maintained by the PUD (after annexation) or, if annexation does not occur as related to facilities and structures associated with flood control and drainage, by a company regulated by the California Public Utilities Commission (CPUC), a Community Services District (CSD), or other agency approved by Los Angeles County (the Maintenance Entity) and agreed to by the Project Applicant/Developer.

The use of the integrated water resources management approach also addresses sediment management within the hydromodification analysis, as it recognizes that sediment loss can contribute to increased erosion potential in downstream areas. This approach encourages the use of sediment-carrying flow-through techniques, thereby reducing the number of traditionally required debris basins and providing for a more balanced sediment transport and control system within Centennial. The key principles that have been used in developing the sediment management elements of the drainage concept are:

- Avoiding development alterations to natural conditions whenever possible;

- Minimizing impacts from sediment management systems when avoidance is not possible; and
- Mitigating any impacts that remain after avoidance and minimization techniques have been implemented.

The analysis of hydrology for the Project is located in Section 5.2 of this EIR.

## **Water Quality**

Typically, water quality considerations in development projects focus on compliance with the Standard Urban Stormwater Management Plans (SUSMP) which, for most of Los Angeles County, were established under Municipal Separate Storm Sewer Systems (MS4) permits. SUSMPs address water quality and drainage issues by specifying design standards for structural- or treatment-control BMPs that infiltrate/treat storm water runoff and control peak flow discharge. The MS4 Permit requires Project-specific SUSMP documents to describe how the BMPs incorporated into the Project demonstrate compliance with applicable storm water quality standards in receiving waters. Water quality/infiltration basins are proposed to serve as storage/treatment for storm water runoff in the major and minor greenways.

Approximately 93 percent of the Project site is within the jurisdiction of the Lahontan Regional Water Quality Control Board (Lahontan RWQCB); this area is not covered by an MS4 Permit due to the lack of development in the area. The remaining approximately 7 percent of the Project site is within the jurisdiction of the Los Angeles Regional Water Quality Control Board (Los Angeles RWQCB); an MS4 permit has been approved by the Los Angeles RWQCB and is applicable to the portion of the site under the Los Angeles RWQCB's jurisdiction. Although the MS4 Permit for Los Angeles County and related SUSMP requirements are not valid in the Lahontan RWQCB portions of the Project site, in the absence of an MS4 Permit for the Lahontan RWQCB, they have been utilized as the controlling analysis standard for the entire Centennial Project site. Furthermore, the facilities and structures used to address water quality issues that are not maintained by the HOA will be operated and maintained by the PUD (after annexation) or, if annexation does not occur as related to facilities and structures used to address water quality issues, by a CPUC-regulated company, a CSD, or other entity approved by Los Angeles County (the Maintenance Entity) and agreed to by the Project Applicant/Developer.

Additionally, the integrated water resources management approach used in planning and designing Project infrastructure proactively addresses water quality through the application of Low Impact Design (LID) principles on a macro-scale throughout the Project site. The overall result of the water quality components of the drainage system design would exceed applicable water quality design requirements. A description of proposed water quality treatment features is provided below under the "Drainage Plan" discussion. Refer to Section 5.4, Water Quality, for an analysis of the water quality impacts of the Project and additional discussion regarding the Project's compliance with the Los Angeles County LID Ordinance.

## 4.5.9 WATER-RELATED UTILITIES AND INFRASTRUCTURE

### Water Service Plan

The Project includes a domestic (potable) water supply system, including water treatment, storage and distribution systems (collectively, “Potable Water System”). The design, construction, and operation of the Potable Water System would be required to comply with standards set by the California Division of Drinking Water (DDW) and Los Angeles County Department of Public Works. The Project site is currently not within the boundaries of a retail water purveyor. As noted above, Centennial Founders, LLC has requested the GVMWD Board of Directors to consider annexing the Project area and operating the Project’s proposed potable water, water recycling, and wastewater facilities. Either the GVMWD or a PUD will provide service to the Project.

After completion of the proposed annexation, the Project’s water and wastewater systems would be owned and operated by the PUD, including the wastewater collection, treatment, and recycled water systems. Additionally, annexation of the Project area could allow PUD to own and maintain facilities and structures used to address flood control, drainage, and water quality issues. Annexation of the Project into the PUD service area would require approval by the Los Angeles County Local Agency Formation Commission (LAFCO) and would occur after the certification of this EIR.

If the PUD does not annex the Project site, a company regulated by CSD, or other agency approved by the County (the Maintenance Entity) and agreed to by the Project Applicant/Developer will be established, that will own, operate, and maintain the water, sewer, recycled water and storm drain facilities (including the water quality treatment and hydromodification control facilities) on the Project site. The Maintenance Entity will be funded through a rate-payer system imposing fees on the Project properties/service customers.

### *Existing and Proposed Water Facilities*

There are two existing aboveground water storage tanks on the Project site. One water storage tank is located in the southwestern portion of the Project site. The second tank is located in the northwestern portion of the Project, near Oso Canyon; a water well is also in this location. These existing facilities would be removed as part of the Project.

The planned domestic water facilities are depicted on Exhibit 4-13, Centennial Project – Conceptual Domestic Water System, and include the following items: a water treatment facility, storage tanks, booster pump stations, pressure-reducing stations, infiltration basins/water bank, groundwater extraction wells, and distribution lines. The potable water distribution system requires four pressure zones; each zone would provide an appropriate water pressure to meet peak demand and County-required fire flow requirements.

- **Water Treatment Facility.** As shown on Exhibit 4-13, the water treatment plant (WTP) would be constructed just west of the West Branch of the California Aqueduct and would tie into the backbone potable water distribution pipelines. A new turnout



# CONCEPTUAL DOMESTIC WATER SYSTEM

## CENTENNIAL | TEJON RANCH



Source: Placeworks 2017

### Centennial Project – Conceptual Domestic Water System

### Exhibit 4-13

Centennial Project



Map Not to Scale

D:\Projects\CEN\Centennial\GRAPHICS\EIR\Ex\_Domestic\_Water\_System\_20170203.ai

on the West Branch has been constructed by the DWR, which is owned and managed by AVEK. The locations of the Project WTP, the West Branch turnout, and the primary connecting pipelines between these facilities are identified in Exhibit 4-13. The WTP would be sized to treat the full maximum daily potable water demand of the Project. The Project's buildout potable water demand of 6,788 afy will be augmented by 4,577 afy of recycled water used primarily for outdoor landscaping use. Total Project water demands, including potable and recycled, will be approximately 11,365 afy, with a per capita water use of approximately 177.5 gpcd. It is expected that the WTP would be constructed in stages as the Project site builds out. The WTP would treat the incoming water using three processes common to most community-scale water treatment plants: coagulation and settling of impurities; filtration; and disinfection. The specific technologies to be used would be determined during design of the WTP; the output quality of the water from the WTP would meet all applicable drinking water standards. The WTP would be constructed of concrete and steel materials and would generally be at or below grade, with a few structures (e.g., filters, tanks, administrative areas) having maximum heights roughly between 30 and 40 feet. Security fencing, night lighting, and landscape screening would be provided along the perimeter of the WTP site.

- **Storage Tanks.** Consistent with County requirements, the amount of domestic water storage is based on operational storage at 40 percent of a maximum day's demand plus 2 times the average day demand, which is equivalent to one maximum day (or a total of 2.8 times an average day) plus fire flow storage (which varies depending on the land uses within each zone). As shown on Exhibit 4-13, the domestic storage demand for the Project would require implementation of potable water tanks at three locations. The tanks at these sites would be closed and constructed of reinforced concrete or steel and would be located and designed to be screened from view by most Project residents. The tanks would have a maximum height of approximately 32 feet. One or more of the following techniques would be used to accomplish this screening:
  - partially or fully burying the reservoir.
  - constructing a berm around the perimeter of the reservoir.
  - providing landscape screening that is compatible with the adjoining areas.
- **Booster Pump Stations.** The water system includes three booster pump stations to feed distribution lines to water tanks that supply water to the four different water pressure zones. One booster station at the water treatment plant would have pumps pumping to both Zones A and B; one booster station would pump from Zone B to C; and one station would pump from Zone C to D. The locations shown for these facilities are preliminary, but would generally be constructed in graded areas adjacent to roadway rights-of-way or on reservoir sites; specific locations would be determined during detailed system design. The final design for the booster pump stations would be determined during preparation of the final design plans for the water system, and it is expected that each would be above ground. The booster pump stations would be designed to minimize operating noise and would be enclosed in buildings. These

buildings would be screened from the view of proposed residences with landscaping and/or walls.

- **Pressure-Reducing Valves.** Five pressure-reducing valves would be located where needed to transfer water from higher zones to lower pressure zones in order to increase system reliability. The locations shown for these facilities are preliminary, but would generally be constructed in graded areas adjacent to roadway rights-of-way; specific locations would be determined during detailed system design. These valves are typically constructed below ground and are housed in vaults ranging in size between four and six feet wide by eight to ten feet long with a double door access from the top.
- **On-Site Water Bank/Infiltration Basin Area.** An approximate 100-acre water banking facility will be designed, permitted, financed, and constructed by the Project along the northern edge of the site to provide additional water recharge capacity. The on-site bank will also facilitate the periodic rotation of infiltration or extraction between the TRC Water Bank and the on-site bank to avoid potential impacts to the local aquifer. A transmission pipeline will extend from an existing East Branch turnout located at approximately the intersection of 320<sup>th</sup> Street West and the California Aqueduct, and will be routed along the southern edge of the bank to allow for delivery to recharge ponds within the facility. The turnout will be upgraded and managed in accordance with the turnout operating and maintenance agreements between AVEK and the DWR. The on-site water bank will also be able to obtain water from a turnout located on the West Branch of the California Aqueduct. A series of contoured infiltration basins separated by a network of berms and overflow weirs will be constructed to receive and infiltrate the water. The on-site water bank's soil and storage characteristics are similar to those of the existing TRC banking facility and will have the capacity to infiltrate and store approximately 7,200 afy. There is at least 161,000 acre-feet of unused aquifer storage within 0.5 mile of the proposed on-site and the existing TRC Water Bank facilities (GEI 2010, 2005). The on-site water banking facilities are depicted in Exhibit 4-13.

Groundwater depths would also be monitored around the perimeter of the infiltration basin to ensure the depth to groundwater is maintained at acceptable levels from the surface and excessive sub-surface mounding does not occur.

- **Wells.** Up to nine groundwater wells would be located within the Project site for extraction of previously banked imported water; groundwater level monitoring; recovery of return flows from on-site irrigation by capturing water that infiltrates into the surface and migrates into a well's cone of influence; and groundwater extraction (approximately 1,250 gallons per minute capacity per well) from the underlying aquifer for use in the Project's potable water supply system. The new wells would be installed in phases to match the domestic water demands of the Project. As part of the water supply verification required at the TTM stage, the specific pumping capacities of each well would be determined during detailed design studies as detailed infrastructure plans are developed. The wells would supply potable water to distribution lines and storage tank components of the Domestic Water System, as depicted on Exhibit 4-13.

Of the nine possible groundwater wells proposed to serve the Project, two are existing wells (TRC Well 98 and TRC Well 106); up to seven would be new on-site wells identified as Centennial Extraction Well (CEW)-1, CEW-2, CEW-3, CEW-4, CEW-5, CEW-6, and CEW-ALT. The existing on-site TRC Well 98 would be renamed CEW-8, and the existing off-site TRC Well 106, located adjacent to the Tejon Ranch Water Bank, would be renamed CEW-7. Based on the hydrogeologic studies of the underlying aquifer performed to date as part of the Project, it was determined that a total of eight wells would be needed (including existing and new wells), assuming the need to supply peak day demand entirely from groundwater with one well out of service; this would be considered a worst-case scenario in the event that potable water cannot be supplied by the California Aqueduct. Although the hydrogeologic studies indicate the need for a total of eight wells, the conceptual groundwater well system identifies nine total well locations to ensure the provision of adequate water supplies to the Project. Accordingly, the analysis assumes that CEW-ALT would be installed in addition to, rather than as an alternate to, the other new well locations.

The installation of production wells involves (1) drilling and installing an approximate 14-inch diameter casing to a depth of 800 to 1,000 feet below ground surface; (2) installing sanitary seals; (3) developing and testing the well by pumping; and (4) then equipping the well with an aboveground pump and installing electrical and control equipment contained within an enclosed structure with an approximate 12 foot by 16 foot footprint and which is approximately 12 feet to 14 feet in height. The well housing structure would have a flat, or nearly flat, roof with skylights for pump removal, if necessary. Depending on the water quality at each well site, there may or may not be a need for treatment at the well. If water quality meets drinking water standards per Title 17 and Title 21 of the *California Code of Regulations*, there may be disinfection at the well site and the water would then be discharged directly into the water distribution system. In this event, the groundwater is expected to be treated with chlorine (in the form of sodium hypochlorite, commonly referred to as bleach or chlorine bleach), which would be stored in a 500-gallon tank at the well site.

This aboveground tank and associated chlorine feed system would be housed in a separate, adjacent, 10-foot by 12-foot structure, up to approximately 12 feet to 14 feet in height, sharing one common wall with the well housing structure. Depending on factors such as well capacity, groundwater production rates, and water quality, it is estimated that a 500-gallon tank would need to be re-filled approximately every 2 weeks. It should be noted that while sodium hypochlorite is classified as a hazardous material, it has been commonly and safely used throughout California as an effective means of disinfecting water. As such, the type, form, and concentrations of material proposed for use at the wells is not unusually dangerous or uncommon. However, if further treatment is required (i.e., beyond disinfection), both the disinfection and further treatment would not take place at the well locations but at the proposed on-site water treatment plant.

- **Distribution Lines.** The proposed water distribution system includes potable and non-potable water lines ranging in size from approximately 8 to 30 inches to be constructed primarily within the proposed roadways.



## Wastewater Service Plan

A Conceptual Wastewater Service Plan has been prepared as part of the Project and is illustrated in Exhibit 4-14, Centennial Project – Conceptual Wastewater System. Two wastewater reclamation facilities (WRFs) will be required and constructed in accordance with Title 22 of the *California Code of Regulations* and the PUD's or the Maintenance Entity's criteria. Title 22 specifies California's Wastewater Reclamation Criteria (WRC), and all recycled water in the state must meet or exceed these standards. The specifications outlined in Title 22 apply to the treatment process by setting performance standards for removal efficiencies and overall effluent water quality. Title 22 also (1) establishes process-monitoring programs that set the type and frequency of water quality monitoring; (2) requires preparation of facility operations plans; and (3) requires the incorporation of necessary reliability features into the design of the treatment facility.

Wastewater treatment would occur at two permanent on-site WRFs and would consist of primary, secondary, and tertiary treatment processes; in order to avoid crossing the Aqueduct with raw sewage pipelines, one WRF would be located west of the Aqueduct (WRF West) and one would be located east of the Aqueduct (WRF East). Both WRFs are proposed in locations that allow wastewater to generally flow by gravity to the WRF for treatment. The treated effluent from the two WRFs would be supplied to the recycled water distribution system to meet irrigation demands throughout the Project site, as well as some indoor uses such as wastewater and cooling uses in the business park.

The WRFs would be operated and maintained by the PUD (after annexation) or, if annexation does not occur, by a CPUC-regulated company, a CSD, or other agency approved by Los Angeles County (the Maintenance Entity) and agreed to by the Project Applicant/Developer.

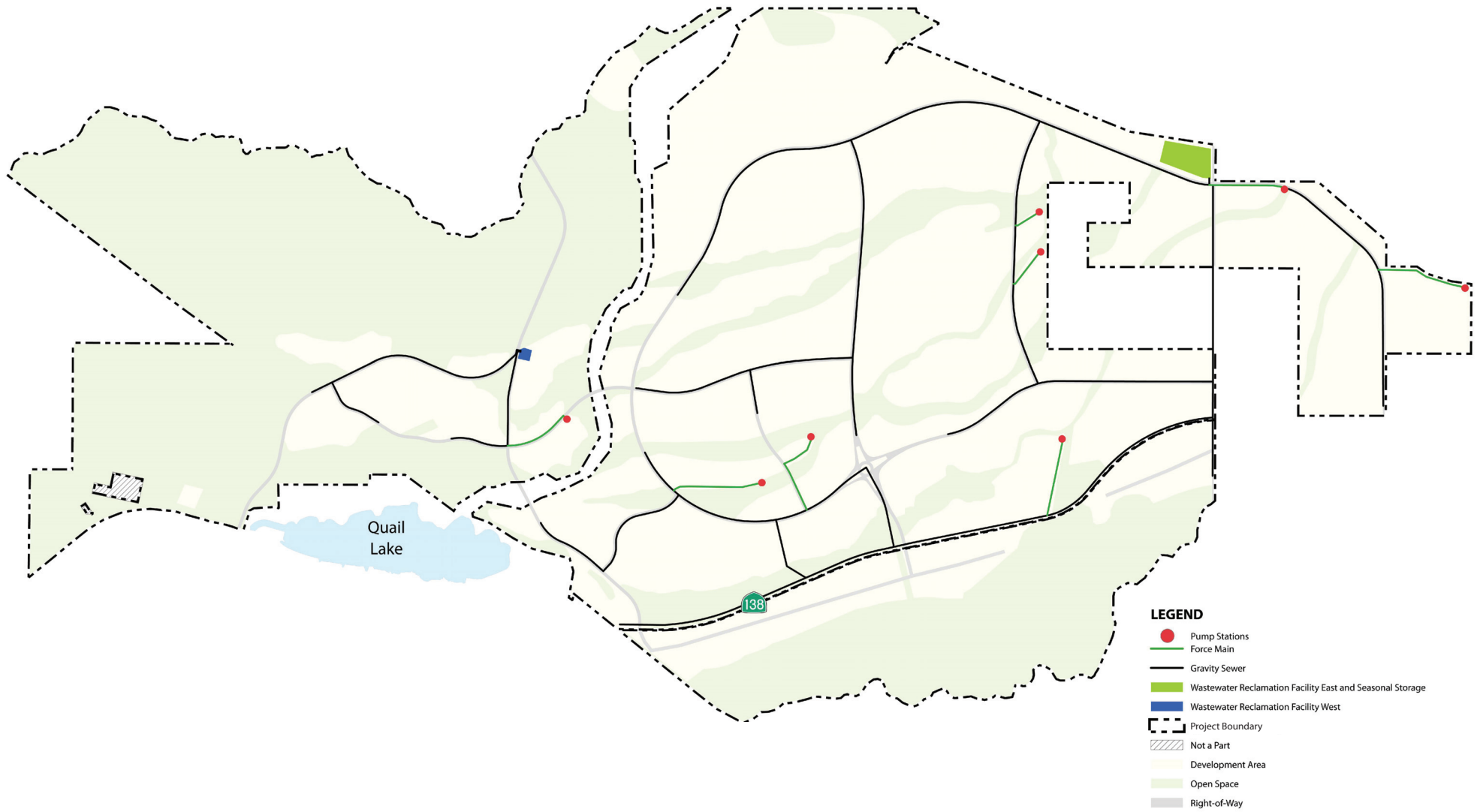
Construction of WRF East would occur first and would be operational upon site occupancy. The facility would be expanded in phases, as required to treat the wastewater flows generated by occupied land uses. WRF East, intended to serve the wastewater treatment and wastewater reclamation (i.e., production of recycled water) needs for the initial phase of development on the Project site east of the Aqueduct and would have a design capacity of approximately 4.28 mgd. This facility is proposed for development on a site near the northeastern corner of the Project site, just west of 300<sup>th</sup> Street West, as shown on Exhibit 4-14.

Property located to the east of 300<sup>th</sup> Street West at the northern edge of the Project boundary, which is currently designated as Low-Density Residential, could serve as an alternate location for the WRF East. If the facility were to be located within a 23-acre site at this location, the environmental impacts discussed in this Draft EIR would remain largely unchanged, and may be reduced for some topical areas. For instance, due to topographical differences between the Specific Plan's proposed Utility designated area and the property located east of 300<sup>th</sup> Street West, the eastern site would be able to receive more wastewater via gravity flow and would require one less pumping station as a result, thereby also slightly reducing energy demands. However, this location would require a General Plan Amendment to change the current AVAP designation of RL2 (Rural Land for 1 dwelling unit per 2 gross acres) to Utility. The current AVAP Land Use designation for the Specific Plan's Utility land



# CONCEPTUAL WASTEWATER SYSTEM

## CENTENNIAL | TEJON RANCH



Source: Placeworks 2017

### Centennial Project – Conceptual Wastewater System

Exhibit 4-14

Centennial Project



Map Not to Scale

D:\Projects\CEN\Centennial\GRAPHICS\EIR\EX\_4\Wastewater\_20170203.ai

use is the IL- Light Industrial. The Utility land use is proposed to contain the following facilities: WRF East, groundwater infiltration basins, MRF/TS, composting and green waste facilities, and maintenance yards/animal control. Potentially moving the WRF East and some of the facilities listed above to this alternate 23-acre property would not present land use compatibility concerns and would be similar to the juxtaposition of the currently proposed land uses.

Recycled water storage capacity at buildout would need to be approximately 1,000 acre-feet with the majority of that provided within the WRF East site and some in lakes on the Project site. The WRF would be constructed of concrete and steel materials that would generally be at or below grade, with a few structures (e.g., administrative/lab facilities, secondary treatment digesters, sludge centrifuges, and filtration facilities) having maximum heights of approximately 30 to 40 feet. Security fencing, night lighting, and landscape screening, if needed, would be provided along the perimeter of the WRF East site. Sludge generated by both WRF West and WRF East would be sent to a suitable off-site landfill or would be transported to a fertilizer conversion site for reuse.

WRF West would serve the subsequent phase of Project development located to the west of the Aqueduct; it would have an approximate capacity of 0.34 mgd and is proposed to be located on an approximate 3.0-acre site, also shown on Exhibit 4-14. Recycled water from WRF West would be pumped directly to the Zone C recycled water tank located nearby, west of the Aqueduct. WRF West would be constructed of concrete and steel materials that would generally be at or below grade, with a few structures (e.g., administrative/lab facilities, secondary treatment digesters, sludge centrifuges, and filtration facilities) having maximum heights of approximately 30 to 40 feet. Security fencing and night lighting would be provided along the perimeter of the WRF West site.

The Project also includes a wastewater collection and conveyance system that would primarily consist of 8- to 18-inch lines to be constructed within the proposed roadways. Areas such as those near WRF East would require larger diameter gravity trunk sewers (up to 27-inches in diameter) due to flatter slopes and the higher combined volumes of flow.

Approximately eight small sewer lift stations would be required to pump the wastewater from development areas against uphill grades to locations where they could flow by gravity to the WRFs. The locations of the pump stations are discussed further in Section 4.7 and are shown on Exhibit 4-14, Centennial Project – Conceptual Wastewater System. Pump stations would be sized to accommodate peak flows and would be equipped with backup emergency power generators. Force mains from the pump stations would be sized depending upon the pumping capacity of the station.

Pump stations would generally be below ground. They may be fitted with either submersible pumps in a wet well or standard motors in a pump house above the wet well. If a pump house building is required, it would be designed to blend architecturally with adjacent structures. Landscape screening may also be provided. For a submersible pump installation, a metal cabinet would be provided at ground level to house the electrical and pump control equipment. Both types of pump stations would be provided with an emergency generator and automatic transfer switch to provide continued operation in the event of an electrical

power failure. Access driveways and parking areas would be provided for maintenance activities.

## Recycled Water

The tertiary treated effluent (recycled water) from the WRFs discussed above would be used primarily to meet the Project's non-potable water needs, including community-wide landscape components. At full buildout, recycled water will be used for (i) 100 percent of the commercial, business park, institutional, school, hotel, park, and slope outdoor irrigation demand; (ii) outdoor irrigation demand within 50 percent of the total very low and low density residential lot landscaped area; and (iii) wastewater and cooling use within the proposed business park except where prohibited by applicable law for particular types of areas or uses (e.g., employee cafeterias). Exhibit 4-15, Centennial Project – Conceptual Recycled Water System illustrates the conceptual recycled water system. In addition to providing a source of non-potable water for large-scale irrigation needs, the recycled water program would avoid the need to dispose of treated effluent. This is a common practice in California and is recognized as a sound water conservation practice. Additionally, this process is in compliance with State Water Resources Control Board Resolution No. 2009-0011, Recycled Water Policy (adopted on May 14, 2009), which is intended to increase the use of recycled water from municipal wastewater sources (SWRCB 2009). A description of the components of the recycled water system is included below.

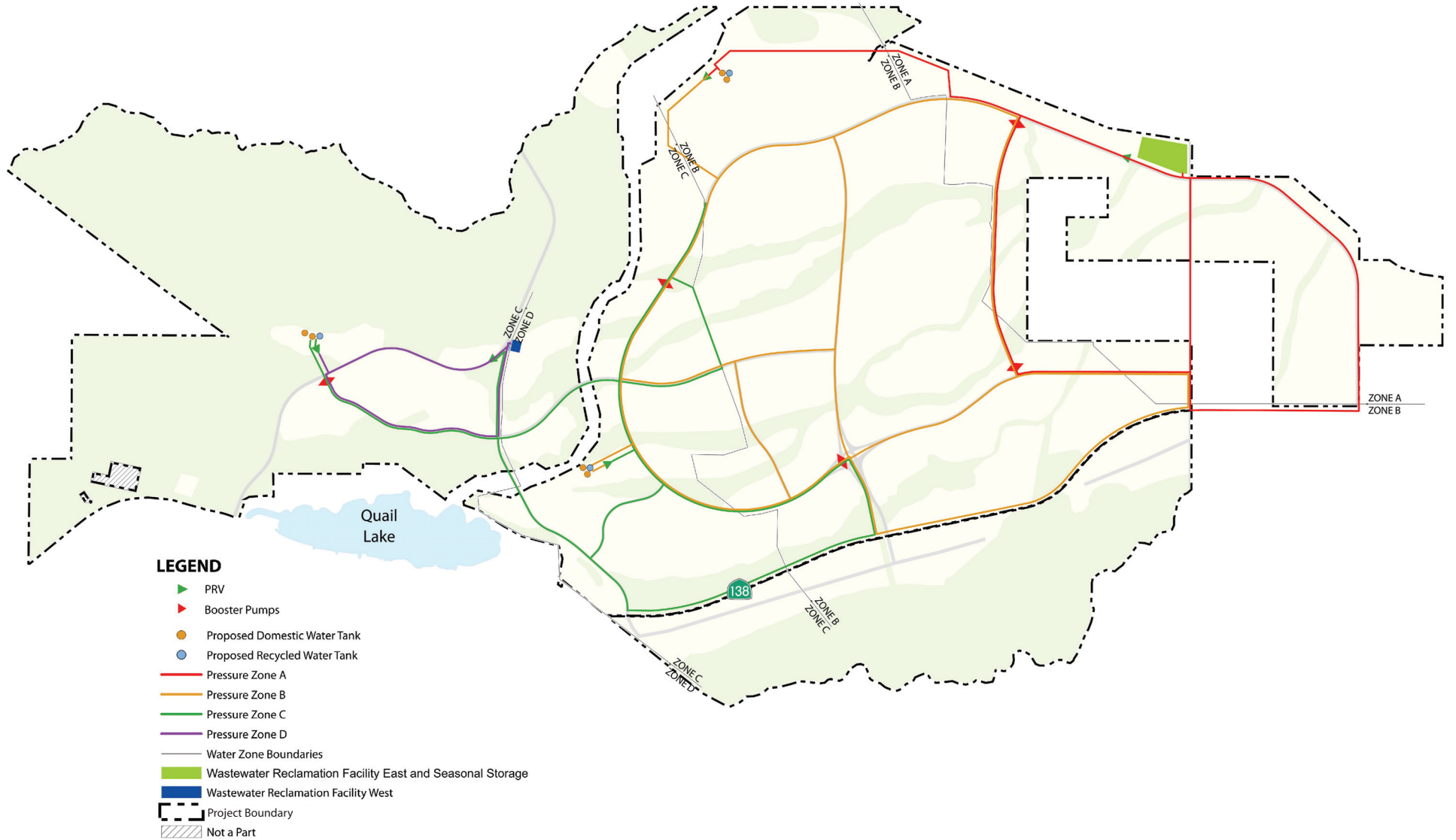
As shown on Exhibit 4-13, each of the three on-site domestic water tank sites would also provide space for a water storage tank for recycled water for a total of three recycled water storage tanks. The capacity of the recycled water tanks would be approximately half the capacity of the domestic water supply tanks since they do not need to have fire flow or emergency storage. However, they would be approximately the same height (e.g., 32 feet above grade) as the domestic water tanks with which they would be co-located. In addition to the storage tanks, the recycled water system includes the distribution facilities listed below.

- **Booster Pump Stations.** The proposed recycled water system includes five booster pump stations to feed distribution lines to recycled water storage tanks that would supply recycled water to the four water pressure zones. There would be one large pump station supplying recycled water from the WRF East site to Zone A; one pump station from Zone A to B; one pump station from Zone B to C; one pump station from Zone C to D; and a pump station from the WRF West to Zone C. The locations shown for these facilities are preliminary, but would generally be constructed in graded areas adjacent to roadway rights-of-way; specific locations would be determined during detailed system design. The physical characteristics of the booster pump stations for recycled water would be the same as those described for the domestic water system.
- **Seasonal Storage.** Seasonal storage ponds are proposed for the majority of the seasonal storage requirement within the WRF East site (refer to Exhibit 4-14). These ponds would be uncovered; would be lined to prevent infiltration; and would be used to temporarily store recycled water during winter months (when irrigation demand



# CONCEPTUAL RECYCLED WATER SYSTEM

## CENTENNIAL | TEJON RANCH



Source: Placeworks 2017

### Centennial Project – Conceptual Recycled Water System

Exhibit 4-15

Centennial Project



Map Not to Scale

is low) for use later that year during higher demand periods (e.g., summer). These storage ponds would have security fencing and lighting. In addition to the ponds at the WRF East site, surplus recycled water could also be stored in the lakes within the project during winter months. A total seasonal storage capacity of approximately 1,000 acre-feet is proposed for the Project, which would be provided at the WRF East site and on-site lakes.

## Drainage Plan

As illustrated in Exhibit 4-16, Centennial Project – Conceptual Drainage and Flood Control System, the flood-control system incorporates three storm water management methods for flood and storm water control. These methods include: on-site water quality and infiltration basins; underground storm drainage facilities; and use of natural drainage courses. Natural drainage courses would be used whenever possible; however, some locations provide no alternative other than constructed channels or underground facilities. In these circumstances, surface runoff would be intercepted and conveyed by a network of storm drains.

Water quality and infiltration basins are proposed for use as storage and/or treatment facilities for storm water runoff in greenways and in some natural water courses. Many of the existing natural drainages throughout the Project site are incised and highly erodible. As a result of these conditions, many of the natural drainages proposed to be incorporated into the storm water drainage system may require modification. It is the intent of the backbone storm water drainage plan to restore drainages to a naturalized<sup>5</sup> condition while taking into account public safety requirements and public recreational objectives. Traditional flood-control techniques use reinforced concrete or grouted rock riprap to minimize erosion while maximizing the volume of flood flows carried by the drainage. As a part of the Project, “naturalized features” (e.g., the use of buried-bank stabilization are proposed where necessary to protect against erosion. Buried bank stabilization uses soil cement, concrete, or riprap and is buried beneath the existing banks of a river to provide a functional backstop that resists scouring, which could pose a threat to infrastructure. Upon completion of construction, the soil placed on top of the bank stabilization is replanted with native vegetation to return the disturbed area to a more natural condition.

Soft bottom culverts and pipe or box culverts would be provided to convey storm water flows beneath planned roadways. In future phases of development, road crossings of drainage courses would be accomplished using conventional reinforced pipe or box section culverts with inlet and outlet head walls and rock riprap energy dissipation at the downstream outlets of each culvert. Soft-bottom culverts would typically be constructed where roads cross planned greenways that contain natural channels. The Project’s Land Use Plan depicts road crossings of greenways and natural channels, including existing culvert crossings, which will be retained as part of the Project. Refer to Exhibit 4-1 for the Conceptual Land Use Plan.

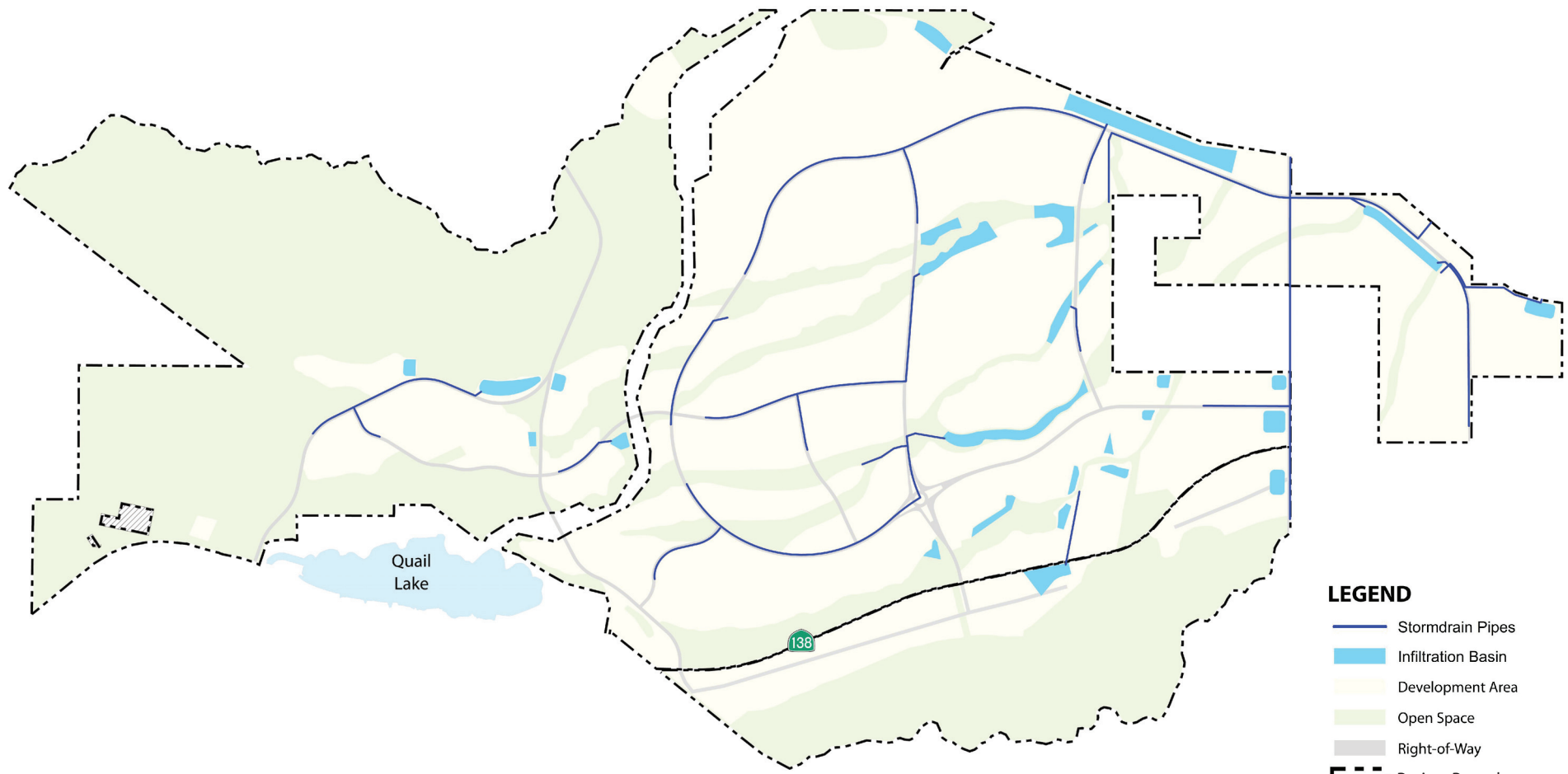
---

<sup>5</sup> Naturalized, in this sense, is a habitat that was disturbed and has been restored with the characteristics of an unaltered, natural state.



# CONCEPTUAL DRAINAGE SYSTEM

## CENTENNIAL | TEJON RANCH



- LEGEND**
- Stormdrain Pipes
  - Infiltration Basin
  - Development Area
  - Open Space
  - Right-of-Way
  - Project Boundary
  - Not a Part

Source: Placeworks 2017

### Centennial Project – Conceptual Drainage and Flood Control System

### Exhibit 4-16

Centennial Project



Map Not to Scale

D:\Projects\CEN\Centennial\GRAPHICS\EIR\Ex\_Flood\_Control\_20170203.ai

Conventional culvert crossings may range in size from 48-inch diameter pipe to the equivalent of double 120-inch diameter pipes. Soft-bottom culverts could range in size from a single 15-foot-wide and 10-foot-high culvert to double culverts that are each 30 feet wide and 15 feet high. The final size and configuration would be determined during final engineering following tentative map approval for that part of the development. During development of future tentative maps, additional culverts may be identified and would be incorporated into the drainage concept design at that stage.

Implementation of the Project would require permits/agreements from governmental agencies having jurisdiction over these drainages. This may include permits/agreements with U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and/or either or both the Regional Water Quality Control Boards (RWQCBs) with jurisdiction over the site (i.e., Los Angeles or Lahontan).

As specified in the Project's Floodplain Safety Zone, proposed development would not encroach upon the designated 100-year floodplain. No habitable structures would be permitted within the 100-year flood level in accordance with Los Angeles County policies to protect public property and safety and in conformance with the Federal Emergency Management Agency (FEMA) requirements/policies. As part of the Project, a Conditional Letter of Map Revision (CLOMR) will be submitted to the Federal Emergency Management Agency (FEMA) to revise the FEMA Floodplain boundary and to demonstrate that habitable uses are not proposed within the FEMA Floodplain. Please also refer to Section 5.2, Hydrology and Flood, for more detailed information.

#### **4.5.10 DRY UTILITIES**

Exhibit 4-17, Centennial Project – Dry Utilities Plan, identifies existing dry utilities within and adjacent to the Project site, as well as dry utilities proposed as part of the Project, including electric, natural gas, telephone and wireless telecommunications, and cable television. As shown, existing on-site dry utilities include (1) Southern California Edison (SCE) electric lines running north-south to the Oso Pumping Plant and National Cement Plant, which include lines that run southwest to northeast across the Project site connecting to the lines feeding the Oso Pumping Plant and National Cement Plant, as well as electricity lines running east-west along SR-138; (2) an AT&T underground telephone line running northwest to southeast across the western portion of the Project site; (3) a SoCalGas line that runs north-south immediately west of the Project site; and (4) fiber-optic lines installed by Quest Communications, which are adjacent to the I-5. In addition, although not a part of the Project site (i.e., off-site), SCE's Bailey Substation is located on an SCE-owned parcel in the southwestern corner of the Project site (i.e., although not a part of the Project, it is surrounded by the Project on all sides). A high-pressure natural gas main is located adjacent to SR-138. Currently, the dry utilities in proximity to the Project site are limited in terms of their servicing capacity. Following is a discussion of the dry utilities proposed to be implemented as part of the Project. The analysis of dry utilities for the Project is located in Section 5.20 of this EIR.





# DRY UTILITIES PLAN CENTENNIAL | TEJON RANCH



Source: Placeworks 2016

## Centennial Project – Dry Utilities Plan

## Exhibit 4-17

Centennial Project



Map Not to Scale

## Electricity

SCE serves approximately 14 million customers within a 50,000 square mile service area that covers Central, Coastal, and Southern California and would serve the Project site. Electric service is available through SCE facilities, as regulated by the California Public Utilities Commission's (CPUC's) Tariff Rules 2, 15, and 16. SCE has both transmission and distribution facilities located within and near the Project site. Existing conditions and proposed improvements to the substations and electric lines are described in detail below.

### **Substations**

SCE maintains one existing substation (known as the Bailey Substation) in the immediate vicinity of the Project site, located north of SR-138 in southwestern corner of the Project site. As shown on Exhibit 4-17, the substation is located on an SCE-owned parcel—the “Not a Part” (NAP) parcel immediately north of SR-138—and is therefore considered “off site”. This substation currently serves as a transmission-only substation (220 kilovolt [kV]/66 kV) and is not currently equipped for distribution (12 kV) capability.

SCE also maintains the existing Gorman distribution substation, located approximately 3.6 miles northwest of the Project site along Gorman Post Road. This substation is equipped for distribution voltage and serves as the primary electric distribution facility in the Project area. It is from this facility that the existing 12-kV lines extend east along Gorman Post Road toward and within the Project site. The current capacity of the existing 12-kV facilities extending from the Gorman Substation along SR-138 can accommodate approximately 300 dwelling units. Therefore, the provision of electric service beyond the initial units developed in the first phase of Project implementation would require additional capacity through infrastructure improvements.

As discussed further in Section 4.7, Off-Site Project Features, two options were developed for bringing the additional capacity to serve the western portion of the Project site: (1) upgrading the existing Bailey Substation located on an SCE-owned parcel within the southwestern corner of, but not part of, the Project site or (2) upgrading the Gorman Substation and retrofitting existing overhead transmission lines to handle the higher load.

Provision of electrical service to the remainder of the Project would ultimately require a new substation, currently named the “Centennial Substation”, in addition to the upgraded Bailey or Gorman substation. The Centennial Substation would be located in the vicinity of 300<sup>th</sup> to 310<sup>th</sup> Street West either north or south of SR-138, as described further below (refer to Exhibit 4-21).

### **Centennial Substation**

SCE has indicated that the electricity demand anticipated from Project implementation would require construction of a new substation (the Centennial Substation) in the eastern portion of the Project site. The proposed substation would be constructed on an approximate 4.5-acre site. The Centennial Substation would be located in the vicinity of 300<sup>th</sup> to 310<sup>th</sup> Street West either north or south of SR-138. The Centennial Substation would be an unmanned, 66/12/6.9 kV, 28 Mega Volt Ampere (MVA), Substation Automated Station (SAS)

Automated Station. The complete equipment specifications of the Centennial Substation are summarized in Table 4-5, Centennial Substation Equipment Specifications.

The substation pad would be surfaced with ¾-inch crushed untreated rock with a depth of four inches and graded to be level with the surrounding lots. A Landscape Plan for the substation would be prepared by a Licensed Landscape Architect and would include an eight-foot-high, architect-designed block wall surrounding the substation topped with security barbed wire that would be mounted on the substation side of the wall. The area around the substation would be landscaped to shield views of the substation structures and equipment from surrounding areas.

The existing 66 kV lines (overhead or underground) along SR-138 would be extended to the proposed Centennial Substation site. This substation would convert the incoming 66 kV to outgoing 12 kV/6.9 kV, which would then be distributed to the Project site. The extension of the 66 kV facilities would either be in or out of the proposed roadways. SCE would require easements or joint-use easements for these facilities. The 12 kV/6.9 kV distribution facilities would be extended underground within the roadways. Transmission and distribution lines over the rest of the Centennial site are discussed below.

The Centennial Substation would have both security and maintenance lighting. The security lights would be low-intensity, photo-sensor-controlled lights integrated into the landscape and the architectural design of the substation; they would be in operation from dusk until dawn. Maintenance lighting would consist of high-pressure sodium lights located in the switchracks, around the transformer banks, and in areas of the substation yard where maintenance activities may occur during nighttime hours. All maintenance lighting would be controlled by a manual switch and would normally be in the off position. The substation's equipment and structures would be grounded in accordance with current SCE standards, and ground grid calculations would be based on soil resistivity measurements taken by SCE. Animal-control features would also be installed in accordance with current SCE standards.

The existing 66-kV lines (overhead or underground) along SR-138 would be extended to the proposed Centennial Substation site. This substation would convert the incoming 66 kV to outgoing 12 kV/6.9 kV, which would then be distributed to the Project site. The extension of the 66-kV facilities would either be in or out of the proposed roadways. SCE would require easements or joint-use easements for these facilities. The 12-kV/6.9 kV distribution facilities would be extended underground within the roadways. Transmission and distribution lines over the rest of the Centennial site are discussed below.

**TABLE 4-5  
CENTENNIAL SUBSTATION EQUIPMENT SPECIFICATIONS**

Equipment	Description
66 kV Low Profile Steel Switchrack	<ul style="list-style-type: none"> <li>• Consists of 7 bays:               <ul style="list-style-type: none"> <li>○ 2 positions for lines</li> <li>○ 1 bank position</li> <li>○ 1 bus tie</li> <li>○ 3 spare positions</li> </ul> </li> <li>• 600 feet, 1-1,590 kcmil ACSR for operating and transfer buses</li> <li>• Control cable trench to MEER building</li> <li>• Measurements: approx: 10'H X 64'W X 126'L</li> </ul>
Transformer Bay	<ul style="list-style-type: none"> <li>• One 28 MVA transformer with isolating disconnects, surge arresters, and neutral CTs.</li> <li>• Measurements: approx. 10'H X 41'W X 78'L</li> </ul>
12 kV Low Profile Switchrack	<ul style="list-style-type: none"> <li>• Consists of a 7-position rack</li> <li>• 600 feet, 3.5-inch, IPS EH AL for operating and transfer buses</li> <li>• Control cable trench to MEER building</li> <li>• Measurements: approx. 15'H X 21'W X 108'L</li> </ul>
Capacitor Banks	<ul style="list-style-type: none"> <li>• One 12 kV capacitor bank at 4,800 kVAR</li> <li>• Measurement: approx. 17'H</li> </ul>
Mechanical-Electrical Equipment Room (MEER)	<ul style="list-style-type: none"> <li>• Measurements: 36' x 20' (720 sf)</li> <li>• Equipped with air conditioning and all standard equipment:               <ul style="list-style-type: none"> <li>○ Control and relay panels</li> <li>○ Battery chargers</li> <li>○ Communication equipment</li> <li>○ Telephone and fiber optic communication</li> <li>○ Local alarms</li> </ul> </li> </ul>
kV: kilovolts; kVAR: kilovolt ampere reactive; kcmil: thousand circular mils; ACSR: aluminum conductor, steel-reinforced; MVA: megavolt ampere; CTs: current transformers; IPS EH AL: international pipe standard extra heavy aluminum; MEER: mechanical-electrical equipment room; sf: square feet. Source: SCE 2007c.	

### ***Transmission and Distribution Lines***

SCE maintains overhead 66-kV transmission lines and 12-kV distribution lines running parallel along the north side of SR-138. Additionally, there are distribution lines that extend northeast from the existing Bailey Substation area to the Oso Pumping Plant and north from SR-138 along National Cement Plant Road to the National Cement Plant. The existing lines to the Oso Pumping Plant run through the Open Space north of Oso Canyon.

As shown on Exhibit 4-17, the Project would involve the installation of new dry utility corridors consisting of joint and sole electric, natural gas, telephone, and cable television

facilities within the roadway rights-of-way. The new systems would be installed underground within proposed roadways and would be constructed in advance of the land uses that require the facilities in order to ensure that the Project's electrical needs are met as the site develops. It would be necessary to install a distribution transformer at the Bailey Substation to carry sufficient load to the Project. The extension to the Project could be overhead on the existing pole line paralleling the north side of SR-138 or by way of a temporary pole line constructed within the Project limits around the north side of Quail Lake to reach the initial development phases of the Project.

Once the boundary of the initial phase of development is reached, any overhead facilities would be placed underground and run throughout the Project site. As the Project develops on the west side, the temporary overhead lines would be placed underground to accommodate the construction phasing. The new utility corridors would be installed underground within proposed roadways and would be constructed in advance of the land uses that require the facilities in order to ensure that the Project's electrical needs are met as the site develops. The timing for engineering, construction of these facilities, and the specific facilities' locations and sizing have been coordinated with SCE. The proposed electrical distribution system would be developed on the Project site to supplement and, in the case when electricity generation exceeds Project demands, sell power back to the regional electrical grid.

Implementation of the Project would also involve the removal, relocation, and/or realignment of the existing 66-kV and 12-kV electricity lines that extend along SR-138 and within the Project site. The existing electricity lines along SR-138, or portions of these facilities, could remain in place, be relocated, or be placed underground. The existing 66 kV lines that extend from the Bailey Substation and run northeast within the Project site may be relocated and/or segments may be placed underground (which would require an easement). The existing 66-kV lines are shown on Exhibit 4-18, Known Major Utilities in Project Area. Furthermore, there are existing distribution lines for local distribution that run parallel to 300<sup>th</sup> Street West on the western side of the street. The Centennial Substation discussed above would be required in the area of 300<sup>th</sup> to 310<sup>th</sup> Street West along SR-138. Approximately 4.5 acres would be required for this site.

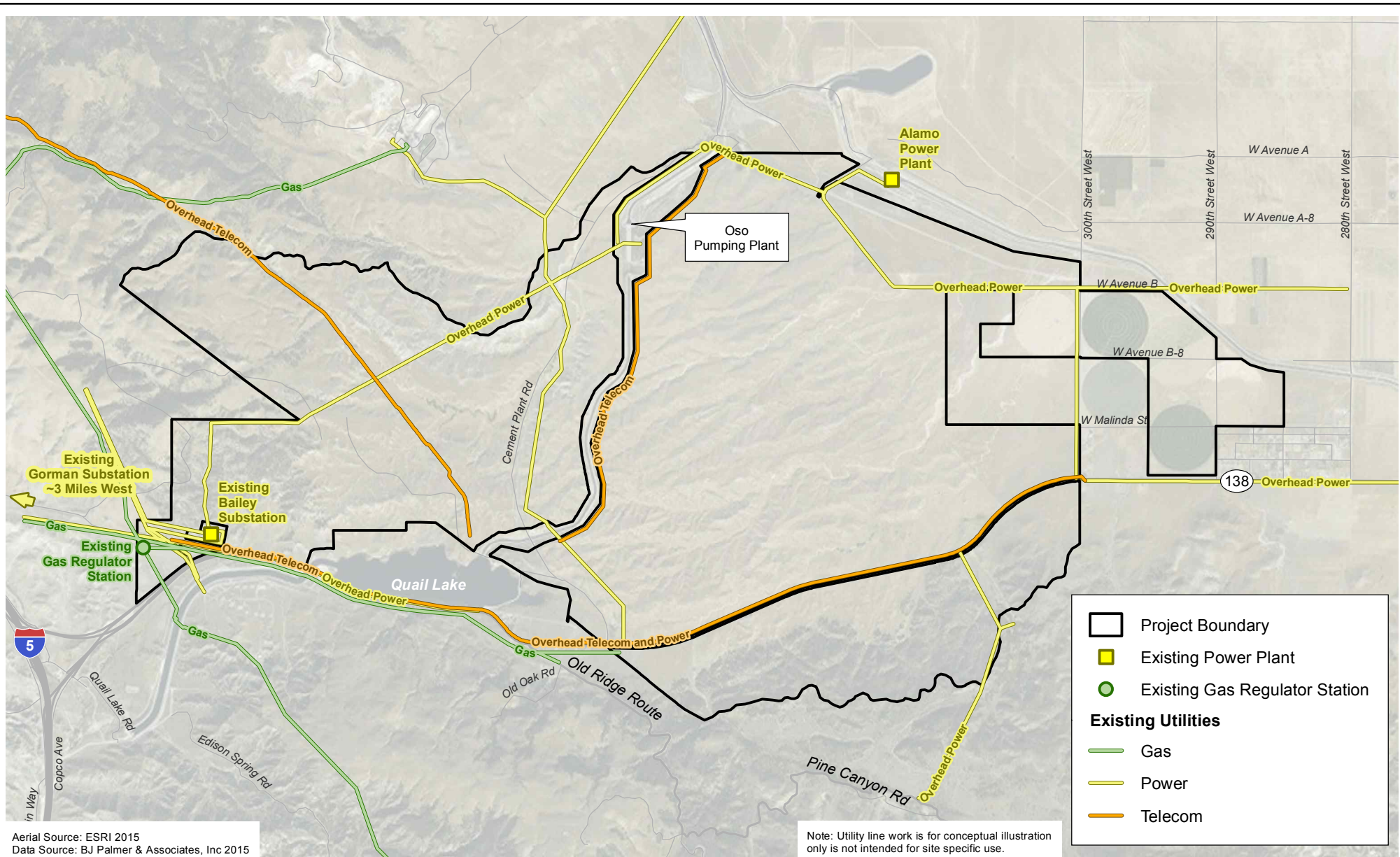
## **Gas**

SoCalGas would provide natural gas service to the Project site. SoCalGas is also regulated by the CPUC and provides natural gas service to much of the Southern California region. Natural gas service is available through SoCalGas facilities, as regulated by the CPUC's Tariff Rules 20 and 21.

There are existing SoCalGas gas lines within and near the Project boundary; however, none are located within the Project development area. There is one high-pressure gas main in the vicinity. It is a 33-inch diameter, north-south running gas transmission line (Line 225) within a SoCalGas-owned easement that originates at SR-138 just east of the I-5. A six-inch high-pressure distribution line branches from Line 225 and travels east to serve the National Cement Plant. Existing natural gas service to the Project site is available through a medium-pressure gas distribution main in SR-138, which branches from Line 225 and travels east to



D:\Projects\SCEN\Centennial\MXD\EIR\Ex\_utilities\_20160906.mxd



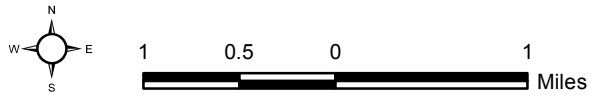
Aerial Source: ESRI 2015  
Data Source: BJ Palmer & Associates, Inc 2015

Note: Utility line work is for conceptual illustration only is not intended for site specific use.

### Known Major Utilities in Project Area

### Exhibit 4-18

Centennial Project



the Quail Lake area (SCGC 2006). These facilities are shown on Exhibit 4-17, Centennial Project – Dry Utilities Plan. Additional, various-sized, medium-pressure gas distribution mains are located in and around SR-138 in the Project vicinity, and are shown on Exhibit 4-18.

The Project's demand for natural gas service would be served by tapping into an existing high-pressure main and constructing a sub-surface regulator station and run distribution medium pressure and/or transmission high pressure to and through the Project site. This will be determined in the future as part of the Project planning and implementation process. Regardless, natural gas service would be provided to the Project site via a series of transmission and distribution gas mains that would be installed within the roadway rights-of-way. Due to gas line installation requirements, transmission main extensions would be in separate trenches within proposed roadways. Distribution main extensions would be installed within the proposed utility corridors (shown on Exhibit 4-17). Some of these transmission and distribution mains may parallel each other in the same roadway. It may be necessary to extend a high-pressure line to and within the Project site for the placement of a series of future regulator stations.

Future phases of development may require the tapping of the transmission high pressure main and construction of a sub-surface regulator station along SR-138 to augment transmission and run distribution medium pressure and/or transmission high pressure to and through the Project site. Gas distribution efficiency and operating integrity require that the gas mains are looped. As the Project develops, the mains may be tied to each other for pressure stabilization. Regulator stations can be within roadway rights-of-ways or on private property within an easement. An underground extension of gas facilities will need to be constructed along Gorman Post Road from the proposed regulator station to the Project's westerly entrance, where it would follow the route along with electricity and telephone within the Project around the north side of Quail Lake. The main could also be extended along SR-138, just outside the right-of-way, easterly to the initial construction phases of the Project.

Specific standards to promote energy efficiency and to minimize future energy demand in residential, commercial, school, and civic structures are described in Section 2.2.7, Performance Standards, of the *Centennial Specific Plan* (see Appendix 4.0-A).

## Telephone

AT&T is a national provider of voice and data telecommunications services and currently serves the Project area; as such, they provided the information contained in this section. Telephone service is available through SBC/AT&T facilities as regulated by the CPUC's Tariff Rule 15. Several other communications companies (such as MCI World Com, Rapid Cable, and Quest Communications) operate existing underground fiber optic systems adjacent to I-5 for regional services.

The AT&T Central Office is responsible for providing service to the Project area and is located north of the Project site in Lebec. Underground and overhead fiber optic (fiber) and twisted pair (copper) distribution facilities are located within the Project site (refer to Exhibit 4-17).

A Litespan 2000 unit is located on Gorman Post Road, approximately 14,000 feet northwest of the Project site's west boundary. The Litespan 2000, a digital loop carrier, is a telecommunications system that carries telephone signals from a central office to subscribers in the local loop using digital signals as the transport mechanism. This structure's usage is based on the high-capacity circuit needs of the National Cement Plant and was installed in anticipation of future growth in the area. AT&T has aboveground telephone lines and underground facilities adjacent to I-5.

To extend telephone service to the Project site, telephone fiber or cabling would be provided in the proposed backbone systems. The preliminary extension of telephone lines would occur along Gorman Post Road in the current franchise area entering the Project site at its most westerly entrance. This new extension would involve retrofitting and replacing the current overhead system that extends from the Frazier Park area to Gorman, and then to the Project site, using the existing poles. The Project would be developed as a "full fiber" project, with the extension of fiber lines (as opposed to cable lines) to all homes on the site.

This would include placing fiber from AT&T existing facilities either overhead on the existing pole line along SR-138 or a temporary overhead/underground line within the Project limits line along the north side of Quail Lake, along with electrical facilities, to service the initial phases of development. Several telephone fiber pedestals would be placed throughout the Project allowing for a complete fiber system to be constructed, allowing for fiber to the home, including high speed service capabilities. Placement and location of these future facilities will be determined during development. However, they are typically placed out of roadway right-of-way on private property within an easement. AT&T would plan for a substructure system that would allow for this service. To support the development of the Project as "full fiber", additional fiber from existing AT&T facilities would either be placed overhead on the existing pole line along SR-138 or on a temporary overhead/underground location within the Project limits line along the north side of Quail Lake, along with electrical facilities, to service the initial phases of development. Several telephone fiber pedestals would be placed throughout the Project allowing for a complete fiber system to be constructed allowing fiber to the home, including high speed service capabilities. These new fiber facilities would be in addition to existing copper/fiber facilities currently in place (BJ Palmer 2015).

The determination of whether these additional facilities are needed and the locations of the telephone fiber pedestals or other AT&T facilities would be determined in the future as part of Project planning and implementation. In addition, AT&T has stated that upgrading the Central Office in Lebec would be necessary and would involve internal upgrades to distribution facilities, which would expand the Central Office's service capacity and meet the overall Project demand (BJ Palmer 2015).

The required off-site telephone system Project features are described in Section 4.8.3. Retrofitting the existing facilities outside the Project site would include re-cabling the existing pole line and/or placing a new underground substructure system to support the facilities capable of servicing the Project. This line extension would be conducted within the existing roadway and is currently the responsibility of the utility; however, the physical environmental impact associated with off-site telephone facility upgrades are addressed as part of the Project in this EIR.



The Project would also accommodate wireless communication facilities, including antennas (mounted on buildings or stand-alone structures) and equipment shelters. These facilities would be designed to blend with the surrounding environment. Using “stealth design” techniques, antennas can be mounted on buildings; placed within tall architectural features such as a clock tower, steeple, or entry signage; or strategically placed among a cluster of trees of similar height to render them invisible to the casual observer. Standards for wireless equipment are outlined in Section 2.2.7(Q) of the *Centennial Specific Plan*.

## **Cable and Internet**

There are no existing cable television (CATV) facilities located within or immediately adjacent to the Project area. CATV service is a free-enterprise system and is open to competition. Local service providers in the vicinity of the Project site include CalNeva Broadband (formerly Rapid Cable) and Time Warner Cable. CalNeva Broadband is a national CATV provider that serves customers in California and throughout the country. CalNeva Broadband currently provides service to the City of Gorman and has indicated a willingness to expand services to the Project site (BJ Palmer 2015). Time Warner Cable’s closest facility is in Castaic, and the company does not currently plan on extending service further to the north. At this time, the cable provider may be CalNeva Broadband or some other provider.

The closest existing CATV trunk and/or distribution facilities are CalNeva Broadband facilities and are located in Gorman, approximately four miles northwest of the Project site. CalNeva Broadband’s plant is located north of the Project site in Frazier Park, which is approximately eight miles west-northwest of the western boundary of the Project area.

As shown on Exhibit 4-17, cabling for cable services would be provided as part of the on-site main utility corridors for dry utilities. The extension of CATV lines would proceed from the nearest location of service from whichever provider is chosen. If CalNeva Broadband is chosen, extension of their facilities would include a trunk system (overhead and/or underground) from Gorman to the Project. Extension onto the site would follow the route along with electricity and telephone lines within the Project limits around the north side of Quail Lake. Facilities could also be extended along the SR-138 roadway overhead on the existing pole line easterly to the initial construction phases of the Project. As part of Project development, CATV service connections would be stubbed to each property line. The CATV provider would extend fiber facilities providing phone, video, data, and high speed internet access.

The required off-site cable system Project features are described in Section 4.7.3. Section 4.5.16, Technology Plan, describes how the Project would provide community-wide networking and other broadband options to provide internet access to Centennial residents and businesses.

### **4.5.11 GREEN DEVELOPMENT PROGRAM**

The Centennial Green Development Program encompasses a range of sustainable development practices that have been incorporated into the Project at all phases of site development, from land use planning to long-term resource conservation. The purpose of

the Green Development Program is to integrate sustainable practices into the development of the Project from the beginning, taking advantage of the new community from its inception. The selection of development practices in the Green Development Program has been tailored to reflect the environmental conditions at the Project site and the range of proposed land uses.

Centennial's Green Development Program encourages environmentally sustainable development in two ways:

- First, in addition to satisfying all mandatory measures of the CALGreen Code, all residential and non-residential development within the Specific Plan shall be required to satisfy the measures necessary to achieve CALGreen Tier 1 then currently applicable.
- Second, this Green Development Program includes additional measures for Centennial that exceed applicable state, regional and local requirements, including but not limited to exceeding 2016 CALGreen Tier 1.

With this approach, development of the Project will meet and exceed the mandatory standards of the CAL Green Code, CAL Green Tier 1, and the requirements of the County's "Green Building Ordinances" existing on the date of adoption of the *Centennial Specific Plan*. Therefore, as stated in Section 4.2 of the *Centennial Specific Plan*, Appendix 1-B shall apply instead of the County's Green Building Ordinances.

If the County adopts new or additional County-wide regulations applicable to environmentally sustainable development after the adoption of the *Centennial Specific Plan*, then such new or additional regulations shall apply, subject to the right of an applicant to demonstrate the functional equivalency of the Centennial Green Development Program's required measures or suggested BMPs pursuant to the procedures set forth in Section 4.2 of the *Centennial Specific Plan*. In addition, as industry continues to innovate in "green building" and "sustainable communities" means and methods, the Project Applicant/Developer will have the opportunity to present new or improved technologies that achieve functionally equivalent outcomes of the program's required measures or additional measures, or otherwise help attain the applicable Green Development Program standard for review and approval by the Director of the appropriate County department(s). In some cases, the program anticipates the flexibility desired for new innovations, as requirements are described in general terms to allow for the incorporation of new technologies as they are developed. Minor changes to the Green Development Program that reflect improvements in the program or incorporation of new standards or technologies will not require a Specific Plan amendment. Revised laws and regulations, such as more stringent energy and water conservation standards, are also anticipated to be adopted over the buildout period for the Specific Plan. The flexibility to address revised technologies and innovative practices, as well as evolving legal mandates, makes implementation measure flexibility integral to Centennial's Green Development Program.

Sustainable and resiliency features will be incorporated in the design from the earliest stages to provide benefits for builders, future occupants, and the community. Many sustainable design principles have no or minimal cost impacts if incorporated early. Any costs can

frequently be offset through reducing construction costs and providing long-term operations and maintenance savings. For example, passive solar design and energy efficient building construction can reduce heating, ventilation and air conditioning (HVAC) system size requirements and lower utility bills. Reduced energy consumption costs may also increase a homebuyer's ability to afford a better home loan, through programs such as the federally recognized energy efficient mortgage program. Energy efficient housing is more affordable to own and occupy when recurring energy consumption costs are lower.

The Green Development Program is organized into three major components: (1) Green Planning and Infrastructure Measures; (2) Green Building Measures (i.e. Energy Efficiency; Water Efficiency and Conservation; Material Conservation and Efficiency; and Environmental Quality; and (3) Innovation and Adaptation Measures.

These categories are not mutually exclusive. In fact, there is significant overlap among categories because sustainability practices often take into account multiple systems, the interrelationships among ecological co-benefits, and environmental, and economic factors. Some measures may appear redundant or repetitive. However, a comprehensive approach to creating a sustainable community recognizes, acknowledges, and celebrates the overlap and interconnectedness of green and sustainable community development practices and allows for context-sensitive solutions that achieve Green Development Program objectives. For example, drought-tolerant landscaping relates not just to water conservation but also has a role to play in natural drainage systems and green infrastructure.

### **Green Planning and Infrastructure Measures**

The Project has been designed with a mix of land uses and density to help minimize the need for internal combustion automobiles and maximize pedestrian, bicycle and low speed vehicle (LSV) access. This Green Development Program category includes planning level principles, such as the fact that most larger private sector employers are located along SR 138, and have an east-west elongation to facilitate the design of north-south oriented buildings that incorporate passive solar design. The Project's Greenways have been planned community-wide to serve the multiple purposes of off-street transportation, preservation of native habitat, and a water filtration and recharge system for stormwater runoff in conjunction with water features that may be used to capture water for aquifer recharge.

These sustainable community design features are designed to work in tandem with the objectives of smart growth, multi-purpose function, connectivity, and utilization of natural processes. The Project incorporates green infrastructure and related methods for watershed management to improve water quality, conserves water, and reduces runoff volumes as well as peak flows and durations. In addition to these direct benefits to the watershed, and reduced climate impacts, implementing such methods also benefits the quality and preservation of biological habitat, provides energy conservation by reducing the heat island effect of typical land development, and provides for visual amenities that enhance the Project's aesthetics.

---

## Green Building Measures

### ***Energy Efficiency***

This part of the Green Building Program requires all residential and nonresidential development to implement energy conservation measures that will exceed the 2016 California Building Energy Efficiency Standards (Title-24) by 15 percent for all residential projects and 10 percent for non-residential projects. Energy conservation techniques, including efforts to increase building efficiency, also result in the reduction of carbon dioxide emissions, a major contributor to global climate change. Through techniques such as maximizing solar orientation of streets and buildings, increasing the use of natural daylight, creating a tight, well-insulated building, installing appropriately sized and high-efficiency HVAC systems, and strategically placing trees and other shading devices, the Project can achieve a substantial reduction in total energy use. In addition, to decrease the Project's dependence on carbon-based fuel consumption, a minimum of 50 percent of the anticipated electrical energy demand at build out (i.e. household, business, civic/institutional, recreational, and public facilities) shall be met by onsite renewable energy, and charging stations will be provided throughout the Project area.

### ***Water Efficiency and Conservation***

This part of the Green Building Program includes measures to promote water conservation, and water reuse to net minimize consumption of water. The incorporation of native and/or drought tolerant non-invasive species, and the use of energy efficient appliances and water-wise landscaping irrigation systems that minimize water use are among the measures required to substantially reduce the amount of valuable water resources that are used by and that flow into and out of the community.

### ***Material Conservation and Efficiency***

This part of the Green Building Program includes measures to promote recycling and reduce the amount of solid waste produced within the Project. For example, The Project is required to divert 100 percent of soil during grading activities, and at least 70 percent of non-hazardous construction and demolition waste, away from landfills to recycling or salvage or current County standards. In addition, the Project has an operational waste diversion goal of 75 percent. The implementation of recycling programs (such as dedicated collection areas in commercial buildings and separate containers for residential units), and the management of green waste are but a few areas in which the Project can substantially reduce the amount of waste produced by the community and reduce the environmental impact of development pursuant to the *Specific Plan*.

### ***Environmental Quality***

This part of the Green Building Program includes measures to provide a safe and healthy living environment inside and outside of homes and buildings. Materials and actions that improve indoor air quality, respect circadian sensitive lighting design to enhance the health and comfort of homes, and maximize daylighting and natural ventilation are critical to good community health and well-being.

---

### ***Innovation, Adaptation and Resiliency***

Technological advances and emerging practices and services related to sustainable community development and green building are rapidly advancing; as is the legal framework for removing barriers to innovation (e.g., with clear standards for recycled water), creating incentives for green practices and facilities (e.g., with continued federal and state support for distributed energy generation models such as rooftop solar), and changing public and private sector practices influencing longstanding transportation and employment behaviors (e.g., with on-demand car services and telecommuting). Continued technology innovations such as autonomous vehicles and battery-assisted bicycles and scooters, as well as continued public sector support for green practices that reduce greenhouse gas emissions and conserve water, and new private sector service models including flexible work hours and locations, are expected to continue.

This Innovation and Adaptation component allows development pursuant to the *Centennial Specific Plan* to comply with applicable legal standards and to adapt to changing technologies and practices by substituting alternate measures for those identified in Table 1-B-1 that achieve equal or greater environmental benefits, and that do not result in any new significant adverse environmental impacts. Changes to legal standards, for example, are likely to include additional requirements to reduce greenhouse gas emissions. Technology are inherently difficult to predict and account for, it is possible for example that improved and more cost-effective electricity storage technology may make it more feasible for “net zero” electricity importation at residential and commercial structures. It is also foreseeable that predicted advances in autonomous vehicle technology make private ownership of cars less prevalent among homeowners and employees, which could reduce the need for parking at residential and commercial buildings while increasing the need for a centralized parking and autonomous vehicle servicing facilities. It is also possible that future drone or other delivery technology could reduce the need for “brick and mortar” retail goods establishments in village centers, while changes in work practices may increase the desirability of shared work spaces and service/food-based retail uses in village areas. The Innovation and Adaptation component is intended to address these and other potential changes in laws, technologies, and practices.

Innovation and Adaptation measures would be proposed by the Project Applicant/Developer for County approval in the same development review process steps included for the corresponding measures included in Table 1-B-1. Specifically, proposed Innovation and Adaptation changes relating to Green Planning and Infrastructure measures will be proposed as part of tentative and final mapping, site plan review, and infrastructure permitting. Proposed Innovation and Adaptation changes relating to Green Building measures will be proposed as part of building permit, conditional use permit, and occupancy permit approvals. Compliance with (and enforcement of) approved Innovation and Adaptation measures will be managed in the same monitoring and enforcement procedures applicable to Table 1-B-1 Measures.

### **Green Development Program Process**

Builder participation in the Green Development Program is mandatory. Required measures apply to all buildings except multi-family residential which have separate requirements as noted in the Centennial Green Development Program. To allow maximum flexibility in the application of sustainable design practices by individual developers, any residential

development in the Project that achieves certification by the National Association of Home Builders for compliance with the National Green Building Standard or certification by the U.S. Green Building Council for performance under the Leadership in Energy and Environmental Design (LEED) – Homes Rating System will be considered consistent with the intent of the Green Development Program for the building portion of the Project, so long as such certification otherwise exceeds the mandatory residential requirements of the CAL Green Code in effect on the date of application for a building permit and the measures required to achieve Cal Green Tier I as described in the 2016 version of the Cal Green Code. Any commercial development in the Project (as defined within a business park, light industrial, or commercial land use designation) that is awarded a LEED Silver Certification or better will be considered consistent with the Program, so long as such certification otherwise exceeds the mandatory nonresidential requirements of the CAL Green Code in effect on the date of application for a building permit and the measures required to achieve Cal Green Tier 1 as described in the 2016 version of the Cal Green Code. The comprehensiveness of these certification programs guarantees, for their respective types of development, the achievement of a high minimum standard equivalent to CAL Green Tier 1 and the unique measures otherwise required by Table 1-B-1 of the *Centennial Specific Plan*. (see Appendix 2-A of EIR Appendix 4.0-A).

A complete description of the Centennial Green Development Program, including a listing of all development practices and the specific components are provided in Appendix 1-B of the *Centennial Specific Plan* (Appendix 4.0-A of this EIR). Additionally, each analysis in Section 5.0 (i.e., 5.1–5.21) of this EIR includes Project Design Features (PDFs) based on the Green Development Program, if applicable, that list the required development practices germane to that environmental topic and a brief explanation of how these practices would reduce the Project’s impact compared to a more traditional development. However, unless specifically indicated the environmental impact analysis in each section of this EIR does not take quantitative credit for the potential mitigating effects of achieving the performance standards of the Green Development Program or implementing the required measures and suggested BMPs of the Green Development Program. For example, unless noted, Green Development Program measures that reduce greenhouse gas emissions are not given quantitative credit as emission reductions in the Climate Change analysis. Implementation of the Centennial Green Development Program is also discussed in Chapter 4 of the *Centennial Specific Plan*.

#### **4.5.12 PUBLIC SERVICES/FACILITIES**

The Project reserves sites for schools, parks, and recommends and permits locations for a library, sheriff, and fire stations to serve future residents and employees. Exhibit 4-1, Centennial Project –Conceptual Land Use Plan, shows the conceptual location of the proposed public facilities described below.

#### **Fire and Emergency Service**

Fire protection service is provided to the Project site by the Consolidated Fire Protection District of Los Angeles County, commonly known as the Los Angeles County Fire Department

(LACFD). The nearest station (Fire Station No. 77) is located at 46833 Peace Valley Road in Gorman, west of the I-5 and SR-138 interchange.

As shown on Exhibit 4-1, the Conceptual Land Use Plan includes conceptual site locations for up to four new fire stations in the Project area. The number of on-site fire stations and their general locations were determined through preliminary consultation with the LACFD and were based upon the projected increase in population to be served, types of development proposed, geographic distribution of proposed land uses, circulation system, and projected response times to calls from the Project site. According to the Insurance Service Office (ISO), using a Fire Suppression Rating Schedule (FSRS), a five-minute response time is typically the standard for adequate fire protection. The new fire stations would provide 5-minute response times to 90 percent of fire calls from the Project site. This is consistent with the LACFD's goal of a five-minute or less response time at Project buildout within the Centennial Project. Ultimately, the LACFD would approve the final station site locations. The Project permits or conditionally permits fire stations within most land use designations by providing adequate flexibility to meet County siting criteria. Precise locations for all fire stations would be established when future tract maps are processed.

The Project would construct up to three medium stations and one large station on the Project site. A medium station would consist of an approximate 10,000-square-foot (sf) building on an approximate 1.25-acre lot. A large station consists of an approximate 15,500-sf building on an approximately 4.00-acre lot. The large station lot is sized to also accommodate training facilities for fire fighters. It should be noted that fire station size requirements are continually modified to meet federal, State, and local requirements. The actual square footage of each fire station would be determined by the LACFD at the time of Project development.

Staffing requirements for all new fire stations mandate a minimum of a four-person engine company. The first fire station would be opened in conjunction with the occupancy of the 1,000<sup>th</sup> residential unit. The timing of development of this fire station will be coordinated between the Project Applicant/Developer and LACFD. The timing for the construction of the remaining fire stations will be established by the LACFD and the Applicant, depending upon the phasing of the remainder of the Project development.

As required under the LACFD Developer Fee Program, the Project Applicant/Developer is required (1) to pay fees as annually updated in the County Developer Fee Program for the purchase of land for fire station sites and construction of fire stations and (2) to provide for certain equipment. The Project Applicant/Developer is responsible for providing land for on-site fire stations and for constructing, furnishing, and equipping the stations to the LACFD specifications and requirements. The improvements would meet all applicable State and County fire codes and ordinances. Specific provisions of the agreement between the Project Applicant/Developer and LACFD would be determined in future negotiations. It should be noted that this EIR addresses the potential environmental impacts associated with construction and operation of the fire stations within the Project site.

The existing heliport located at the site for the existing Fire Station 77 will continue to be located at the site and remain operational. The existing heliport at Fire Station 77 would be

operational for refueling and patient pick up and could be used to scoop water from Quail Lake for brush fire protection. On site, a fire hydrant system would be constructed to fight fires within the development area. Refer to Section 5.16, Fire and Law Enforcement Services, for a discussion on fire and emergency services.

## **Law Enforcement Service**

The Santa Clarita Valley Station of the Los Angeles County Sheriff's Department (LASD) is responsible for providing general law enforcement to the Project site, while the California Highway Patrol (CHP) provides traffic control. The closest Sheriff's Station is located near the intersection of Magic Mountain Parkway and Valencia Boulevard, at 23740 Magic Mountain Parkway in Valencia, approximately 35 miles south of the Project site. Currently, emergency and priority response times to the Project area exceed the optimal response times.

The Project would provide for one on-site Sheriff's station. Prior to development of this permanent Sheriff's station, the LASD would operate a temporary station (e.g., store front station) in the first phase of Project development. This store front Sheriff station would be developed and fully operational prior to issuance of the first certificate of occupancy and be located in the first retail center the first phase of Project development. Once the permanent Sheriff's station is constructed, the store front station will be closed. The permanent Sheriff's Station would be constructed prior to occupation of any future phases that could not be adequately served by the temporary station, in accordance with the needs and timing of the LASD and Project Applicant/Developer.

The CHP may need to increase staffing levels, adjust boundaries, and purchase new equipment in order to address the increased demand for services created by the Project. However, implementation of the Project would not require new or physically altered CHP facilities to maintain acceptable service ratios, response times, or other performance objectives (Miler 2016). Refer to Section 5.16, Fire and Law Enforcement Services, for a discussion on law enforcement services and the CHP.

## **Schools**

The majority of the Project site is located within the jurisdiction of the Gorman Joint School District (Gorman District) and a portion of the Project site at the eastern end of the site is located in the Westside Union School District (WUSD). These districts provide public elementary and junior high/middle school education (grades Kindergarten through 8<sup>th</sup> [K-8]). The Project site is also located within the Antelope Valley Union High School District (AVUHSD), which provides high school education (grades 9-12).

To accommodate the demand for educational facilities created by future Centennial residents, the Project reserves sites through a "Schools" land use designation for five K-8 schools, one K-5 school and one high school. The proposed school sites are centrally located in the Villages and are generally adjacent to parks and minor and major greenway systems that offer pedestrian trail linkage. The School (S) Overlay on Exhibit 4-1, Centennial Project -Conceptual Land Use Plan, identifies the preliminary locations for the school sites reserved



in the Project site; however, final school site locations would be determined at when future tract maps are processed and in coordination with the respective school districts. Final locations would comply with the Project's intent of connecting schools to pedestrian trails and locating them close to parks.

The reservation of school sites through a land use designation would allow the Gorman District, the WUSD, and the AVUHSD to acquire the sites and provide school facilities. The Project Applicant/Developer would either pay required Senate Bill 50 (*California Government Code*, Section 65995) developer fees to the respective school districts, or enter into an agreement with the school districts to facilitate the financing, construction, and operation of new school facilities in the Project site to ensure the timely provision of schools corresponding to the Project's phased development. Although construction of the schools may be the responsibility of the respective school districts, this Draft EIR addresses environmental impacts associated with construction and operation of schools on site.

### ***K-8 School Sites***

Five K-8 school sites are anticipated to be constructed on the Project site. The K-8 school sites would each occupy approximately 15 acres. The first school will be built and operational prior to the first certificate of occupancy. Therefore, it is anticipated that the K-8 school (initially a K-12 facility, see below) would be opened by the Gorman District at occupancy of the first residential units. The planned approach is to initially construct a kindergarten through Grade 12 campus (K-12) in order to provide public school accommodations at all education levels at Project opening. As Project buildout occurs, this school would revert to a K-8 school when the high school is constructed. Eventually, other K-8 schools would be constructed as needed, including a smaller K-5 school that would be constructed west of the Aqueduct. The actual timing of school facilities implementation would depend on the rate of Project development and the actual demand for school facilities, as determined by the Gorman District and the WUSD.

The K-12 school option would be accommodated on a school site within the physical impact area identified for the Project and evaluated in this EIR. The off-site school option (attendance of Project residents at the existing off-site Gorman Elementary School until the first on-site elementary school is built) would be available to accommodate students up to the school's normal operating capacity.

### ***High School Site***

One high school site is proposed within the Project site. The high school site would have a minimum of 60-net useable acres per the agreement with AVUHSD. The high school site would accommodate between 2,850 and 3,350 students. As previously discussed, the proposed interim K-12 campus would ensure public school accommodations at all education levels during the initial phase of Project implementation.

The opening of the high school facility would depend on the rate of Project development and actual demand for high school facilities, as determined by the AVUHSD. In the interim, a grades K-8 and grades 9-12 joint-use campus is proposed to provide public school

accommodations at all education levels. Students from the Project also would have the option of attending Quartz Hill High School (by busing through AVSTA) or applying for an interdistrict transfer to attend the El Tejon Unified School District's Frazier Mountain High School, which is located approximately ten miles northwest of the site. Frazier Mountain High School had 286 students in 2015-2016 and has capacity for additional students (ETUSD 2016). The El Tejon Unified School District also allows interdistrict transfers subject to approval of the student's home district (ETUSD 2015). It should be noted that this interim option would be for a short time until the first grades 9 through 12 school is operational.

## **Library**

The Project includes a public library in the Town Center, which would be part of the County of Los Angeles Public Library (County Library) system. The Project Applicant/Developer would provide the land; construct the library; and would provide all furniture, fixtures, equipment, and materials for this library. The area where the library site is conceptually located in the Land Use Plan is of adequate size and in a location that addresses the County's library siting requirements, including related parking. Providing for a proposed library facility of this size and materials would exceed the projected demand based on the County Library's planning guidelines for the projected population of the Project.

While the location is conceptual and may change as determined in coordination with the County Library, the proposed inclusion of a library on the Project site is definitive. The Project proposes a public library that would be on an approximate 2.5-acre site at the Town Core. The Library would be completed and operational on a date mutually agreed to between the County Librarian and the Project Applicant/Developer, taking into account the demands on library services within and adjacent to the Project site. The library will be developed in accordance with current County library guidelines. The exact location, facility design, and phasing of the proposed permanent library would be determined by the County Library during subsequent levels of Project approval.

Flexibility is a key concern of the library staff to ensure that space within the library can be changed as the needs of the community change such as the need for more computer stations. Other components of priority for the County Library are the inclusion of meeting rooms, technology, and construction of an appropriately sized facility to serve the community.

Library services, such as access to online databases and reference materials, would also be provided via internet services to increase access and use of library resources. Schools, residences, and businesses would be "connected" through the community intranet system, as described in Centennial's Technology Plan (refer to Section 3.9 of the *Centennial Specific Plan*).

## **Maintenance Yards and Animal Control**

Project demand for the maintenance of future County-owned facilities and infrastructure would be met by the provision of land for two on-site maintenance yards and the payment of fees and taxes that fund these services. The maintenance yards will operate as a joint use service yard and will include both a road maintenance yard and a maintenance yard for

parks. The County may also construct, equip, and operate a permanent new animal control facility adjacent to the maintenance yards, if such a permanent facility is needed in the Project area.

The County will construct, equip, and operate a permanent animal control facility when, in the judgment of the County, such a permanent facility is required. The land will be provided through an irrevocable offer for dedication of the property from the Project Applicant/Developer or subdivider. This facility will consist of up to approximately 5,000 square feet of space including office space; dog kennels (up to a total of 54); a cat room (with up to 40 cages); a veterinary medical suite; storage space; and required parking. It may also include a facility to house farm animals and reptiles.

During the initial development of the Project, the County may provide modular units to temporarily house lost and abandoned animals on the land set aside for the County's future permanent facility. Alternately, should the permanent site not be available to accommodate the modular units, the Project Applicant/Developer may contract with Shelter on the Hill, a Humane Society, or another entity acceptable to the County, to provide temporary animal shelter facilities. The temporary animal shelter will be located in Shelter on the Hill's facilities in Lebec or in other facilities located near the Project site. The operator of the off-site Animal Control Facility would be required under the agreement to provide the services stated below to Centennial for five years after the issuance of a certificate of occupancy for the 2,000<sup>th</sup> residential unit.

This facility will provide the following services: (1) temporary shelter to lost, injured, and abandoned dogs and cats identified by the County Animal Control during patrols of Centennial; (2) temporary shelter for dogs and cats relinquished by their owners; (3) information and referrals to the public regarding local veterinarians that perform spaying and neutering of pets; (4) the same level of basic medical care and treatment of dogs and cats that are impounded from Centennial that is offered to other animals that are being boarded at the this off-site facility; and (5) the ability to temporarily quarantine up to two dogs through a segregated, single-occupancy kennel run. If an animal is not redeemed by its owner from the temporary facilities after ten days or more, the animal may be moved to (and shall be accepted by) the Los Angeles County Castaic Animal Control facility for potential adoption. The County Department of Animal Care and Control shall respond to patrol calls requested by Centennial residents with respect to lost, injured, abandoned, or dangerous animals until the permanent facility is established.

#### **4.5.13 LANDSCAPE, FUEL MODIFICATION, AND LIGHTING**

##### **Landscape Plan**

The Landscape Plan is a major component in Centennial's infrastructural concept. The Project area has been grazed for more than a century, and the predominant vegetation type on the Project site consists of grasslands. The Landscape Plan seeks to establish regionally appropriate "urban forests" within Centennial. The primary landscape objective is to preserve the Project site's natural beauty and resources; to maintain the historical agrarian character of the region; and to create the look and feel of a rural small town that meets the

everyday needs of the community. The Landscape Plan is structured to reflect the uniqueness of the Project site's varied topography and habitats while providing a uniform treatment of landscape components. Differing elements of the plant palette would be used for variety depending on the landscape purpose. The predominant landscape theme along the streetscapes would feature natural and rural settings that could include a blend of trees to provide themes that resemble groves and orchards; vineyards; wildflowers; and grasslands.

A thematic treatment is to be used at main entryways to identify neighborhoods and other significant land uses or major intersections. The Landscape Plan is divided into the following two components: open space and developed areas. Additionally, as part of the integrated water resources management approach for protecting water quality, a Landscape Management Plan is identified as a project design feature and will be implemented for common area landscaping on the Project site that includes a planting plan; procedures for removing non-native vegetation and planting native vegetation; fertilizer guidelines; and Integrated Pest Management (IPM). IPM is a strategy that focuses on long-term prevention or suppression of pest problems (i.e., insects and diseases) through a combination of techniques including using pest-resistant plants; biological controls; cultural practices; habitat modification; and the judicious use of pesticides according to treatment thresholds, when monitoring indicates pesticides are needed because pest populations exceed established thresholds. The Landscape Management Plan and a discussion of its general components are identified in Section 5.4, Water Quality.

### ***Open Space Zones***

Open space consists primarily of a native, undisturbed vegetation zone; a transition zone (for transition slopes); a greenway zone; and a natural drainage zone. Fuel modification requirements may apply to some portions of any of these zones.

***Native Zone.*** This zone includes only native vegetation. The native zone may include areas selected for restoration with native vegetation and biological mitigation (as detailed in Section 5.7, Biological Resources). Select areas of the native zone may also continue to be managed using historical seasonal patterns of grazing, where allowed.

***Greenway Zone.*** The greenway landscaping zones typically contain existing drainage features or unique topographic features. Elsewhere in the greenway zone, there may also be transition zones, which shall be treated as described below. The overall goals of the landscaping concept in the greenway zone are resource conservation (preservation) and enhancement and establishing an appropriate natural setting for drainages to increase ecological values. Plants in the major greenway zone outside of the natural drainage zone should be chosen so that they will not interfere with those efforts. The major greenways may also be used for stormwater management. The stormwater management facilities should be designed and planted where possible to blend with the natural setting of the greenway zone.

Greenways are a multipurpose area that can be found throughout the Project site, providing conservation areas and stormwater management where necessary. They are a

combination of manufactured and conserved open space and can be landscaped in a variety of ways depending on use. For example, they may contain areas for stormwater overflow, educational nature displays, and seating areas along the trails. Trails are typically meandering and are intended to provide a shorter connection to village centers and recreational amenities providing an alternative to using a car. Although potentially varied, the landscaping in this zone shall be primarily native or utilize similar drought-tolerant plant material and shade trees with the goal of being self-sustaining in most locations. Drifts of native and or drought-tolerant wildflowers and perennial grass-dominated meadows should be used to enhance paths that will be used by bicyclists and pedestrians.

**Transition Zone.** The transition zone, an area between the native zone and developed areas, is graded and may contain a fuel modification zone. Landscaping in this zone must be dominated by native and/or drought-tolerant, trees, shrubs and ground cover, also taking into consideration fuel modification requirements, which include plants that are inherently fire resistant. The goal of the transition zone is to seamlessly blend the native landscape with the human-made environment. This process results in a landscape that is identified in various figures in the Landscape Plan as “naturalized.”

**Natural Drainage Zone.** The natural drainage zones are areas where major drainage features shall be preserved and/or restored within the developed area of the Project site. Only the natural drainage zones are subject to the requirements of the Landscape Plan. The extent of drainage preservation and/or restoration, as well as the plant material chosen for this zone, must be consistent with the mitigation measures set forth in Section 5.7, Biological Resources.

### **Developed Areas**

Developed areas consist of all man-made features in the Project, including the neighborhoods, parks, shopping, and commercial areas. Within this man-made environment are common unifying landscape zones such as the streetscape and internal slopes that are manufactured. The common goal of these zones is to (1) use regionally appropriate plant species and conserve resources by using native and drought-tolerant species; (2) plant minimally for maximum impact (e.g., shade); (3) group plants according to water requirements (hydrozones); and (4) use smart irrigation practices (such as low-volume spray heads and drip irrigation). Using native or drought-tolerant plant species would also minimize the need for soil amendments and the energy to integrate them. A Plant Palette and Prohibited Plant Species list are provided in Sections 3.4.3 and 3.3.4, respectively, of the *Centennial Specific Plan* and have been prepared in consultation with the County Biologist to determine which species should be selected according to the conditions within Centennial sites. The plant palette and design is tailored to the Project site’s unique environmental conditions and allows for both native and adopted species of pines, oaks, willows, cottonwoods, grasses, spring and fall colors, and a wide range of tree forms. Ultimately, the Landscape Plan would help to define the visual character of the community by balancing planting in selective landscapes while leaving open other natural landscapes in their original conditions.

## Fuel Modification Plan

The Los Angeles County Fire Department designates land in Los Angeles County according to wildfire susceptibility; the Project site is located within a Very High Fire Hazard Severity Zone (VHFHSZ), which means it is highly vulnerable to wildfires (Los Angeles County Code, Title 32 [Fire Code]). The default fuel modification setback standard within a VHFHSZ area is 200 feet from the closest structure; however, some flexibility is permitted where characteristics of land within a VHFHSZ do not warrant such large setback requirements. Since the Project site is predominantly characterized by annual grassland habitat and most of the proposed developed area on the Project site is characterized by low combustible vegetation, an alternative compliance of a 100-foot setback from a structure is likely more appropriate for the majority of the site. However, in some instances, an alternative compliance of a 150-foot setback from the structure may be appropriate, especially in cases where a number of trees are in the immediate vicinity of lots but are at a grade uphill from the lots. In addition, MM 3-9 (see Section 5.3, Hazards and Fire Safety) requires that new property owners be informed of their individual responsibilities for maintaining fuel modification zones on their property, either via the Covenants, Conditions, and Restrictions (CC&Rs) or disclosure statements. While this proposed Fuel Modification Plan has been reviewed by the Fire Department and represents a probable scenario, a final determination of the fuel modification setbacks for each lot will not be made until building permits are issued.

Within each setback requirement are three possible zones with associated landscape characteristics, namely Zone A, Zone B, and Zone C. The general characteristics of each zone are described later in this section. The recommended distance requirements for each zone are described below:

For areas with a 200-foot setback, the distance requirements would be as follows:

1. Zone A extends 20 feet from the edge of any combustible structure, accessory structure, appendage, or projection.
2. Zone B extends from the outermost edge of Zone A to 100 feet from the structure (or 80 feet from the outermost edge of Zone A).
3. Zone C extends from the outermost edge of Zone B to 200 feet from the structure (or 100 feet from the outermost edge of Zone B).

For areas with a 150-foot setback, the distance requirements would be as follows:

1. Zone A extends 20 feet from the edge of any combustible structure, accessory structure, appendage, or projection.
2. Zone B extends from the outermost edge of Zone A to 50 feet from the structure (or 30 feet from the outermost edge of Zone A).
3. Zone C extends from the outermost edge of Zone B to 150 feet from the structure (or 100 feet from the outermost edge of Zone B).

For areas with a 100-foot setback, the distance requirements would be as follows:

1. Zone A extends 20 feet from the edge of any combustible structure, accessory structure, appendage, or projection.
2. Zone B extends from the outermost edge of Zone A to 50 feet from the structure (or 30 feet from the outermost edge of Zone A).
3. Zone C extends from the outermost edge of Zone B to 100 feet from the structure (or 50 feet from the outermost edge of Zone B).

According to the *Fuel Modification Plan Guidelines*, the revised *California Public Resources Code* (Section 4291), and the *California Government Code* (Section 51182) defensible space guidelines, a Fuel Modification Program consists of 3 zones that are within an approximate 200-foot buffer and that are subject to partial or total replacement of the native or ornamental vegetation with drought-tolerant and fire-retardant plants. The actual width of each zone can vary from one site to another depending on the ability to provide acceptable clearance distances and concurrence from the County Fire Department and the County of Los Angeles Department of Regional Planning.

- **Zone A** is a minimum 20-foot setback zone; it is in closest proximity to the habitable structures and is irrigated. Most vegetation in this zone is limited to groundcover, green lawns, and selected ornamental plants. This zone requires regular vegetation trimming, a well-maintained irrigation system, and the removal and replacement of dead and dying plants.
- **Zone B** is the irrigation zone that provides defensible space for fire suppression forces. This setback zone may extend up to 100 feet from the habitable structure. Some native or existing vegetation may remain if spaced according to the *Fuel Modification Plan Guidelines* and are free of dead wood. The maintenance requirements are the same as for Zone A.
- **Zone C** is the thinning zone and is designed to slow the rate of wildfire spread, reduce flame lengths, and minimize the intensity of the fires prior to reaching irrigated areas. This zone allows for predominantly existing vegetation with the removal of undesirable plant species. Natural vegetation is thinned by reduced amounts as the zone moves away from the development.

Fuel modification is generally not recommended by the County Fire Department for areas outside a project boundary due to problems inherent with enforcing regulations on adjacent property and the potential for confusion regarding the responsibility for fuel-modification areas outside legal ownership. Consequently, the County Fire Department recommends the implementation of alternative modes of wildfire hazard protection, such as alternative means and methods that can be implemented on site to attain a comparable level of wildfire protection. According to the *Fuel Modification Plan Guidelines*, these alternatives may include, but are not limited to (1) increasing the width of the setback or irrigated zones to reduce thinning zone dimensions; (2) enhancing fire protection construction techniques (including indoor fire sprinkler systems); (3) adjusting structure orientation; and/or (4) constructing non-combustible fencing material (LACFD, Prevention Bureau, Forestry Division, Brush Clearance Section 1998). Therefore, in areas where a 200-foot buffer cannot

be accommodated on site, a comparable level of wildfire protection must be provided through a combination of these means and methods; however, all fuel modification will be outside the SEA boundary.

## **Lighting Concept**

Plans for street lighting, trail lighting, and accent lighting would be created at the final street and/or landscape plan level for each phase of the Project. Lighting would be designed to enhance the safety of vehicular, bicycle, and pedestrian flows and be concentrated at intersections and crosswalks. Light sources would be directed downward and shielded from streets and adjoining properties. Lighting for streets, public facilities (such as ball fields), and commercial areas would be used appropriately to minimize visual nuisances and maximize safety. General development standards for Project lighting are identified in Section 2.2.8(P) of the *Centennial Specific Plan*. The Project would be consistent with the County's Rural Outdoor Lighting District Ordinance.

In addition, the Project's Green Development Program (Appendix 1-B of EIR Appendix 4.0-A) includes a section with required measures that establish environmentally sensitive lighting standards for all proposed lighting (e.g., street and security lighting) within the Project (see Table 1-B-1 of the *Centennial Specific Plan's* Appendix 1-B). These measures would be enforced through the HOAs and would include requirements for shielding exterior lighting and limiting the hours, height, direction, and lumens of outdoor lighting.

The lighting concept would be designed to limit light trespass while providing effective nighttime visibility. By minimizing light spillover, the environmentally sensitive lighting standards would preserve nighttime skies and community aesthetics, reduce indirect impacts to surrounding residential uses and wildlife, and conserve natural resources. The lighting concept would be designed to maintain a dark night sky while providing effective nighttime visibility.

### **4.5.14 SOLID WASTE MANAGEMENT PLAN**

The Project's Solid Waste Management Plan has been developed in accordance with the Los Angeles County Source Reduction and Recycling Element (SRRE) and California Department of Resources Recycling and Recovery (CalRecycle) (formerly the California Integrated Waste Management Board) policies regarding reducing, reusing, and recycling solid waste, as outlined in the California Integrated Waste Management Act of 1989 (Assembly Bill [AB] 939), AB 341, AB 1826, and SB 1383. With implementation of the Solid Waste Management Plan, 75 percent of solid waste generated from Project operation would be diverted from landfills. The analysis of the Project's solid waste impact can be found in Section 5.17, Other Public Services, of this EIR. The Solid Waste Management Plan has many interrelated components, which are described further below.

## **Community Education**

A comprehensive waste diversion and educational program for residents would be created and implemented. The first purchaser of each residential unit and Centennial's residential



renters shall be given educational or instructional materials that will describe what constitutes recyclable and hazardous materials, how to separate recyclable and hazardous materials, how to avoid the use of hazardous materials and what procedures exist to collect such materials. Educational materials shall be passed to consecutive buyers through the HOAs and rental agreements and will be available on the community intranet.

## **Waste Collection and Recycling**

A comprehensive residential and commercial curbside recycling program would be implemented that includes automated trucks; the “three-bin system” (or other appropriate waste-reduction system), which provides separate receptacles for yard waste such as leaves and tree trimmings (and possibly food waste, per property’s hauler); recyclables; and permitted, nonrecyclable and noncompostable solid waste; a pick-up program for fall leaves, used motor oil, paint products, Christmas trees, electronics and appliance waste, and other household hazardous waste; and regular pick up of cardboard from commercial areas.

Semi-annual “exchange days” are planned to be organized, publicized, and paid for by the HOA. Under this scenario, large dumpsters (including those for green waste only) would be brought into the neighborhoods for a weekend where the community members will be able to exchange with their neighbors items they no longer want. Homeowners would then be motivated to do spring cleaning and major yard trimming while neighborhood volunteers monitor the dumpsters to make sure they are used efficiently and that only authorized waste is discarded in them.

Construction waste would be managed with the use of recycling bins for glass, metals, paper, wood, plastic, green waste, and cardboard. The collected materials would then be sent to existing recycling and/or processing facilities.

## **Materials Recovery Facility/ Transfer Station (MRF/TS)**

The Project Applicant/Developer will set aside a minimum of 5 acres for a future Materials Recovery Facility/Transfer Station (MRF/TS) that includes a household hazardous waste permanent collection and reuse center and allows for mulching/composting operations. The site will be located in a suitable location with the capacity to manage the nonhazardous solid waste and household hazardous waste generated by the Centennial Project at buildout. The Project Applicant/Developer will prepare and grade the site, and install basic mainline infrastructure fronting the property prior to the issuance of any occupancy permits associated with the first phase of Project implementation. Specifically, the Project allows an MRF/TS, hazardous waste collection center, solid waste conversion technology facilities, and transformation facilities in the Utility land use designation.

The Developer will continually encourage a waste management company to build these facilities on this build ready site. The CC&R for the future MRF/TS site will require the land to be set aside for the MRF/TS in perpetuity. The MRF/TS would allow for all recyclable material to be sorted and compacted for shipment to an off-site recycling processing facility. This process would transfer an early step of the solid waste management process (sorting) from the public to materials recovery professionals. It is expected that, if the MRF/TS is constructed, it would occur after the first phase of Project implementation. Prior to this

facility's construction and operation, if built, waste would be disposed of at a municipal solid waste landfill, as described in Section 5.17, Other Public Services.

## **Composting and Green Waste Facilities**

At a minimum, green waste would be separated by Project occupants in separate green waste bins through the three-bin or other waste-reduction system discussed above. Collection and/or a mulching and composting facility would be incorporated into an MRF/TS with the goal of a 100 percent diversion of green waste from landfills. The landscape plan and turf limits are, in part, designed to reduce the amount of green waste generated by the Project and to reduce the demand for irrigation. Green waste is a resource that can be shredded, chipped, and composted to be used as ground cover in the community at low or no cost to residents. To encourage at-home composting, the County offers free workshops, which can be conducted at the Smart Gardening Learning Center to be built as part of this Project, to teach residents techniques and benefits of composting and offers discounted compost bins. Green waste can also be composted with sludge produced by the wastewater treatment plant and sold as fertilizer. In addition to encourage at-home composting, composting facilities provide environmental benefits at a regional level. Also, there are components of the Green Development Program that relate to green waste management, above and beyond the Solid Waste Management Plan.

## **County Smart Gardening Learning Center**

The Los Angeles County Department of Public Works operates 10 Learning Centers equipped with educational and demonstration materials designed for Smart Gardening workshops. Each center has various backyard and worm composting bins and drought-tolerant plants. Some include grasscycling demonstrations to show how easy and beneficial grasscycling can be.

The Project includes a County Smart Gardening Learning Center within the Project area, which would be part of the County of Los Angeles Smart Gardening system. The Project Applicant/Developer would provide the land; construct the learning center; and would provide the furniture, fixtures, equipment, and materials for this learning center according to the Development Agreements between the County and the Developer. The area where the leaning center site must address the County's Smart Gardening Learning Center siting requirements, including related parking.

The Project proposes a Smart Gardening Learning Center that would be on an approximate 4,000 sf site. The learning center would be completed and operational on a date mutually agreed to between the County Smart Gardening Program Manager and the Project Applicant/Developer. The learning center will be developed in accordance with current County Smart Gardening Learning Center guidelines. The exact location, facility design, and phasing of the proposed center would be determined by the County Smart Gardening Program during subsequent levels of Project approval.

## Household Hazardous Waste Collection

Household hazardous waste and less commonly disposed materials (such as electronics and appliances) would have special pickups or disposal locations and may also be accepted by an MRF/TS year-round. Prior to the facility's construction and operation, or if an MRF/TS is not constructed, waste would be sent to a facility that accepts household hazardous waste, as discussed in Section 5.17, Other Public Services.

### 4.5.15 COMMUNICATION BASED TECHNOLOGY PLAN

Technological advances such as Wi-Fi connectivity, Bluetooth, fiber optic lines, and satellite systems to name a few have been integrated into everyday life via smart phones, tablets, computers and the like. Being "connected" has become a necessity for businesses and residents. The technology vision for Centennial is to connect the community, businesses, and homes with advanced but economically feasible infrastructure and services that are seamless, transparent, and easy to use. The Project would be constructed so that it can accommodate changes to the technology industry in years to come. The Technology Plan includes the following four core components that will be refined and expanded as needed to reflect the inevitable shifts in technology and the changing needs of customers:

- **Connected Homes:** Home builders in Centennial are encouraged to provide enhancements such as smart home features that allow residents to connect to appliances, HVAC, door locks, security systems, thermostats, internet, lights, sprinkler systems, etc. Residential development must also comply with the Green Development Program, Appendix 1-B, which includes many technology features that also offer more sustainable alternatives. The Master Developer must assure there is adequate infrastructure to ensure every home can be a "smart" home.
- **Connected Businesses:** Commercial builders must provide enhanced automated systems that comply with the Green Development Program, Appendix 1-B, which includes many technology features that also offer more sustainable alternatives. Connected and smart, office and manufacturing space is demanded by the market. The Master Developer must assure that there is adequate infrastructure to ensure that every business can be located in a "smart" building.
- **Connected Transportation Options:** The Master Developer is required to provide connected infrastructure such as synced traffic signals, automated parking meters, and technology driven transportation options as discussed in Section 3.3 Mobility Plan.
- **Connected Institutional and Civic Centers:** Developers of uses such as a medical center, higher education facilities, libraries, schools, etc. are encouraged to provide automated building systems and connectivity for integration of smart technology and community building.

## 4.5.16 AFFORDABLE HOUSING PROGRAM

The Project Applicant/Developer has designed an Affordable Housing Program that provides Very Low-, Low-, and Moderate-Income affordable housing opportunities in several housing categories, including for-sale units and/or rental units. It is anticipated that most affordable units would be single-family attached, multi-family, and mixed-use units; this would allow for higher density residential uses that can provide affordable sales and rental rates to lower income households. The housing types provided would appeal to different types of citizens including renters, first-time homeowners, and senior citizens.

The proposed Centennial Affordable Housing Program is consistent with the goals of the current 2014–2021 Housing Element of the *County of Los Angeles General Plan*. The Housing Element was adopted on February 4, 2014, by the County of Los Angeles Board of Supervisors. This Element was certified by the State Department of Housing and Community Development (HCD) on April 30, 2014.

It is anticipated that Centennial's Affordable Housing Implementation Plan (Appendix 3-C of EIR Appendix 4.0-A) will be included as part of the proposed Development Agreement under consideration between the County and the Project Applicant/Developer. The Plan details the provision of very low-, low-, and moderate-income affordable housing opportunities. The Affordable Housing Implementation Plan is based on the implementation criteria found in the Affordable Housing Program and provides an overview of the affordable housing options proposed as part of the Project. Consistent with the goals of the *County of Los Angeles General Plan's* Housing Element, it is anticipated that affordable units would include a mix of affordable housing products.

The Project will include a minimum of 10 percent of the dwelling units (approximately 1,933 dwelling units throughout the Project site if fully implemented) as affordable units, per the Centennial Affordable Housing Implementation Plan. While the number of affordable homes per community will be adjusted through the approval process for the tentative tract maps, the total number of affordable homes proposed within Centennial will not be less than 10 percent of the total development.

The Centennial Affordable Housing Implementation Plan utilizes the same affordability criteria as does the County of Los Angeles with respect to the economic definitions of moderate, low, and very low incomes.

According to the Centennial Affordable Housing Implementation Plan, at buildout, affordable housing opportunities would be distributed throughout the Project site as follows:

- **Very Low-Income Units.** 387 dwelling units (20 percent of the affordable housing units) would be for very low-income (50 percent of the Los Angeles County median income) households.
- **Low-Income Units.** 483 dwelling units would be for low income (25 percent of the affordable housing units) households with incomes greater than 50 percent but less than 80 percent of the Los Angeles County median income.

- **Moderate-Income Units.** 1,063 dwelling units (55 percent of the affordable housing units) would be for households within incomes equal to or less than 120 percent of the Los Angeles County median income.

All very low income (less than 50 percent) and low income (50 to 80 percent) affordable units would likely be developed as rental units. Moderate income units would likely be a mix of rental and for sale units. The proportion of very low, low income, and moderate income units in each development phase will be provided in approximately the same proportion as their respective ratio to the total to ensure the distribution of affordable units throughout the Project, with the exception of Villages 1, 4, and 9.

Home buyers of affordable units would be eligible to receive a percentage of any appreciation with respect to the value of their property over time, depending upon the homebuyer's length of ownership; all affordable rental homes will maintain affordable monthly rents for a minimum of 30 years.

Per the Centennial Affordable Housing Implementation Plan, annual Affordable Housing Reports will be submitted to Los Angeles County Department of Regional Planning until such time as it is demonstrated that the goals identified in the Plan have been achieved.

#### **4.5.17 GRADING AND CONSTRUCTION**

Grading for the Project would occur in phases over an approximate 20 year timeframe, with all earthwork ultimately balanced on site. Grading for one phase with an approved tentative tract map may extend into adjacent phases that may or may not be covered by an approved tentative tract map and require the import or export of soils among phases, but earthwork within the Project boundary would achieve an overall earthwork balance. Project implementation requires a total approximately 100 million cubic yards (cy) of cut and fill. Overexcavation and remedial grading for contaminated soils is not anticipated. However, the conceptual grading plan is gross, and estimated cut and fill quantities are conceptual.

Earthwork for development on each side of the Aqueduct as well as on each side of the SR-138, would be balanced within each area. Consequently, given the large scale of the Project, grading of a particular tract map may be undertaken in phases. The limit of a grading phase may extend beyond the limits of a particular final unit map or tract map boundary in order to achieve a phased grading balance. An interim Hydrology Report will be prepared for each phased grading area, and required drainage devices will be provided to support the phased grading.

For analysis purposes, it is estimated that on-site cut and fill is expected to occur at an average daily rate of 40,000 cy, with a daily maximum on-site cut and fill of 100,000 cy during grading activities, which would be ongoing during Project buildout. As construction progresses, it is likely that various construction stages would occur at the same time (grading, vertical construction, and off-site infrastructure installation). Assumptions regarding use of construction equipment during the construction phases are outlined in Section 5.11, Air Resources.

The preliminary slope analysis of the Project site is provided on Exhibit 4-19a, Centennial Project – Slope Analysis, with the majority of the Project site with a less than 25 percent slope. As shown on Exhibit 4-19a, the majority of the areas with the greatest slopes are located south of SR-138 or along the western portion of the site, within areas proposed as Open Space. The proposed Master Grading Plan and rough elevations for the entire Project site are provided on Exhibit 4-19b, Centennial Project – Conceptual Grading Plan. Approximately 56 percent of the Project site would be graded. The Grading Plan takes into consideration the natural terrain of the area; avoids the steepest slopes; and preserves the most significant natural features., as discussed in further detail in the Specific Plan Section 3.3, Conceptual Grading Plan, and Appendix 1-B, Hillside Design Guidelines.

Grading techniques for the manufactured slopes within the Project site are identified in Section 3.2.1, Grading Goals and Guidelines, of the *Centennial Specific Plan*. Generally, permanent manufactured slope banks would be constructed at a gradient not greater than 2:1 (horizontal to vertical); cut slopes would not exceed 2:1. Exceptions may be made in the case of rock or natural outcroppings, or as otherwise approved by the Los Angeles County Department of Public Works. To the extent feasible, exposed manufactured slopes would be subject to contour grading to approximate natural slopes. Existing landforms may be recontoured, as necessary, to provide a smooth and gradual transition to graded slopes while preserving the basic character of the site. Graded slope faces would be revegetated to blend with the surrounding terrain where appropriate. Other erosion-control measures would be implemented as part of the required measures to be approved with grading plans submitted to the County of Los Angeles Department of Public Works.

Blasting may be required in areas where grading cuts extend into bedrock material that cannot be ripped with a single shank ripper.

## 4.6 PHASING AND IMPLEMENTATION

### 4.6.1 LAND USE PHASING

The Centennial Phasing Plan provides an organizational framework to facilitate development while assuring provision of infrastructure and the public facilities necessary to support Project development. A conceptual phasing plan is provided in Exhibit 4-20, Centennial Project – Conceptual Phasing Plan. As shown, the Project is proposed to be developed in ten phases. Buildout of the Project would generally follow this sequence of phasing; however, some permanent and temporary infrastructure would be needed in locations that do not follow this phasing plan precisely. The basic phasing mechanism is the tentative tract map.

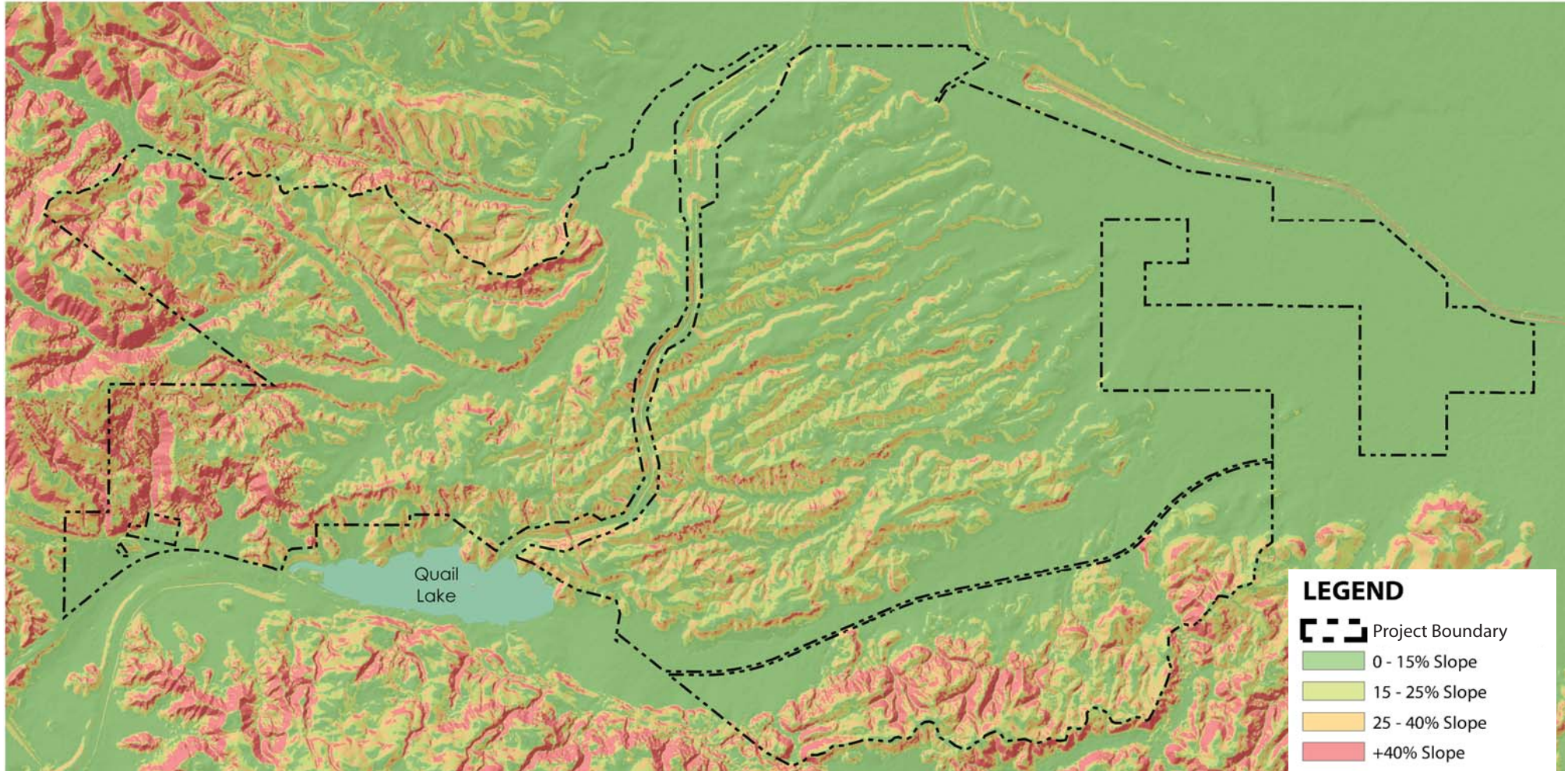
The phasing program is for informational purposes only and may be revised by the Project Applicant/Developer without a Specific Plan Amendment, subject to County approval during the tentative tract map process and *Centennial Specific Plan* requirements. Any changes in the Project must comply with CEQA requirements and the Development Agreement. The actual timing of development would be based on (1) the state of the economy; (2) market demand for uses on the site; and (3) the timing of regional and off-site infrastructure





# SLOPE MAP

CENTENNIAL | TEJON RANCH



**LEGEND**

- Project Boundary
- 0 - 15% Slope
- 15 - 25% Slope
- 25 - 40% Slope
- +40% Slope

Source: Placeworks 2015

## Centennial Project – Slope Analysis

Exhibit 4-19a

Centennial Project

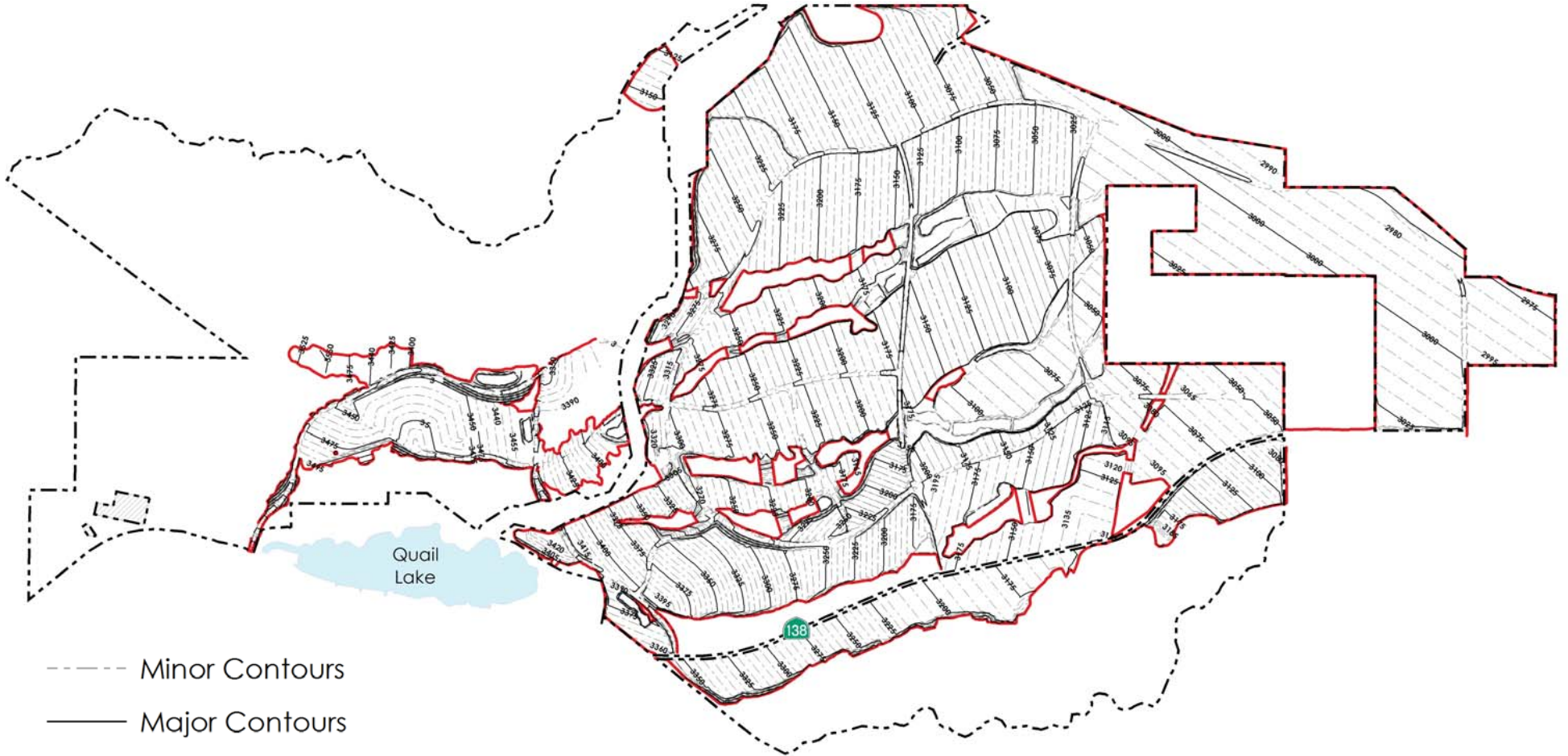


Map Not to Scale

D:\Projects\3CEN\Centennial\GRAPHICS\EIR\Ex\_Slope\_20160606.ai



# CONCEPTUAL GRADING PLAN CENTENNIAL | TEJON RANCH



- Minor Contours
- Major Contours
- Daylight
- Project Boundary
- ▨ Not a Part

Source: Placeworks 2015

## Centennial Project – Conceptual Grading Plan

## Exhibit 4-19b

Centennial Project

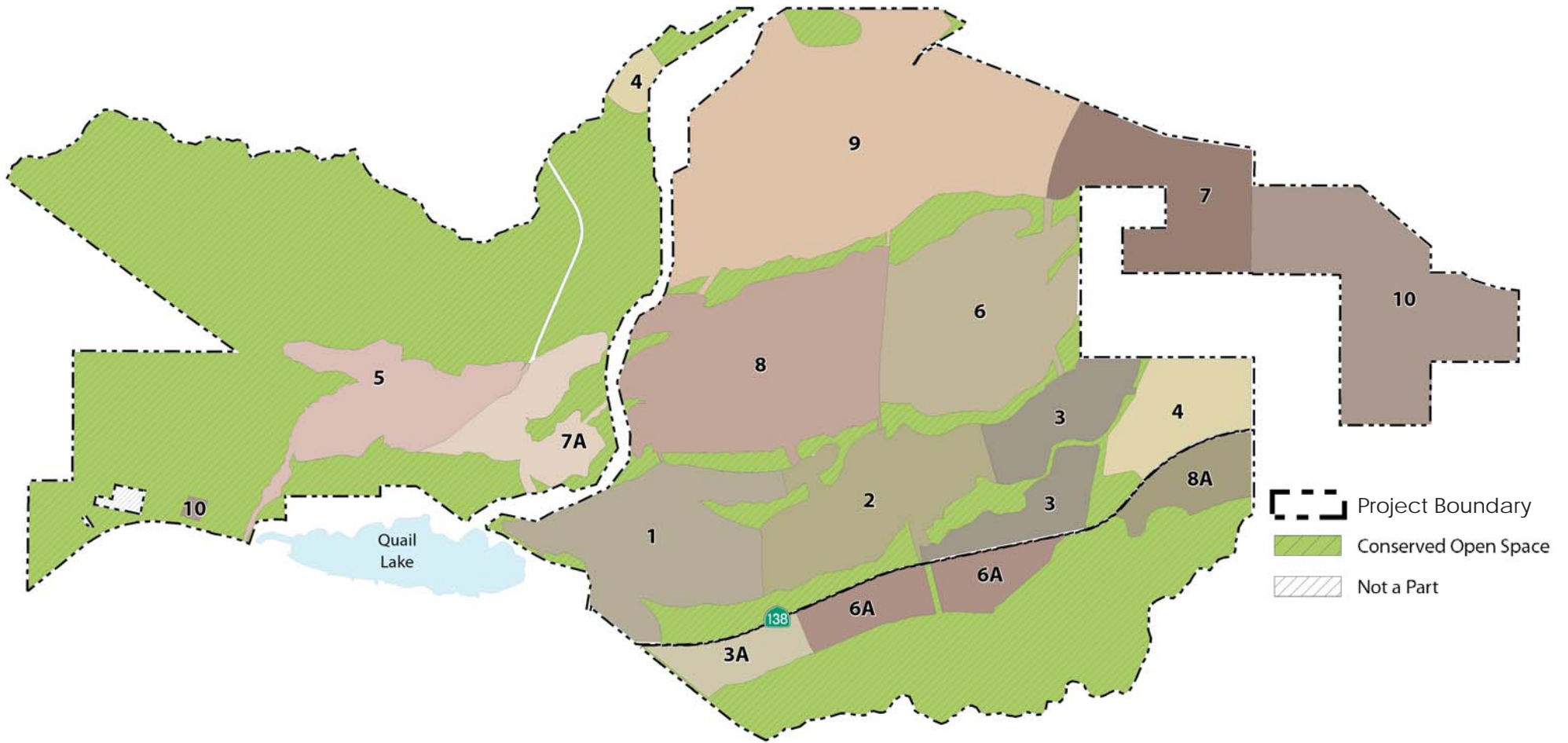


Map Not to Scale





# PROJECT PHASING CENTENNIAL | TEJON RANCH



- Project Boundary
- Conserved Open Space
- Not a Part

Source: Placeworks 2016

## Centennial Project – Conceptual Phasing Plan

## Exhibit 4-20

Centennial Project



Map Not to Scale

D:\Projects\3CEN\Centennial\GRAPHICS\EIR\Ex\_4\_Phasing\_20160606.ai

conditions and needs. Development of the Project site can be expected to extend over a 20-year time frame.

#### **4.6.2 FISCAL IMPLEMENTATION**

Several different methods are available to fund the construction and ongoing maintenance of infrastructure needed to serve the Project. The most likely method of financing would be through the establishment of a Community Facilities District under the provisions of the Mello-Roos Communities Facilities Act of 1982. Such a district is formed to finance designated public services and capital facilities by levying special taxes in a project area. In this case, the special tax lien recorded on each individual property on the Project site could be used to fund capital costs. Other sources of Project-generated revenue include but are not limited to property taxes, sales tax, gasoline taxes, other district assessments, and business license fees.

#### **4.6.3 FIRST PHASE OF DEVELOPMENT**

The first phase of development on the Project site will require development and implementation of future Tentative Tract Maps (TTMs). As the implementing mechanisms for Project uses, the TTMs demonstrate a more precise and specific level of detail compared to what is described in the Conceptual Land Use Plan. While there may be discrepancies in actual unit counts and land use acres between the Project and the details set forth in future TTMs, the TTM land uses will stay within the limits established under the *Centennial Specific Plan*. The first phase of development will include permanent and temporary uses, major infrastructure, public services, and roadway/circulation improvements, as discussed below.

The first phase of development will ensure that all services and infrastructure components are of sufficient size and capacity to serve the early residents and occupants (e.g., schools, roadways, public park maintenance, and utilities). The timing of any interim facility and its relationship to permanent facilities are described below.

Facilities included in the first phase of development will be designed as permanent facilities, with the exception of the store front LASD station and the temporary placement of high school students within the first school, which will revert to K-8 when the High School is constructed. The initial facilities will be sufficient for early residents. However, these facilities may be relocated and consolidated in larger facilities as part of future development phases. If future development phases are delayed or do not occur, however, the initial facilities will continue to provide permanent services and infrastructure.

#### **Public Service Facilities**

The public service facilities described below are proposed within the first phase of Project development.

## ***Schools***

A K–8 school would be developed in within the first phase of Project development to open at the first occupancy of the Project; decisions regarding the final school location and configuration would ultimately be made by the Gorman Joint School District (Gorman District). With the consent of the Gorman District, the Antelope Valley Union High School District (AVUHSD) will also use the first school for high school students. The K–8 school is initially intended to serve grades kindergarten through 12, then revert to a K–8 school once the high school has been constructed on the Project site and is operational. The four other K–8 schools and one K–5 school are to be constructed subject to the terms of the mitigation agreement with the Gorman District, and the timing depends on the rate of Project development and actual demand for school facilities, as determined by the Gorman Joint School District and Westside Union School District (WUSD).

This first school may also include preschool classrooms and, with the cooperation of the Antelope Valley Community College District, junior college classes could be accommodated in the evenings. This combined campus would ensure public school accommodations at all education levels based on school needs assessments and student enrollment for the first phase of Project development.

Temporary modular classrooms may be used at the existing and proposed schools to accommodate students prior to the construction of permanent facilities. If temporary modular school facilities are utilized in the early years of this combined K–8 and 9–12 campus, then the Project Applicant/Developer will post a bond in an amount sufficient to complete construction of a combined K–8 and 9–12 school campus with permanent, non-modular structures.

High school students at the Project also have to option to be bussed to Quartz Hill High School or attend the El Tejon Unified School District's Frazier Mountain High School. Transfer requests would be handled by the AVUHSD based on their transfer procedures and would take into account the then-current capacity of existing high schools.

## ***Fire Protection and Law Enforcement Services***

Fire services and emergency response for fire incidents during the initial development phases of the Project would be provided from Fire Station 77, located at 46833 Peace Valley Road in Gorman, which is currently staffed with a three-person engine company. This station would serve the Project until such time that the 1,000th dwelling unit is built on the site, at which time the first on-site fire station shall be operational. It is anticipated that up to four fire stations will ultimately be developed on the Project site.

Prior to development of a permanent Sheriff's station, the LASD will operate out of a temporary store front station until the permanent station is required to be developed. The ultimate location and timing for implementation of a permanent station would be determined by the LASD in coordination with the Project Applicant/Developer and would be dependent upon the development rate on the Project site and its location. The store front facility for the LASD would be properly outfitted in accordance with applicable occupancy requirements and would be fully operational prior to the issuance of the first occupancy permit to ensure that response times to the site for emergency and non-emergency calls

would be within the County guidelines. If no future phase development occurs, the LASD would permanently operate out of the temporary store front facility.

### ***Parks***

The Project would provide abundant and varied on-site recreational amenities in an area that currently has little local parkland, including public (i.e., State or federal owned or County-dedicated and maintained) and private (i.e., Homeowner's Association or other privately maintained) parks and other recreation amenities. The Project would include approximately 183 acres of Park uses, which includes private and public neighborhood parks, community parks or sports park facilities, and private pocket parks; community recreation center(s); private recreation facilities associated with multi-family residential developments; planned open space; a system of community trails and greenways; and a regional hiking trail.

The parks will be open to the public, including residents of Centennial and neighboring communities, and will be improved in accordance with schematic designs approved by the Department of Parks and Recreation. Also, all parks will be developed consistent with the Conditions of Approval recommended by the Department of Parks and Recreation and/or as approved by the Planning Commission and/or the County Board of Supervisors as part of approval of the TTMs or per the Development Agreement.

Parks will be constructed within each phase of development to ensure that the acreage and condition of parks available when new residents move in meet County requirements for per capita parkland. Specifically, the Conditions of Approval stipulate that Centennial is financially responsible for developing these parks. Also, Centennial will enter into a Park Development Agreement (PDA), post bonds, and submit a Park Delivery Schedule for the community park prior to clearance of the first TTM containing housing.

### ***Maintenance Yards***

Land for maintenance yards for the Los Angeles County Department of Public Works and the Department of Parks and Recreation will be provided adjacent to the permanent wastewater reclamation facility site constructed in the first phase of development. Maintenance yards will operate as a joint use service yard and will include both a road maintenance yard and a maintenance yard for parks. The County will be responsible for the construction and operation of the maintenance yards.

### ***Animal Control Facility***

The County plans to construct, equip, and operate a permanent new animal control facility adjacent to the maintenance yards described above when, in the judgment of the County, such a permanent facility is required. As discussed above, during the initial build out of the Project, the County may provide modular units to temporarily house lost and abandoned animals on the land set aside for the County's future permanent facility. Alternately, should the permanent site not be available to accommodate the modular units, the Project Applicant/Developer may contract with Shelter on the Hill, a Humane Society, or another entity acceptable to the County, to provide temporary animal shelter facilities. The

temporary animal shelter will be located in Shelter on the Hill's planned facilities in Frazier Park or in other facilities located near the Project site.

## **Infrastructure and Utilities**

The infrastructure and utilities facilities discussed below are proposed within the first phase of Project development:

### ***Roadway/Circulation***

New roads will be constructed on-site and SR-138 will be improved to provide roadway access to the Project site. For the first phase of Project development, new roads will be timed and constructed per the Conditions of Approval approved by the County so that adequate access will be provided to all new land uses at Centennial.

### ***Electricity, Communications, Natural Gas***

All on-site dry utilities will be constructed within public rights-of-way (e.g., roadways) on the Project site will be permanent facilities designed to adequately serve the first Project occupants. The Project includes conditions and specifications for assuring adequate distance and capacity of these on-site dry utilities.

Off-site dry utility upgrades and connections are likewise designed to provide permanent and adequate service for the first phase of Project implementation. Electricity service will be provided from the Gorman and/or Bailey Substations. Existing overhead lines along SR-138 and Gorman Post Road, as well as the lines running from the Bailey Substation to the northwest within the site, will be upgraded to handle anticipated loads. These may be relocated; they may remain overhead; or they may be placed underground. Natural gas will be piped in via the existing high pressure gas main along Gorman Post Road west of the Project site or the SR-138. Communication services will be provided by AT&T by extending telephone lines along Gorman Post Road and may require an upgrade of the Central Office facility in Lebec if fiber-optic connections to the Litespan 2000 cabinet<sup>6</sup> are impacted. A cable television service provider has not yet been identified.

### ***Potable Water, Recycled Water, Wastewater, and Storm Water***

Water-related utilities and infrastructure will be designed and sized to permanently serve the first phase of Project implementation. The phasing for anticipated wet utility improvements are summarized below.

- Potable water will be primarily from groundwater wells. Well water will be combined with water received from the existing State Water Project (SWP) Aqueduct via turnouts on the East and West Branch, and combined well water and SWP water will be treated in an on-site water treatment facility. It is expected that three groundwater

---

<sup>6</sup> Litespan 2000 system is an optical network (SONET)-based next-generation digital loop carrier (NGDLC) that provides both ATM-based Digital subscriber line (DSL) and time division multiplexing (TDM)-based narrowband/wideband services from the same plug-in channel unit slots. Litespan supports multiple voice switch Interface types simultaneously from the same Litespan common control (Alcatel-Lucent 2013).

wells would be needed to serve the first phase of Project implementation, with the remaining up to six wells (including existing and new on- and off-site wells) brought online during future phases of implementation. However, which of the existing and new on- and off-site wells would be used to serve the first phase of Project implementation would be determined while the TTM's are being prepared. Therefore, to provide a conservative analysis, the EIR assumes that the three well locations serving the first phase of Project implementation would include three new, off-site wells at the Tejon Ranch Water Bank. All water treatment, storage and distribution pipeline infrastructure must be designed to be in place, and permanent, as part of the approval process for each future TTM.

- Recycled water is produced from the tertiary treatment of wastewater (sewage), and will be used for outdoor irrigation. Recycled water production will begin concurrently with the operation of the wastewater reclamation facilities. The wastewater reclamation facilities include pumps, tanks, piping, and related equipment. Recycled water distribution piping will be constructed to deliver recycled water for outdoor landscaping. Any excess recycled water would be delivered to a planned sod/nursery site for future development phase landscaping needs and/or used for construction grading and dust control. All sewage and recycled water facilities must be designed to be in place, and permanent, as part of the approval process for each future TTM.
- Storm water runoff is managed at a neighborhood and regional scale with a variety of water quality management measures, including detention and retention basins. All storm water management measures must be designed to be in place, and permanent, as part of the approval process for each future TTM.

## 4.7 OFF-SITE PROJECT FEATURES

The Project would require the implementation of off-site features consisting of roadway improvements and connections and upgrades to existing off-site utility systems. Exhibit 4-21, Centennial Project – Off-Site Project Components, depicts the locations of the off-site features. This graphic shows off-site utility improvements in green, as depicted on the legend.

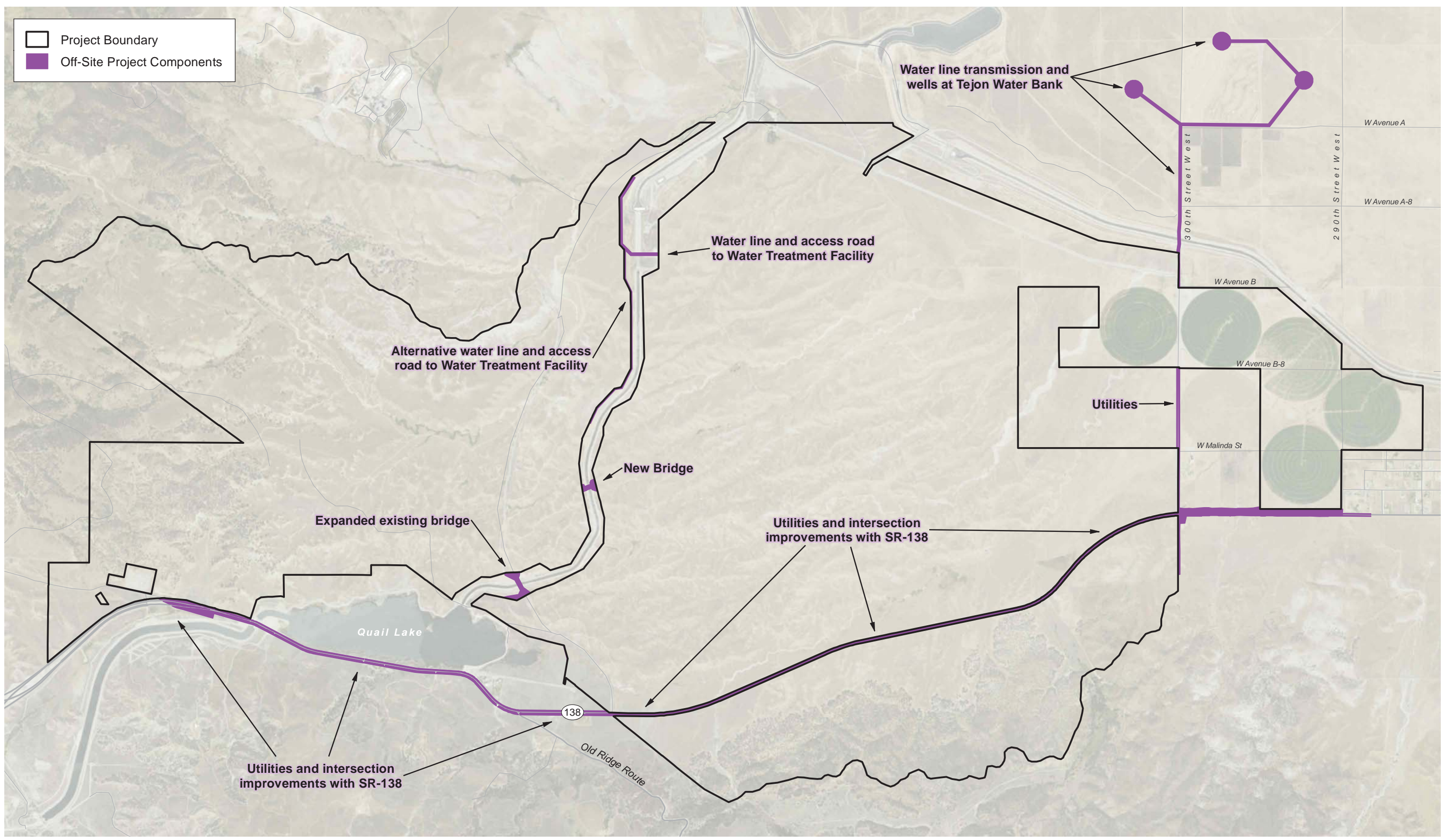
### 4.7.1 ROADWAY IMPROVEMENTS

As previously discussed, Caltrans and Metro are proposing the Northwest 138 Corridor Improvement (NW138) Project that addresses the long-term alignment and right-of-way needs of SR-138 between I-5 and SR-14. There is no implementation schedule for the NW138 Project; however, the draft EIR/EIS for the proposed improvements was made available for public review in July 2016.

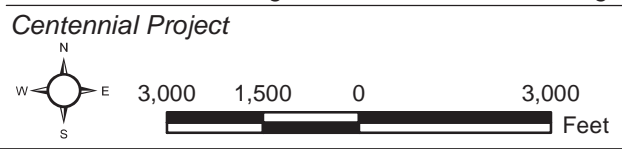
A portion of SR-138 within the Caltrans study area traverses the Project site, and this portion of the alignment is proposed for improvements/expansion. The current alignment of the SR-138 is depicted on Exhibit 4-1, Centennial Project – Conceptual Land Use Plan. A potential future alignment for SR-138 is depicted on Exhibit 4-7, Centennial Project – Circulation Plan. However, Caltrans has deferred the selection of a preferred build alternative and has also



- Project Boundary
- Off-Site Project Components



**Centennial Project – Off-Site Project Components**



(Rev: 06-07-2016 LEW) R:\Projects\CEN\000306\Graphics\EIR\Ex4-21\_Off-Site\_Components\_20160606.pdf

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Off-Site\_Components\_20160606.mxd

reserved the right to determine the specific types of intersection controls at the time the improvements occur.

The NW 138 EIR/EIS includes an environmental analysis of all components of the proposed SR-138 improvements and all short-term and long-term environmental impacts of the improvements; no additional analysis within this Centennial Draft EIR is required for any needed clearances associated with the SR-138. Since the timing of the SR-138 improvements are unknown and since the ultimate implementation of the improvements cannot be assumed, the Centennial Project and this Draft EIR assume the current alignment of the SR-138 is the baseline condition for Project implementation.

The Project involves five intersections with the SR-138. Two of these intersections are considered “off-site”, as they are not surrounded on both sides by the Project site. These two off-site intersections include the proposed re-alignment of the National Cement Plant Road at the western edge of Quail Lake and the intersection of 290<sup>th</sup> Street West with the SR-138. All five of the intersections with the SR-138 will require construction within Caltrans right-of-way. The construction of acceleration and deceleration lanes, turn pockets, and signalized traffic lights at each intersection could be required for Project implementation. Additionally, two underpasses and one overpass bridge crossing over SR-138 would be constructed to facilitate both pedestrian and bike access to employment centers.

Wet and dry utility facilities would cross beneath the paved areas of the SR-138 and would encroach into Caltrans right-of-way and/or otherwise require future coordination with/approval from Caltrans for construction of actual improvements at various locations. Additionally, storm drainage crossings would be constructed at intermediate locations to accommodate the existing and proposed drainage systems. Other intermediate utility crossings may be required to accommodate final designs for both dry and wet utilities. Where feasible, these utility crossings would be grouped together at common crossing locations. Additional encroachments beyond those listed may occur to accommodate installation of required infrastructure.

Tejon Ranch has already contributed or will contribute fair-share funds to provide the following roadway improvements and mitigations:

- Contribute fair-share to planned freeway mainline improvements for the following segment:
  - Between SR-14 and Calgrove Boulevard (add 1 truck lane in the northbound direction and two truck lanes in the southbound direction).
- Contribute fair-share to implement operational improvements, such as intersection lane restriping and/or Intelligent Transportation Systems (ITS) at the following locations:
  - Hasley Canyon Road/Sedona Way Interchange
  - Magic Mountain Parkway Interchange
- Contribute fair-share to re-stripe intersection lanes at the following locations:
  - SR-126 Interchange



- McBean Parkway Interchange
- Contribute fair-share to planned freeway mainline improvements for the following segments:
  - Between Rye Canyon Road and McBean Parkway (Add one high occupancy vehicle (HOV) in lane each direction)

The environmental impacts of these improvements have already been considered in other environmental documentation pursuant to CEQA, and the impacts of these facilities does not require additional analysis in this EIR. These improvements are provided as disclosure for activities associated with Project implementation.

#### **4.7.2 AQUEDUCT CROSSINGS AND WATER INFRASTRUCTURE**

Off-site groundwater wells are expected to be required within the existing Tejon Ranch Water Bank in Kern County as a result of the Project, and that water would require conveyance through the construction of new water pipelines from Kern County to the Project site, as shown on Exhibit 4-21, Centennial Project – Off-Site Project Components. The proposed off-site wells would not involve modifications to existing roadways, nor would they require new roadways. Connecting the Tejon Ranch Water Bank wells to the Project site would require trenching for water pipelines to connect the wellheads to the “untreated wellhead pipelines” to be installed along 300<sup>th</sup> Street West and a crossing of the California Aqueduct.

The system of wellhead pipelines would convey all pumped groundwater requiring disinfection/treatment to the proposed on-site water treatment plant located near the West Branch of the California Aqueduct, where it would be treated and then delivered directly to the Project’s water distribution system or blended with State Water Project (SWP) water, which would also be treated at that same location. The wellhead pipelines would range from 12 inches to 30 inches in diameter; they would be installed at a depth of approximately 4 to 5 feet deep via trenching the length of the pipe; they would be installed slightly deeper if required to safely cross under existing utility lines or underground structures.

The proposed off-site well locations would be accessed via the existing dirt or decomposed granite (DG) roads serving the Tejon Ranch Water Bank. It is anticipated that one daily visit to each well location would be necessary for maintenance and monitoring purposes. The visiting personnel would park on the existing access road near the well location. Also, each proposed well would be equipped with a System Control and Data Acquisition (SCADA) system to enable remote monitoring and control.

The Project would require four crossings of the California Aqueduct, including the wellhead pipeline crossing of the East Branch of the Aqueduct. As discussed in Section 4.8.2, the Project would require an Encroachment Permit from the California Department of Water Resources (DWR) for the new and expanded bridge crossings of the Aqueduct and for the crossing of potable and recycled water pipes. The pipelines may extend over or under the Aqueduct, depending on DWR’s requirements and the specific engineering conditions at each crossing location.

Crossings of the California Aqueduct would all be considered off-site impacts because the Aqueduct is not a part of the Project site. Aqueduct crossings are discussed below.

- An expansion to the existing National Cement Plant Road bridge crossing. The bridge would maintain its existing alignment, but would be widened to accommodate pedestrian/bicycle access. Water and recycled water pipelines would be either attached to the bridge structure or would cross beneath the Aqueduct.
- A new bridge crossing would be constructed that would be wide enough to accommodate vehicular travel and pedestrian/bicycle access. Water and recycled water pipelines would be either attached to the bridge structure or would cross beneath the Aqueduct.
- Trenched at-grade crossing of the Aqueduct south of the Oso Water Treatment Plant. At this location, the Aqueduct is underground. Therefore, water pipeline extensions from the Water Treatment Plant to the portions of the Project site located to the east of the Aqueduct would require trenching across the subterranean Aqueduct. If DWR prefers to avoid a crossing in this area of the Aqueduct, then an alternative would be to install the water pipelines from the water treatment plant southerly along the western boundary of the Aqueduct within the DWR property to ensure avoidance of the SEA No. 17. Once the pipeline(s) are far enough south to avoid the SEA, then the pipelines would be continued on site and would cross the new bridge crossing to provide water supplies to the portions of the Project site located to the east of the Aqueduct.
- Attachment of wellhead water pipeline to or beneath the existing 300<sup>th</sup> Street West bridge crossing of the East Branch immediately north of the Project site. No other changes to the existing bridge structure would be required.

### **4.7.3 CONNECTIONS TO EXISTING OFF-SITE DRY UTILITIES**

Implementation of the Project would require the extension of off-site utilities to connections with on-site utilities. Exhibit 4-21, Centennial Project – Off-Site Project Components, depicts the locations of off-site utility improvements in green, as depicted on the legend. As described further below, SCE electrical and telephone extensions would be constructed on the north side of SR-138 in the vicinity of Quail Lake. It is possible that the SCE electrical lines would be buried in the off-site stretch near Quail Lake for the purpose of maintaining the aesthetics of the area. A utility corridor would also be required within the right-of-way of 300<sup>th</sup> Street West as it traverses both on-site and off-site. This would likely contain both wet and dry utilities, including but not limited to sewer, recycled, water, storm drain, electrical, cable television, and telephone.

The physical environmental impacts of these off-site features are addressed as part of the Project analyzed in this EIR. To the extent feasible, off-site utilities would be extended through existing streets; however, utility placement in currently undisturbed areas would also be required. Construction of the utility extensions would be coordinated with the respective utility providers. A description of proposed off-site utility connections is included below.

- **Electricity.** Through coordination with SCE, two options were developed for bringing the additional capacity to service the western portion of the Project site: (1) reconfiguration of the existing Bailey Substation located off site along the property's western boundary and (2) upgrading the Gorman Substation and reconstructing the existing overhead transmission lines to handle the higher load. In either event, the improvements would occur entirely on lands owned by SCE, not on the Project site. No existing off-site facilities other than those discussed herein would require upgrades or retrofitting to provide adequate electrical service to the Project site.

At this time, upgrade of the Bailey Substation is considered the more likely solution; however, both options will continue to remain viable until later stages of the site development process subsequent to the CEQA process. If the Bailey Substation is upgraded, no upgrades to the Gorman Substation or other off-site facilities will be necessary to serve the first phase of Project implementation.

According to the *Dry Utilities Analysis: Centennial* prepared by BJ Palmer & Associates (BJ Palmer 2015) and included as Appendix 5.2-A, and communications with SCE (Peterson 2007; SCE 2007a, 2007b, 2007c), the improvements to the Bailey Substation would be contained within the parcel of land owned by SCE and would not extend onto the Project site. The Bailey Substation is a transmission-only substation, and is currently not configured for the voltage distribution required to service the Project. The site of the Bailey Substation is large enough for the required reconfiguration. Reconfiguration would include the placement of a large transformer to take transmission voltage (66 kV) and convert it to distribution voltage (12 kV). Distribution voltage would then be extended to the Project site on the existing overhead pole line along SR-138, or routed northerly overhead or underground around Quail Lake within the Project limits. This location would provide sufficient electric power capability to service the first phase of Project implementation.

The Gorman Substation, located approximately 3.6 miles northwest of the site, is currently configured for distribution voltage. However, this substation would require the addition of one or more additional transformers and reconstruction of the existing overhead power lines along Gorman Post Road from the substation to the Project site. At a point just west of the Project boundary, the overhead facilities would either run along SR-138 or would take the northerly route around Quail Lake.

- **Natural Gas.** The initial gas facilities for the first phase of Project implementation would be provided by tapping into the existing high pressure gas main along Gorman Post Road west of the Project site. It would be necessary to construct a gas regulator station at this location for distributing pressure and/or extending a high pressure line to and within the Project site for the placement of a series of future regulator stations. A gas regulator station is a system of valves that could include two at one location (switching between the two while one or the other is under maintenance). The space required is approximately 75 feet by 30 feet and the facilities are below ground. Regulator stations can be within roadways or on private property within an easement. Future phases of development may require the tapping of the transmission high pressure main along SR-138 for the extension of transmission and/or

distribution main extensions into the Project. SoCalGas would determine the timing for this station's development through an assessment of system operational needs.

- **Telephone.** The preliminary extension of telephone lines would occur along Gorman Post Road in the current franchise area, entering the Project site at the most westerly entrance, or continuing overhead along the pole line along SR-138. This new extension would involve retrofitting and replacing the current overhead system that extends from the Frazier Park area to Gorman, and then to the site (described previously). This would involve use of the existing poles; no physical impacts would occur. AT&T would extend the facilities/lines within existing or proposed road right-of-way areas whenever possible. When not possible, easements would be obtained for facilities placed on private property within the Project site. Any permits or authorization required for the extension of telephone service to the Project site would be the responsibility of AT&T.

Additionally, development of the Project could also impact off-site fiber-optic connections to the Litespan 2000 cabinet and require an upgrade of the existing Central Office facility in Lebec involving an internal extensive upgrade to expand the Central Office's service capacity. AT&T's implementation of necessary expansion and upgrades that would support the Project would not create significant physical impacts since all such improvements would occur within existing facility structures.

- **Cable Television.** Although a cable television service provider has not yet been identified, development of the Project could impact off-site cable television lines near the Service Provider's plant or distribution facilities and may require an upgrade of existing facilities. The extension of these facilities to the Project site would be conducted by the Service Provider.

#### 4.7.4 MITIGATION AREAS

In addition to off-site improvements to infrastructure the Project requires the preservation of off-site lands to compensate for impacts to biological resources as, described in Section 5.7, Biological Resources. These mitigation areas are depicted in Exhibit 4-12, Off-Site Open Space Mitigation Preserve. Of the 5,624 acres of designated Open Space within the Project site, approximately 5,116 acres (42 percent of the total Project site) would be ungraded/unimpacted. Of this amount, approximately 3,861 acres are designated as SEA 17 to be preserved in perpetuity within the Project site boundaries. A study of adjacent lands identified 6 areas which, when combined with the approximately 5,116 acres of on-site open space mitigation areas, would provide sufficient land and biological resources to implement mitigation strategies to fully mitigate Project impacts related to biological resources.

Areas 1 and 2 are located in Los Angeles County, and Areas 3–6 are located in Kern County, northeast of the Project area. In Los Angeles County, Area 1 consists of approximately 6,417 acres and is located adjacent and immediately east of the southeastern corner of the Project area. Area 2 consists of approximately 2,556 acres and is located adjacent and contiguous to the northwestern portions of the Project area. The area in the northwestern part of the site is comprised primarily of Oso Canyon, which includes a blueline stream as well as foothills and canyons with slopes 25 percent or greater. Vegetation in this area consists mainly of oak

woodland and grassland vegetation. The south-southeastern portion of the site contains similar vegetation and associated biological resources.

In Kern County, Area 3 consists of 4,183 acres and Area 4 consists of 7,319 acres. Area 5 consists of 643 acres and is a square-shaped parcel, immediately east of Area 4 and northeast of the Project site. Area 6 consists of 2,429 acres and is located on the northern slope of the Antelope Valley, farthest to the northeast of the Centennial Project site.

The combined off-site open space preserve area amounts to approximately 23,547 acres of mitigation lands. As previously discussed in Section 4.5.7, these six areas would be preserved in perpetuity to allow for preservation and implementation of mitigation strategies.

The Natural Resources/Open Space Management Plan includes both on-site and off-site mitigation areas. Approximately 5,116 acres of open space is available for use as on-site mitigation and off-site mitigation areas total 23,547 acres, for a combined total of 28,663 acres of preserved open space resulting from Project implementation.

## 4.8 INTENDED USE OF THE EIR

Pursuant to Section 15121 of the State CEQA Guidelines, an EIR is primarily an informational document intended to inform the public agency decision makers and the general public of the potentially significant environmental impacts of a project. The decision makers must consider the information in an EIR before taking action on a Project.

A project is proposed by a project applicant; however, an EIR is prepared by or under the direction of the lead agency. The lead agency is the public agency with the primary responsibility for approving a project. Responsible Agencies (public agencies that have a level of discretionary approval over some component of a Project) may rely upon the EIR prepared by the Lead Agency (14 CCR 15096).

The County of Los Angeles is the lead agency, and the responsible and trustee agencies listed below are expected to use the information in this EIR for consideration of approvals related to and involved in the implementation of this Project.

### 4.8.1 COUNTY OF LOS ANGELES

The discretionary actions listed below have been analyzed as part of this EIR.

- ***Adoption of the Centennial Specific Plan.*** The Project Applicant/Developer is requesting the adoption of the *Centennial Specific Plan*. A detailed discussion of the *Centennial Specific Plan* is provided in Section 4.5 above. As previously noted, the *Centennial Specific Plan* would regulate development through the Land Use Plan, the Land Use Matrix (including permitted uses), and the development standards and regulations in conjunction with Titles 21 and 22 of the Los Angeles County Code. The *Centennial Specific Plan* is a regulatory document that would be considered for adoption by either resolution (as policy) or by ordinance, by the County of Los Angeles Board of Supervisors. Upon adoption of the *Centennial Specific Plan*, the

development standards and zoning of the *Centennial Specific Plan* become the zoning for the site. Chapters 1 through 4 of the *Centennial Specific Plan* would be adopted by ordinance. A copy of the draft *Centennial Specific Plan* is located in Appendix 4.0-A of this EIR.

Several appendices to the *Centennial Specific Plan* are also requested to be adopted by the County by ordinance or resolution. Appendix 1 to the *Centennial Specific Plan* includes two appendices that would be adopted by ordinance: Appendix 1-A, *Definitions* and Appendix 1-D, *Standard Centennial Subdivision Map Notes*. While it is anticipated that Appendix 1-D will be adopted by ordinance at this time, the County may decide to adopt Appendix 1-D by resolution at the time of Project approval. Appendix 1-B, *Green Development Program*, and Appendix 2-A and 2-B, would be adopted by Resolution. Under either scenario, the Regional Planning Commission, or the Board of Supervisors if the Regional Planning Commission's decision is appealed, would seek to incorporate the standard subdivision map notes governing development of the Project on each approved tentative map subdividing a portion of the Project Site.

Specifically, the *Centennial Specific Plan* will achieve the County's Low Impact Development (LID) Ordinance and LID Manual requirements for increasing groundwater recharge, enhancing water quality, and preventing degradation to downstream natural drainage courses through the use of infiltration Best Management Practices (BMPs). Future LID plans required for the Project will comply with the provisions of the *Centennial Specific Plan's* Centennial Stormwater Management System Design Requirements and Drainage Plan, which will serve as the LID standards for those projects in lieu of the specific provisions of the LID Manual.

- **Approval of Zone Change, Los Angeles County Zoning Ordinance.** The Project Applicant/Developer is requesting a Zone Change from O-S (Open Space), A-1-2 (Light Agricultural – Two Acre Minimum Required Lot Area), RPD (Residential Planned Development), CPD-DP (Commercial Planned Development – Development Program); and MPD-DP (Manufacturing Industrial Planned Development – Development Program), to SP (Specific Plan). Approval of the zone change and concurrent adoption of the *Centennial Specific Plan* would establish the Specific Plan's land use categories as the underlying zoning. Additionally, and as described in Section 5.7, Biological Resources, the Project requires the preservation of both on-site and off-site lands to compensate for impacts to biological resources. On-site mitigation areas, totaling approximately 5,116 acres, would be zoned "Specific Plan", consistent with the rest of the Project site.
- **Approval of General Plan Amendment to AVAP and County Highway Plan.** In compliance with the County's Specific Plan requirements and State law, the Project Applicant/Developer is requesting a General Plan Amendment to amend the AVAP and County General Plan Highway Plan by adding the major highways, secondary highways, limited secondary highways, parkways, and expressways that are proposed on the Project site to serve the circulation needs of development and that meet the criteria for being included in the AVAP Highway Plan (Map 3.1 of the AVAP) and County General Plan (Figure 7.3 of the County General Plan). This amendment would reflect the location of the project's internal circulation network of roadways,

as provided in the *Centennial Specific Plan*. This amendment would not change the land use designations, allowable development or open space areas in the AVAP or General Plan.

- **Approval of Vesting Tentative Parcel Map.** Vesting Tentative Parcel Map (VTPM) is being sought as part of the initial set of project entitlements for finance and conveyance purposes. Commonly referred to as “Financing Maps”, this form of Parcel Map creates legal parcels that can be used as security to help finance infrastructure and other improvements. A VTPM does not authorize the creation of residential or commercial lots, nor does it permit construction of new buildings.
- **Development Agreement.** A Development Agreement (DA) is also anticipated to be sought as part of the initial project entitlements. Under state law, a DA is a voluntary agreement, adopted by ordinance, between the County and the project proponent. The purpose of a DA is to provide both the County and the developer with long-term contractual assurances that the project includes public benefits and can be built out as approved.
- **Approval of Conditional Use Permit - Grading.** The Project Applicant/Developer is requesting approval of a Conditional Use Permit (CUP) for Grading, pursuant to Section 22.56.217 of the Los Angeles County Code, which requires a CUP for grading over 100,000 cubic yards. The size of the Project site (i.e., 12,323 acres) is reflective of the proposed grading under the Conceptual Grading Plan and complies with the Hillside Design Guidelines in the *Centennial Specific Plan*, which are consistent with the County’s Grading Ordinance. The Conceptual Grading Plan is discussed in Section 4.5.17 above.
- **Approval of Conditional Use Permit - Infrastructure.** The Project Applicant/Developer is requesting approval of a CUP to provide a master or programmatic approval of the proposed infrastructure that would be needed to serve the Project. These infrastructure improvements include the following:
  - Roadway circulation system
  - Water system including domestic and recycled water tanks and pipelines and accessory booster pumps and storage ponds
  - Sewage disposal pipelines and waste water reclamation facilities
  - Flood control and drainage facilities
  - Electrical substations
  - Gas, telephone, cable and internet and electric lines within roadway rights-of-way
  - Green waste composting
  - Solid waste and materials recovery facilities and recycling centers.
  - Water retention/detention basins, water banks, tanks, well facilities, water treatment plants
  - Realignment of National Cement Plant Road
  - Construction of bridges over the Aqueduct
  - Improvements to the SR-138 intersections.

---

## Future Discretionary and Ministerial Actions

In addition to the discretionary actions listed above, additional ministerial and discretionary actions related to the future approvals are anticipated in the future, as discussed below.

Some future actions will be ministerial in nature as they will not require any special discretion or judgment on the part of the County official in processing the application. Rather, these actions merely require a determination of whether an application complies with applicable requirements of the Specific Plan. Accordingly, such actions will not require future CEQA review pursuant to Section 21080(b)(1) of the *California Public Resources Code* and Section 15268(a) of the CEQA Guidelines (14 CCR). Examples of such actions include, but are not limited to, the following:

- Grading and demolition permits
- Building and occupancy permits
- Encroachment permits
- Acquisition of rights-of-entry easements and rights-of-way for Project features under Caltrans jurisdiction (previously described in Section 4.7), as necessary.
- Final Subdivision Maps.

Additionally, Chapter 4 of the *Centennial Specific Plan* (Appendix 4.0-A) has been created to describe the processes and procedures for certain subsequent Centennial Project approvals. Section 15268(c) of the State CEQA Guidelines provides that “each public agency should, in its implementing regulations or ordinances, provide an identification or itemization of its projects and actions which are deemed ministerial under the applicable laws and ordinances”. As the *Centennial Specific Plan* will serve as the Project’s implementing regulations once adopted, Chapter 4 of the *Centennial Specific Plan* categorizes future approvals as ministerial and discretionary based on (1) the nature of the action; (2) the degree to which the action conforms to the *Centennial Specific Plan* and corresponding EIR analysis; and (3) the extent to which the exercise of judgment is necessary in considering such action. The following lists these ministerial and discretionary approvals as set forth in Chapter 4 of the *Centennial Specific Plan*. Each type of approval is followed by the corresponding *Centennial Specific Plan* section reference. The applicable *Centennial Specific Plan* section describes each approval in further detail; sets forth the necessary conditions that must be satisfied in order to receive approval; lists the standards the County official must use to determine whether a particular application should be granted; and provides the applicable procedures the County will follow in processing each application.

### ***Ministerial Actions***

The following actions are ministerial as they involve only (1) a determination that the proposed action conforms to the *Centennial Specific Plan*; (2) a determination of consistency with an approved Tentative Map, Final Map, Conditional Use Permit, or other approval issued pursuant to the *Centennial Specific Plan*; or (3) a determination that an application meets the standards required for that particular type of application as in Chapter 4 of the



*Centennial Specific Plan* or the County Code. As stated above, each type of approval is followed by the corresponding *Centennial Specific Plan* section reference.

- Interpretations (Section 4.5.1.1.1);
- Development standard equivalency (Section 4.5.1.1.2);
- *Centennial Specific Plan* text and figure changes (Section 4.5.1.1.3);
- Affordable housing consistency (Section 4.5.1.1.4);
- Residential signage consistency (Section 4.5.1.1.5);
- Non-residential signage consistency (Section 4.5.1.1.6);
- Deviations from development standards (Section 4.5.2.1.1);
- Exhibit map change that does not require a tentative map modification (Section 4.5.2.1.2);
- Changes in the order or configuration of phasing on an approved tentative map (Section 4.5.2.1.3);
- Minor Transfers within Villages (Section 4.5.2.1.4);
- Transfers of Park Use and Greenways (Section 4.5.2.1.5)
- Land Use Equivalency Determination (Section 4.5.2.1.6)
- Conceptual Land Use Plan and Development Standards (Section 4.5.4.1)
- Existing uses (Section 4.5.5.1);
- Ministerial interim use permit (Section 4.5.5.2.1).

### ***Discretionary Actions***

The following actions require the exercise of discretion by the County or may propose a scope of development that has not been reviewed as part of the *Centennial Specific Plan* EIR. Future CEQA review of these discretionary actions shall be processed in accordance with CEQA, including Section 21166 of the *California Public Resources Code* and Sections 15162 and 15164 of the CEQA Guidelines (14 CCR). If the County determines that an additional CEQA document must be prepared in connection with such discretionary approval, future environmental analysis should tier from this EIR whenever feasible pursuant to Section 21093 of the *California Public Resources Code*. Each type of approval is followed by the corresponding *Centennial Specific Plan* section reference.

- Land Uses Requiring “Substantial Conformance Review” (Section 4.5.3.1.1).
- Conditional use permit modifications (Section 4.5.3.1.2).
- Major Transfers within Villages (Section 4.5.3.1.3).
- Transfers of residential units and non-residential building square footage from Village to Village (Sections 4.5.3.1.4 and 4.5.3.1.5).

- Conversions (Sections 4.5.3.1.6).
- Off-site haul routes (Section 4.5.3.1.7).
- Sign and sign programs (Section 4.5.3.1.8).
- Parcel maps and minor land divisions (Section 4.5.4.2).
- Tentative maps (Section 4.5.4).
- Amended tentative maps (Section 4.5.4.3).
- Revised tentative maps (Section 4.5.4.4).
- Initial approval of exhibit maps (Section 4.5.4.5).
- Discretionary interim use permit (Section 4.5.5.2.2).
- Temporary use permit (Section 4.5.5.3).
- Conditional use permits (Section 4.5.5.4).
- Land use/planning area boundary adjustments (Section 4.6.1).
- Specific Plan amendment (Specific Plan Section 4.9).
- Roadway realignments (Specific Plan Section 4.6.1).

#### **4.8.2 RESPONSIBLE AND TRUSTEE AGENCIES**

The EIR would also provide environmental information to responsible agencies, trustee agencies, and other public agencies which may be required to grant approvals or coordinate with the County of Los Angeles as a part of Project implementation. These agencies include, but are not limited to, those listed below.

##### **Federal**

- ***U.S. Army Corps of Engineers (USACE)***. The Project would require a USACE Section 404 permit for impacts to areas determined to be “Waters of the United States.”

##### **State of California**

- ***Public Utilities Commission (CPUC)***. The Project may require the creation of an entity to operate and maintain the water supply, water treatment, and wastewater reclamation facilities, as well as the storm water facilities if annexation of the Project site into the Golden Valley Municipal Water District does not occur. Should a private entity be created to handle the operation and maintenance of these systems and facilities, then issuance of Certificates of Public Convenience and Necessity and/or Exemption would be necessary. Alternatively, if a public entity (e.g., Community Facilities District, CSD, California Water District, or other agency approved by Los Angeles County [the Maintenance Entity] and agreed to by the Project Applicant/Developer) is created to operate and maintain all water supply, wastewater reclamation facilities, and other necessary water facilities, then CPUC

action would not be required. However, some action by the Local Agency Formation Commission (LAFCO) may be necessary, depending on the public entity selected. Ultimately, the water supply, wastewater reclamation, and storm water agency(ies) providing these services would require the concurrence of the County and the applicable regulatory agencies.

- **Department of Fish and Wildlife (CDFW).** The Project would require a Streambed Alteration Agreement from the CDFW pursuant to Sections 1600 and Sections 2081 of the *California Fish and Wildlife Code*.
- **Department of Transportation (Caltrans).** Activities located within Caltrans right-of-way (described previously) would require an Encroachment Permit and must be in compliance with the Caltrans Statewide National Pollutant Discharge Elimination System (NPDES) Permit.
- **Department of Water Resources (DWR).** The Project would require an Encroachment Permit from DWR for two bridge crossings of the California Aqueduct (“A” Street and “B” Street), as well as for the crossing of potable and recycled water pipes.
- **State Water Resources Control Board, Water Division of Drinking Water (DDW).** A permit to operate a public water system for the potable water distribution system on the Project site would be required from the SWRCB’s Water Division of Drinking Water (DDW).
- **Regional Water Quality Control Board, Lahontan Region (Lahontan RWQCB) and Los Angeles Region (Los Angeles RWQCB).** Lahontan RWQCB and Los Angeles Region RWQCB approvals will be required for the following activities within their respective areas of the Project site:
  - Waste Discharge Requirements (WDRs) for the fill or alteration of “waters of the State” on the Project site located in Lahontan RWQCB’s jurisdiction.
  - WDRs and Wastewater Reclamation Requirements *or* a Master Reclamation Permit for approval and operation of the two proposed WRFs.
  - Water Quality Certifications under Section 401 of the Federal Clean Water Act.

## Regional and Special Districts

- **Gorman Joint School District.** The Gorman District would be the agency responsible for the acquisition of land, design, and development of the proposed grades K–8 schools on the Project site. The Gorman District is required to comply with the requirements of Section 15186 of the State CEQA Guidelines regarding school facilities (which addresses potential health impacts resulting from exposure to hazardous materials, wastes, and substances). This EIR would be used by the Gorman District as acceptance of three proposed grades K–8 schools and one K-5 school within the Project site. However, subsequent environmental documentation for the proposed schools may be required. The need for subsequent environmental documentation would be determined by the Gorman District when school site plans are available.

- **Antelope Valley Union High School District.** The AVUHSD would be responsible for the acquisition of land, design, and development of the proposed high school (grades 9–12) in the Project site. The AVUHSD is required to comply with the requirements of Section 15186 of the State CEQA Guidelines regarding school facilities (which addresses potential health impacts resulting from exposure to hazardous materials, wastes, and substances). This EIR would be used by the Antelope Valley Unified High School District as acceptance of one proposed high school in the Project site. However, subsequent environmental documentation for the proposed school may be required. The need for subsequent environmental documentation would be determined by the AVUHSD when school site plans are available.
- **Westside Union School District.** The WUSD serves grades K–8 students. A portion of the eastern part of the Project site falls within the boundary of the WUSD. The WUSD would be responsible for the acquisition of land, design, and development of two proposed grades K–8 schools in the Project site. The WUSD is required to comply with the requirements of Section 15186 of the State CEQA Guidelines regarding school facilities (which addresses potential health impacts resulting from exposure to hazardous materials, wastes, and substances). This EIR would be used by the WUSD as acceptance of two proposed grades K–8 schools within the Project site. However, subsequent environmental documentation for the proposed school may be required. The need for subsequent environmental documentation would be determined by the WUSD when the school site plans are available.
- **Golden Valley Municipal Water District (GVMWD) or other Public Utility District (PUD).** The GVMWD is a California municipal water district formed and operated under Section 71000 of the *California Water Code*. The District’s service area encompasses approximately 12.5 square miles and is adjacent to the Project’s western boundary (GVMWD 2011). The GVMWD currently operates approximately 20 municipal water service connections and a wastewater reclamation facility for the unincorporated community of Gorman. Centennial Founders, LLC has requested the District Board of Directors to consider annexing the Project area and operating the Project’s proposed potable water, water recycling, and wastewater facilities. Annexation of the Project into the GVMWD service area would require approval by the Los Angeles County Local Agency Formation Commission (LAFCO) and would occur after the certification of this EIR. If the Project area is annexed, GVMWD or a PUD would become the agency in charge of operating and maintaining storm water facilities.
- **Local Agency Formation Commission (LAFCO).** LAFCO is responsible for reviewing and approving proposed jurisdictional boundary changes, including annexations and detachments of territory to and/or from cities and special districts; incorporations of new cities; formations of new special districts; and consolidations, mergers and dissolutions of existing districts. For the Project, the following special districts are in the area and may be impacted, requiring action by LAFCO to include the Project site in their service area: GVMWD or PUD, Antelope Valley Health Care District, Antelope Valley Resource Conservation District, Los Angeles County Consolidated Fire Protection District, and Lancaster Cemetery District.

- **South Coast and Antelope Valley Air Quality Management Districts.** Approximately 85 percent of the Project site lies within the Antelope Valley Air Quality Management District (AVAQMD) while the remaining 15 percent lies in the South Air Quality Management District (SCAQMD). Air quality conditions in the South Coast Air Basin are under the jurisdiction of the SCAQMD while the portion of the site under the jurisdiction of the AVAQMD lies within the Mojave Desert Air Basin. Developers and businesses who plan to install equipment with the potential to emit air pollutants, including toxic and hazardous air pollutants, must obtain permits from the applicable Air Quality Management District prior to construction or operation. Examples of businesses and equipment that require permits are gas stations, dry cleaners, emergency generators, boilers for heating and hot water in large buildings, restaurant cooking equipment, and manufacturing facilities.
- **Los Angeles County Fire Department.** The Project includes construction of three new Fire Stations to provide fire and paramedic services to the Project area. A CUP will be needed to construct the facilities pursuant to the Los Angeles County Code. The environmental impacts of these facilities have been analyzed in this EIR. The Consolidated Fire Protection District of Los Angeles County, commonly known as the County of Los Angeles Fire Department, will apply for the conditional use permit at such time it is necessary in the future so that the first station will be constructed, equipped, and operational prior to the issuance of the first building permit for the first phase of Project implementation.
- **Kern County.** The Project includes new wells and water pipelines that would be located off site, all within Tejon Ranch Company-owned lands immediately to the northeast of the site in Kern County. Although the environmental impacts of these facilities have been analyzed in this EIR, approvals from the County of Kern would be required before any construction occurs.

## 4.9 REFERENCES

Alcatel-Lucent. 2013. Litespan-2000 Multiservice Platform. Murray Hill, NJ: Alcatel-Lucent. <https://support.alcatel-lucent.com/portal/productContent.do?productId=null&entryId=1-0000000001959>.

BJ Palmer & Associates, Inc. (BJ Palmer). 2015 (August). *Dry Utility Analysis: Centennial, Tejon Ranch Company*. San Juan Capistrano, CA: BJ Palmer (Appendix 5.20-A). California, State of. 2015a (access date).

*California Code of Regulations* (Title 14, Natural Resources; Division 6, Resources Agency; Chapter 3, Guidelines for Implementation of the California Environmental Quality Act). Sacramento, CA: the State. [https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I9B44DC50D47F11DEBC02831C6D6C108E&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I9B44DC50D47F11DEBC02831C6D6C108E&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)).

———. 2015b (access date). *California Code of Regulations* (Title 22, Social Security). Sacramento, CA: the State.

---

[https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I6F56A7E1D4B611DE8879F88E8B0DAAAE&originationContext=documenttoc&transitionType=Default&contextData=\(sc.Default\)&bhpcp=1](https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I6F56A7E1D4B611DE8879F88E8B0DAAAE&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)&bhpcp=1).

- . 2015c. *California Fish and Game Code* (Sections 2080–2085, Taking, Importation, Exportation, or Sale). Sacramento, CA: the State.  
[http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=FGC&division=3.&title=&part=&chapter=1.5.&article=3](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=FGC&division=3.&title=&part=&chapter=1.5.&article=3).
- . 2015d. *California Government Code* (Title 5, Local Agencies). Sacramento, CA: the State.  
[http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=GOV&division=&title=5.&part=&chapter=&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=GOV&division=&title=5.&part=&chapter=&article=).
- . 2015e. *California Government Code* (Sections 65300–65303.4, Authority for and Scope of General Plans). Sacramento, CA: the State.  
[http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=3.&article=5](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=3.&article=5).
- . 2015f (access date). *California Public Resources Code* (Division 13, Environmental Quality; Sections 21000–21189.3). Sacramento, CA: the State.  
[http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=PRC&division=13.&title=&part=&chapter=&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=PRC&division=13.&title=&part=&chapter=&article=).
- . 2015g (access date). *California Water Code* (Division 20, Water Districts; Sections 71000–73001). Sacramento, CA: the State.  
[http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=WAT&division=20.&title=&part=&chapter=&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=WAT&division=20.&title=&part=&chapter=&article=).
- . 2012. *California Government Code* (Sections 65995–65998, Payment of Fees, Charges, Dedications, or Other Requirements Against a Development Project). Sacramento, CA: The State of California.  
[http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=4.9.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=4.9.&article=).
- . 2011. *California Water Code* (Sections 10910–10915, Water Supply Planning to Support Existing and Planned Future Uses). Sacramento, CA: the State.  
[http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=WAT&division=6.&title=&part=2.10.&chapter=&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=WAT&division=6.&title=&part=2.10.&chapter=&article=).
- . 2010a. *California Government Code* (Sections 51175–51189, Very High Fire Hazard Severity Zones). Sacramento, CA: the State.  
[http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=1.&title=5.&part=1.&chapter=6.8.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=1.&title=5.&part=1.&chapter=6.8.&article=).
- . 2010. *California Public Resources Code* (Sections 4291–4299, Mountainous, Forest-, Brush- and Grass-Covered Lands). Sacramento, CA: the State.

[http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=4.&title=&part=2.&chapter=3.&article=.](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=4.&title=&part=2.&chapter=3.&article=)

———. 2005. *California Fish and Game Code* (Sections 1600–1616, Fish and Wildlife Protection and Conservation). Sacramento, CA: the State.  
[http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=FGC&division=2.&title=&part=&chapter=6.&article=.](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=FGC&division=2.&title=&part=&chapter=6.&article=)

———. 2003. *California Public Resources Code* (Sections 2690–2699.6, Seismic Hazards Mapping). Sacramento, CA: the State.  
[http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=2.&title=&part=&chapter=7.8.&article=.](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=2.&title=&part=&chapter=7.8.&article=)

California, State of, Executive Department. 2014 (January). Executive Order B-29-15. Sacramento, CA: the State.  
[https://www.gov.ca.gov/docs/4.1.15\\_Executive\\_Order.pdf](https://www.gov.ca.gov/docs/4.1.15_Executive_Order.pdf).

California Water Resources Control Board (SWRCB). 2014 (July). State Water Resources Control Board Resolution No. 2014-0038 to Adopt an Emergency Regulation for Statewide Urban Water Conservation. Sacramento, CA: SWRCB.  
[http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/resolutions/2014/rs2014\\_0038\\_regs.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2014/rs2014_0038_regs.pdf).

———. 2009 (May 22, last updated). Recycled Water Policy. Sacramento, CA: SWRCB.  
[http://www.waterboards.ca.gov/water\\_issues/programs/water\\_recycling\\_policy/docs/oal\\_apprvl\\_docs.pdf](http://www.waterboards.ca.gov/water_issues/programs/water_recycling_policy/docs/oal_apprvl_docs.pdf).

Golden Valley Municipal Water District (GVMWD). 2011 (May). *Centennial Water Supply Assessment and Verification Report, SB 610/221*. Gorman, CA: GVMWD (Appendix 5.18-A).

Los Angeles, County of. 2015a (last accessed). *Los Angeles County, California – Code of Ordinances* (Title 22, Planning and Zoning). Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles.  
[https://www.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances](https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances).

———. 2015b (last accessed). *Los Angeles County, California – Code of Ordinances* (Title 32, Fire Code). Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles.  
[https://www.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances?next=true](https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances?next=true).

Los Angeles County Metropolitan Transportation Authority (Metro). 2015 (May 27). Letter to Hon. James C. Ledford, Chairman of the North County Transportation Coalition and Mayor of the City of Palmdale.

- Los Angeles County Department of Regional Planning (LACDRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: LACDRP. <http://planning.lacounty.gov/tnc>.
- . 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: LACDRP. <http://planning.lacounty.gov/generalplan>.
- . 2015c (May 27, last accessed). Town & County—Antelope Valley Area Plan Update. Los Angeles, CA: LACDRP. <http://planning.lacounty.gov/tnc>.
- Los Angeles, County of, Fire Department (LACFD), Prevention Bureau, Forestry Division, Brush Clearance Section. 2011. *Fuel Modification Plan*. Los Angeles, CA: LACFD. <https://www.fire.lacounty.gov/wp-content/uploads/2014/02/Fuel-Modification-Plan-Guidelines-8-10-11.pdf>.
- Metropolitan Transportation Authority (Metro). 2014 (March). Northwest 138 Corridor Improvement Project Frequently asked Questions. Los Angeles, CA: Metro. [http://media.metro.net/projects\\_studies/nw138/nw138\\_faqs\\_flyer.pdf](http://media.metro.net/projects_studies/nw138/nw138_faqs_flyer.pdf).
- Odle, M. 2008 (September 3). Personal communication. Letter from M. Odle, Captain (Department of California Highway Patrol, Newhall Area Station) to K. Quinn, Assistant Project Manager (BonTerra Consulting).
- Peterson, M. 2007 (January 17). Personal communication. Telephone conversation between M. Peterson, Field Engineer (SCE) and H. Fong, Environmental Planner (BonTerra Consulting).
- Placeworks. 2017 (June). *Centennial Specific Plan*. Santa Ana, CA: Placeworks (Appendix 4.0-A).
- Rahaman, M.M. and O. Varis. 2005 (Spring). Integrated water resources management: evolution, prospects, and future challenges. *Sustainability: Science, Practice, and Policy*. Helsinki, Finland: Helsinki University of Technology.
- Rissler, P.A. 2007 (March 29). Personal communication. Telephone communication between P.A. Rissler, Deputy (Los Angeles County Sheriff's Department, Santa Clarita Valley Station) and K. Quinn, Assistant Project Manager (BonTerra Consulting).
- Southern California Association of Governments (SCAG). 2016 (April 7). The 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy. Los Angeles, CA: SCAG. <http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf>.
- . 2012a (April). *2012–2035 Regional Transportation Plan/Sustainable Communities Strategy: Transportation Conformity Analysis Appendix*. Los Angeles: SCAG. [http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP\\_TransportationConformityReport.pdf](http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP_TransportationConformityReport.pdf).



———. 2012 (August 29). 5th Cycle Regional Housing Needs Assessment Final Allocation Plan, 1/1/2014-10/1/2021. Los Angeles, CA: SCAG. <http://rtpscs.scag.ca.gov/Documents/rhna/5thCyclePFinalRHNAplan.pdf>.

Southern California Edison (SCE). 2007a (January 9). Letter from M. Peterson, SCE Field Engineering to C. Estel, BJ Palmer & Associates entitled “Centennial Development, VTPM #60022 County of Los Angeles”.

———. 2007b (January 9). Letter from M. Peterson, SCE Field Engineering to C. Estel, BJ Palmer & Associates entitled “Usage Demand for Centennial Development, VTPM #60022 County of Los Angeles”.

———. 2007c (August 27). Personal communication. Handout given from M. Peterson, Field Engineering-Northern (Southern California Edison) at a meeting to discuss electrical facilities on the *Centennial Specific Plan* site.

Southern California Gas Company (SCGC). 2006 (October 27). Letter from J. Russo, Planning Associate to BonTerra Consulting entitled “Proposed Centennial Specific Plan and Phase One Implementation Draft Environmental Impact Report”.

## 5.0 REGULATORY AND ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION

### 5.0.1 INTRODUCTION

In compliance with Title 14, Section 15063(a) of the California Code of Regulations, an Initial Study was not been prepared because the County determined that the Centennial Project (Project) may have a significant effect on the environment and that an EIR will clearly be required. In accordance with the California Environmental Quality Act (CEQA) Guidelines (Sections 15125–15126), this environmental impact report (EIR) serves as a Project EIR and includes an analysis of environmental impacts, as described in detail in Sections 5.1–5.21 of this document. Each topical section includes the following information: introduction; relevant plans, policies and regulations; environmental setting; project design features; thresholds of significance; environmental impacts; mitigation measures, if required, to reduce the impacts; level of significance after mitigation; and references. For a more detailed description of these subsections, please see Section 2.0, Introduction.

### 5.0.2 THRESHOLDS OF SIGNIFICANCE

The thresholds used in this EIR have been derived from the County of Los Angeles Environmental Checklist.

### 5.0.3 ENVIRONMENTAL IMPACTS AND MITIGATION

This section describes how the environmental impacts analysis included in each topical section of this EIR (i.e., Sections 5.1 through 5.21) is formatted and how mitigation is incorporated into the analysis. The Project has been planned with design elements called Project Design Features (PDFs). The Applicant has planned the Centennial Project to include the design elements listed as PDFs listed in each section; these PDFs have been incorporated into the Project to prevent the occurrence of or to reduce the significance of potential environmental effects. Because PDFs have been incorporated into the Project, they do not constitute mitigation measures as defined by CEQA. However, if the PDFs have mitigation value to reduce a potentially significant impact, then a corresponding mitigation measure (MM) has been prepared to ensure the implementation of the measure through the Mitigation Monitoring and Reporting Program (MMRP).

Applicable local, State, or federal regulations or laws that are frequently required independently of CEQA review and also serve to offset or prevent specific environmental impacts are discussed in the Relevant Plan, Policies, and Regulations section of each EIR analysis. Typical regulations include compliance with the provisions of the Uniform Building Code, South Coast Air Quality Management District Rules, and local agency fees, among other standard building practices and programs required by law. Additional conditions may be imposed on the Project by government agencies during the approval process, as appropriate.

For each topical issue in Section 5, the impact analysis is formatted to analyze the potential Project impacts related to each identified threshold of significance. Unless otherwise noted, the analysis under each threshold addresses each of the following:

- **On-Site Impacts:** This category includes an analysis of the potential impacts associated with the Project as a whole, including all construction activities, long-term operational activities, future entitlements, and all discretionary approvals requested or required to be implemented as a part of the Project.
- **Off-Site Impacts:** This category includes an analysis of the potential impacts resulting from implementation of identified off-site Project features described in Section 4.7, Off-Site Project Features.

Where a potentially significant environmental effect has been identified and is not considered less than significant with the inclusion of PDFs, Project-specific mitigation measures have been identified where feasible. Mitigation measures (MMs) are included in the MMRP to ensure that they are incorporated, monitored, and implemented as a part of the Project.

Any MM and timing thereof that is subject to the approval of the County of Los Angeles, that will have the same or superior result with respect to significant environmental impacts, and that will have the same or a reduced effect on the environment (as demonstrated by the Applicant or subsequent party of interest to the County's satisfaction) may be substituted for a similar MM described in this EIR. For example, if an MM that is less expensive or less environmentally intrusive is feasible and yields the same or a superior result, this measure could be implemented in place of its equivalent MM identified in the EIR, subject to approval by the County. All MMs identified in this EIR are included in the MMRP.

The topical sections that follow in Sections 5.1–5.21 incorporate the approaches described above.

#### **5.0.4 REFERENCES**

California Office of Administrative Law. 2015. *California Code of Regulations* (Title 14, Natural Resources; Division 6, Resources Agency; Chapter 3, Guidelines for Implementation of the California Environmental Quality Act). Sacramento, CA: the State.

*This page is intentionally left blank.*

---

## 5.1 GEOTECHNICAL

### 5.1.1 INTRODUCTION

#### **Purpose**

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that geology and soils issues be evaluated as part of the environmental documentation process. The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively.

#### **Summary**

With implementation of Project Design Feature (PDF) 1-1, the Project would not expose people or structures to potential substantial adverse effects (including the risk of injury, or death) involving strong seismic ground shaking, seismic-related ground failure (e.g., liquefaction, settlement, lateral spreading), or location on an unstable geologic unit (e.g., collapse, expansive soils). The Project has been designed with a Geologic Safety Zone so that areas with potential geologic and seismic constraints are not developed with habitable structures and are planned so that buildings near faults have a minimum 100-foot setback in either direction from the fault line (PDF 1-1). Therefore, the Project would not expose people or structures to potential adverse effects (including the risk of injury or death) from surface rupture of a known earthquake fault with implementation of PDF 1-1. Additionally, in accordance with California Department of Education's Title 5 and current building codes, no sensitive uses (i.e., schools, hospitals, or public assembly sites) would be located on sites presenting a significant geotechnical hazard, as determined by the site-specific geological and soils engineering study. Therefore, there would be less than significant impacts related to fault rupture, seismic ground shaking, and ground failure with implementation of PDF 1-1.

Development of the Project may require localized blasting associated with excavation on site, and this would have the potential to result in geotechnical instability. However, with implementation of MM 12-7 in Section 5.12, Noise, potential impacts would be reduced to a less than significant level.

There would be less than significant impacts associated with off-site Project features since no off-site features would include habitable structures; and since all off-site features would be required to comply with County and State geotechnical review and building code requirements as applied to the Project.

Development of the Project would result in less than significant impacts related to erosion or loss of topsoil with compliance with County subdivision specifications; County building code requirements; the Project's Hillside Design Guidelines, and existing and future, tract map-level geotechnical recommendations for the Project.

## Section Format

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce significant impacts; and level of significance after mitigation, if any. This information is presented in the following format (please refer to Section 2.0, Introduction, and Section 5.0 for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Relevant Plans, Policies, and Regulations
- Environmental Setting
- Project Design Features
- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- References

## References

Although all references cited for preparation of this analysis are listed in Section 5.1.9, the primary technical reference for this section is listed below. This report defines the geologic and seismic characteristics at the site and identifies preliminary recommendations for site development that minimize existing geotechnical constraints.

1. Geocon, Inc. 2015 (August). *Preliminary Geotechnical Summary Report; Centennial – Tejon Ranch, Los Angeles County, California*. San Diego, CA: Geocon (Appendix 5.1-A).

Between 1999 and 2006, several geotechnical investigations were performed for the Project site and adjacent areas by Geocon. The *Preliminary Geotechnical Summary Report* (2015 Geocon Report) includes a preliminary geotechnical analysis of the Project areas located between 300th Street West and 285th Street West, which was not studied in previous reports, and a review and compilation of the previous Project site investigations. The previously completed geotechnical studies prepared for the Project site, and referenced in the 2015 Geocon Report are listed in the Report's List of References Appendix (see Appendix 5.1-A).

## 5.1.2 RELEVANT PLANS, POLICIES, AND REGULATIONS

### Federal

#### *International Building Code*

The International Building Code (IBC) is the national model building code. The 2015 IBC is the most recent edition of the International Building Code, which was incorporated into the 2016 California Building Code, and currently applies to all structures being constructed in California. The national model codes are incorporated by reference into the building codes of local municipalities, such as the California Building Code and County Building Code discussed below.

### State

#### *California Building Code*

The California Building Code is promulgated under Title 24 of the *California Code of Regulations* (CCR), Parts 1 through 12 (also known as the “California Building Standards Code” or CBC) and is administered by the California Building Standards Commission (CBSC). The national model code standards adopted into Title 24 apply to all occupancies in California except for modifications adopted by State agencies and local governing bodies. The 2016 triennial edition incorporates the 2015 IBC, discussed above, and applies to all occupancies that apply for a building permit on or after January 1, 2017. The CBC may be adopted wholly or with revisions by local municipalities, such as the County of Los Angeles Building Code, described below.

#### *Alquist-Priolo Act of 1972*

The Alquist-Priolo (AP) Earthquake Fault Zoning Act (AP Act) was adopted by the State of California in 1972 after the 1971 San Fernando Earthquake in order to mitigate the hazard of surface fault rupture along known active faults (California Public Resources Code [PRC], Section 2621 et. seq.). The purpose of the AP Act is to reduce the threat to life and property, specifically from surface fault rupture, by preventing the construction of buildings used for human occupancy on the surface trace of active faults. Under this Act, the State has defined an “active” fault as having had surface displacement during the past 11,000 years (Holocene time). This law directs the State Geologist to establish Earthquake Fault Zones (known as “Special Studies Zones” prior to January 1, 1994) in order to regulate development within designated hazard areas. City and County jurisdictions must require a geologic investigation to demonstrate that a proposed development project, which includes structures for human occupancy, is adequately set back (usually at least 50 feet) from an active fault prior to permitting. In accordance with the AP Act, the State has delineated “Earthquake Fault Zones” along identified active faults throughout the state.

#### *Seismic Hazards Mapping Act*

The Seismic Hazards Mapping Act (Act) was passed in 1990 and directs the State Department of Conservation to identify and map areas subject to earthquake hazards, such as liquefaction, earthquake-induced landslides, and amplified ground shaking (PRC 2690–



2699.6). Passed by the State legislature after the 1989 Loma Prieta Earthquake, the Act was aimed at reducing the threat to public safety and minimizing potential loss of life and property in the event of a damaging earthquake event. Seismic Hazard Zone Maps are a product of the resultant Seismic Hazards Mapping Program and are produced to identify Zones of Required Investigation; most developments designed for human occupancy in these zones must conduct site-specific geotechnical investigations to identify the hazard and to develop appropriate mitigation measures prior to permitting by local jurisdictions.

### ***California Department of Education Standards (Title 5)***

The California Department of Education (CDE) has instituted standards for school siting and construction that are promulgated through the *California Code of Regulations* (CCR, Title 5, Article 1). These standards are implemented by individual school districts (in coordination with the CDE) and describe detailed procedures and requirements for school siting and land acquisition; development and approval of plans and specifications; and goals for the operation and maintenance of schools. Section 14001(f) of Title 5 requires that planned educational facilities are “designed to meet federal, State, and local statutory requirements for structure, fire, and public safety”, and Section 14011(g) of Title 5 requires compliance with Sections 17212 and 17212.5 of the *California Education Code*, which describe requirements for the “geological and soils engineering study”. These standards would apply to the proposed public school facilities on the Project site.

## **County**

### ***County of Los Angeles Building Code***

The County of Los Angeles Building Code (County Building Code) is promulgated under Title 26 of the Los Angeles County Code. The County Building Code incorporates (and adopts by reference) the 2016 CBC described above, which, in turn, incorporates the 2015 IBC. Section 101.3 of Title 26 (Chapter 1) states that, “The provisions of this Code [the County Building Code] shall apply to the construction, alteration, moving, demolition, repair, use of any building or structure, and grading within the unincorporated territory of the County of Los Angeles and to such work or use by the County of Los Angeles in any incorporated city”. This would include the Project. Certain chapters or sections of the County Building Code specifically pertain to construction in areas that present seismic risks and would apply to the Project. These requirements are described below.

- Chapter 1, Section 110.2, “Geotechnical Hazards”, of the County Building Code restricts building and grading activities in areas where geotechnical hazards of landslide, settlement, and slippage may be activated or increased as a result of project activities. Project applicants are required to submit an Engineering Geology and/or Soils Engineering Report to indicate how the hazard will be eliminated or mitigated prior to the use or occupancy of the land.
- Chapter 1, Section 111, “Engineering Geology and Soils Engineering Reports”, of the County Building Code gives the Building Official the authority to require an Engineering Geology Report, a Soils Engineering Report, or both in cases where such reports are considered essential for the evaluation of the site’s safety. The Engineering Geology

and/or Soils Engineering Reports must be prepared by a California-certified engineering geologist or California-licensed civil engineer, respectively, and must contain a finding regarding the safety of the site of the proposed work against hazard from landslide, settlement, or slippage and a finding regarding the effect that the proposed work will have on the geotechnical stability of the area outside the proposed work.

- Chapter 16, Structural Design, of the County Building Code describes requirements for construction of structures based on earthquake loads, including modifications to requirements defined in ASCE 7<sup>1</sup>/2016 CBC Section 1613 related to Seismic Design Categories (formerly Seismic Zones<sup>2</sup>) to reflect County conditions. The Seismic Design Categories consider building location, building use, and underlying soil conditions while Seismic Zones considered only building location. These County-specific building requirements are in addition to all other requirements of the 2016 CBC.
- Chapter 17, Structural Tests and Special Inspections, of the County Building Code requires an applicant to “submit a statement of special inspections prepared by the registered design professional in responsible charge in accordance with Section 106.4.2, as a condition for permit issuance” when specified seismic conditions are met. Section 1709 includes requirements for use of the registered design professional responsible for the structural design, or another registered design professional, to perform structural observations for those buildings included in Seismic Design Category D, E, or F (as determined in Section 1613).

### ***Los Angeles County General Plan and Antelope Valley Area Plan***

The *Los Angeles County General Plan* and the *Antelope Valley Area Plan* (AVAP), part of the County General Plan, include goals and policies that address geotechnical issues in the unincorporated County. The AVAP goals and policies applicable to the analysis of geologic and seismic issues with Project implementation are listed below. Section 5.8, Land Use, Entitlements, and Planning, presents a more in-depth analysis of the Project’s consistency with relevant plans, policies and regulations.

**Goal LU 3:** A land use pattern that minimizes threats from hazards.

**Policy LU 3.1:** Except within economic opportunity areas, prohibit new development on fault traces and limit the amount of development in Seismic Zones, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

**Policy LU 3.4:** Except within economic opportunity areas, limit the amount of potential development on steep slopes identified as Hillside Management Areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

**Policy LU 3.5:** Except within economic opportunity areas, limit the amount of potential development in landslide and liquefaction areas, through appropriate land

<sup>1</sup> American Society of Civil Engineers (ASCE) 7-05 “Minimum Design Loads for Buildings and Other Structures”  
<sup>2</sup> Seismic Design Categories A through F have replaced Seismic Zones 0 through 4.

use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

**Goal PS 2:** Protection of the public through geological hazard planning and mitigation.

**Policy PS 2.1:** Limit the amount of potential development in Seismic Zones and along the San Andreas Fault and other fault traces, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

**Policy PS 2.2:** Limit the amount of development on steep slopes (Hillside Management Areas) and within landslide and liquefaction areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

**Policy PS 2.3:** Prohibit the construction of new structures on or across a fault trace.

**Policy PS 2.4:** Ensure that new development does not cause or contribute to slope instability.

### 5.1.3 ENVIRONMENTAL SETTING

#### Overview

The Project site is situated in the western portion of Antelope Valley and in the foothills of the Tehachapi Mountains. The western portion of the site is characterized by moderate to steep hills and drainages, and the eastern portion of the site is characterized by open, gently sloping mesas that are dissected by a network of arroyos and drainages. Agricultural production occurs in the far eastern portion of the Project site on either side of 300<sup>th</sup> Street West. Elevations range from approximately 3,635 feet above mean sea level (msl) along a ridge overlooking Quail Lake to approximately 2,975 feet above msl in the alluvial drainage area in the east portion of the site. The Project site excludes both State Route (SR) 138 and the West Branch of the California Aqueduct.

#### *Soil and Geologic Conditions*

Surficial units are deposits of loose sediment on the surface while geologic units are layers of solidified material (i.e., rocks) that have been given individual names. Surficial deposits on the site include previously placed fill, topsoil, alluvium, colluvium, and shallow landslide debris. Geologic units across the site include Older Alluvium, Hungry Valley Formation, Oso Canyon Formation, Quail Lake Formation, and Neenach Volcanic Formation. The surficial and geologic units mapped on the Project site and the relevant constraints of each unit, are described below. Please refer to Appendix 5.1-A for geologic maps and cross-sections. These maps illustrate the locations of surficial and geologic units, topography, limits of fault setback zones, trench and boring locations, and cross-section locations, all overlain on the Project site's Preliminary Grading Plan Map.

### **Surficial Units**

**Previously Placed Fill (Qpf).** Isolated areas of previously placed fill exist in localized areas throughout portions of the Project site and are generally associated with the construction of existing roadways. Fills associated with dirt roadways are generally uncompacted; and fills associated with the Cement Plant Road and 300<sup>th</sup> Street West have received compaction, but are underlain by unconsolidated surficial soils. These fill soils are not suitable in their present condition to support additional fill and/or structural loading.

**Topsoil (unmapped).** A relatively thin blanket of topsoil (typically on the order of one to four feet thick) covers the natural hillsides on the site and is composed, in general, of loose, dry to humid, dark brown, silty to clayey sand. The topsoil is compressible (i.e., collapsible under weight) and not suitable for loading.

**Alluvium (Qal).** Alluvium exists in major canyons and low-lying areas throughout the site. The alluvium encountered in small-diameter borings and in exploratory trenches generally consists of dry to saturated, silty to clayey, fine- to coarse-grained sand and is often indistinguishable from thick colluvium deposits. The alluvium encountered on site varies in thickness from approximately 4 feet to 65 feet, and becomes denser with depth. Typically, the upper 5 to 15 feet of soil is dry and loose, and is not suitable for loading. Below 15 feet, the soil moisture content and density increase. Consolidation tests performed on samples of alluvium indicate that, below a depth of 15 feet the alluvium has low compressibility potential and relatively minor volume change characteristics upon saturation (i.e. low hydroconsolidation [collapse upon the addition of water] potential).

**Colluvium (Qc).** Colluvial soils were encountered beneath gently to moderately inclined slopes and semicircular bowl-shaped areas near the heads of arroyos and canyon drainages. In general, colluvium consists of loose, porous, dry to humid, dark brown to reddish brown, silty, gravelly, medium- to coarse-grained sand. The thickness of the colluvium varies greatly from approximately 3 feet to more than 50 feet. Anticipated average thicknesses range between 15 and 20 feet, but in tributary canyons to major drainages the thicknesses can be substantially greater, equaling or exceeding alluvial thicknesses. The colluvium is poorly consolidated, porous, has low moisture content, and is subject to collapse upon wetting (i.e. hydroconsolidation) and settlement from loading (i.e., compressibility).

**Landslide Debris (Qls).** A large ancient landslide was encountered over a large area in the northwestern portion of the Oso Canyon area. This area is entirely avoided and is located within the SEA No. 17; therefore, this landslide area is not identified on the Appendix 5.1-A geologic maps and cross-sections for the Project, which only include areas within the preliminary grading plan. The landslide area is designated to remain in open space. The landslide was mapped and partially delineated with exploratory trenches as well as a single large-diameter boring. Mapped landslide debris associated with this slide covers an area over 1 mile in length; is 1,000 to 3,000 feet in width; and is estimated to be as much as 200 feet thick. Previous mapping of the landslide suggests that the head of the landslide was in granitic bedrock approximately 500 feet west of the Project site's western property line. Exploratory excavations and mapping indicates that the landslide initially failed within the adversely dipping claystones and shale of the Quail Lake Formation (discussed below).

A small, shallow landslide was mapped along a north-facing arroyo slope. Several other small, shallow slumps and erosional sloughing were observed during on-site geotechnical investigations along the more steeply eroded arroyos. These features do not exceed widths of 50 feet and, while noted in the geotechnical studies for the site, are not mapped due to their small size and geotechnical insignificance. Observations and exploratory excavations indicate the shallow landslides on the relatively steep slopes initially failed in permeable cohesionless gravelly sands of Older Alluvium.

### ***Geologic Units***

**Older Alluvium (Qoal).** Older Alluvium, composed of Pleistocene-age (11,700 years old to 2.5 million years old), terrace deposits, cap the upper portions of mesas and ridges across the majority of the Project site and is one of the major deposits anticipated to be encountered during grading. Thicknesses of Older Alluvium encountered during geotechnical investigations ranged from 8 feet to 74 feet. This unit is generally composed of medium dense to very dense, humid to moist, reddish brown, silty to clayey, medium- to coarse-grained sand with lenses of coarse gravel and clean sands. Except for surficial, weathered portions or thin interbedded clayey layers, the Older Alluvium displays high shear strength characteristics and low expansion potential. Given the in situ density of the Older Alluvium, it is considered suitable for support of additional fill and/or structural loading. However, some localized layers consist of unconfined clean, gravelly sand that are subject to erosion and surficial landslides under seasonal heavy rains or perched groundwater conditions. The loose Older Alluvium overlies the solid bedrock formations listed below.

**Hungry Valley Formation (unmapped).** The Hungry Valley Formation can be found in one small area in the southwestern corner of the Project site. Although not encountered during geotechnical investigations, it could occur in localized unconformable deposits located between the Quail Lake Formation and the Older Alluvium. This unit is composed of very stiff, very moist, silty to conglomeratic claystone with bentonite clay seams overlain by Older Alluvium and underlain by the Quail Lake Formation. No Project development would overlie this geologic unit.

**Oso Canyon Formation (Toc).** The Oso Canyon Formation consists of Miocene-aged (5.3 to 23 million years old), dense to very dense, partially to well-cemented, light brown to tan sandstone. This formation was encountered at shallow depths in arroyos and lower slopes along ridges and mesas in the southern and western portions of the site. The Oso Canyon Formation, and the Older Alluvium are both anticipated to comprise the bulk of cut materials generated by proposed grading. The Oso Canyon Formation is considered suitable to support of structural fill and/or loading in its present condition. Soil derived from the Oso Canyon Formation generally has a very low expansion potential, high shear strength, and satisfactory foundation engineering characteristics in either a natural or properly compacted condition.

The previous geotechnical investigations encountered strongly cemented zones up to three feet thick in this unit. Where encountered, excavations will likely require a very heavy effort with conventional heavy-duty grading equipment and/or localized breaking or possible blasting. Once ripped or broken up, numerous oversize rock fragments will be generated that will require special placement procedures and compaction when placed in fills.

**Quail Lake Formation (Tql).** The Quail Lake Formation consists of Miocene-age, hard to very dense, dark olive-brown to gray, lignitic (i.e., including coal) clayey siltstones to silty claystones with thin interbedded sandstones. This formation is exposed in the westernmost quadrant of the Project site. Several dipping bedding plane shears<sup>3</sup> or remolded clay seams were encountered in large-diameter borings. Bedding plane shears are notable in that they represent planes of weakness in a geologic unit. In addition, some portions of the formation have intersecting sets of clay-lined joints that could impact surficial slope stability. Cut slopes in areas of adversely dipping bedding-plane shears or intersecting joints may require buttressing and/or stabilization fills to provide long-term stability. Expansion testing on the Quail Lake Formation indicates a variable range of expansion indices from low to high. Highly expansive clay exposed at finish grade will require remedial grading to provide a select low expansive soil cap.

**Neenach Volcanic Formation (Tva).** The Neenach Volcanic Formation consists of Miocene-age, dark to reddish brown andesite flows (i.e., formed by lava flows on the surface) and tuff beds (i.e., consolidated pyroclastic rocks). A small exposure of this unit was mapped in the southeastern portion of the site.

### ***Geologic Structure***

Bedding attitudes, or angles, in Older Alluvium vary from horizontal to gently dipping or undulatory. Typically, these deposits have massive (i.e., homogenous) bedding with very irregular scoured contacts on underlying units. Underlying units, principally the Oso Canyon Formation and the Quail Lake Formation, have bedding attitudes, or angles, that vary from gentle to steep to overturned, indicating a faulted and folded bedrock structure beneath the majority of the site. Outcrops and subsurface bedding attitudes in the Tertiary-age (2.6 to 66 million years old) units suggest northwest- to southeast-oriented folding in bedrock units throughout the site. Bedding plane shears or remolded clay seams were also encountered in the folded and faulted Oso Lake and Quail Lake Formations, and in bentonitic zones in the Hungry Valley Formation.

### ***Faulting and Seismicity***

The Project site, as with Southern California in its entirety, lies in a seismically active region. The California Geological Survey (CGS) defines faults as “active”, “potentially active”, or “inactive”. The CGS considers a fault seismically active when evidence suggests seismic activity within roughly the last 11,000 years. Exhibit 5.1-1, Regional Faults, depicts the locations of faults in the Project site’s vicinity and provides a regional context for potential seismic activity at the site. The site is located between the junction of the San Andreas and Garlock Fault Zones.

The only fault in the vicinity of the Project site within a designated Alquist-Priolo Earthquake Fault Zone is the San Andreas Fault (San Andreas Earthquake Fault Zone). The San Andreas

---

<sup>3</sup> This term, bedding plane shears, describes a deformation of rock resulting from stresses that cause contiguous parts of a geologic body to slide in relation to each other in a direction parallel to their plane of contact (American Geologic Institute 1984).

D:\Projects\CEN\Centennial\MXD\EIR\ex\_regional\_faults\_20150806.mxd



- Project Boundary
- Major Faults**
- Big Pine Fault
- Garlock Fault
- Pleito Thrust Fault
- San Andreas Fault
- San Gabriel Fault
- Santa Ynez Fault
- White Wolf Fault

### Regional Faults

Centennial Project



Exhibit 5.1-1

Fault Earthquake Fault Zone and fault line cross the southwestern edge and southernmost point of the Project site, as shown on Exhibit 5.1-2, Geologic Hazards.

Due to the Project's proximity to the San Andreas and Garlock Fault Zones, Geocon retained Earth Consultants International (ECI)—a fault research company—to conduct a detailed fault investigation on the Project site (Appendix E of the 2015 Geocon Report in Appendix 5.1-A). ECI's study included a thorough review of published geologic literature and graduate thesis studies to assess known hypothetical faults and their locations on site. Once these proposed faults and locations were identified, detailed geologic mapping was conducted to assess if sufficient geology was exposed to verify faulting. Aerial photo review and mapping that showed exposures of continuous geologic strata across the proposed fault locations resulted in eliminating the majority of hypothetical faults or other linear features in the literature.

The subsequent field investigation consisted of logging 18 fault trenches and 21 soil pits. From this research, the two previously unidentified active faults were found within the boundary of the Project site. The westernmost of the two faults is located outside the development footprint. The other fault crosses the western portion of the development area in Village 9 and requires a minimum 100-foot building setback for site planning purposes, which may be reduced to 50 feet as discussed in PDF 1-1. The other active fault strand is located approximately 2,000 feet to the west of the proposed development area on the site. Site-specific fault conditions and associated setbacks are illustrated on Exhibit 5.1-2. It is noted that these faults are unnamed because they were only identified as part of the site-specific investigations. Therefore, they are not included in the Alquist-Priolo program, nor are they otherwise identified by the State; seismic characteristics are not known for these faults as they are for the known regional faults listed above.

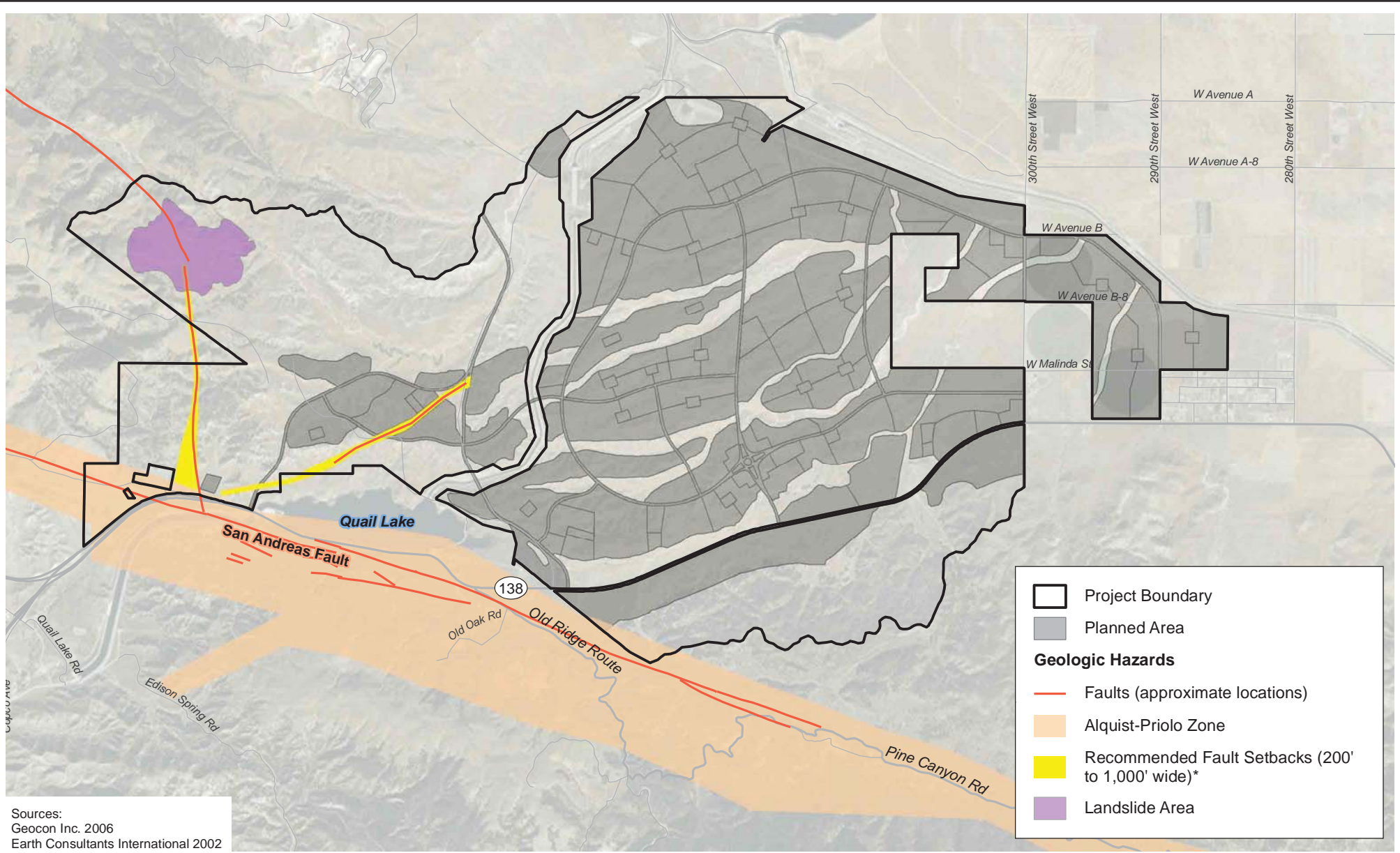
The 2015 Geocon Report included site-specific seismic hazard analysis with both deterministic and probabilities methodologies (i.e., Deterministic Seismic Hazard Analysis [DSHA] and Probabilistic Seismic Hazard Analysis [PSHA]), using the EZ-FRISK™ (Version 7.65) earthquake ground motion estimation software. These methods and the results are described below.

### ***Deterministic Seismic Hazard Analysis***

The EZ-FRISK software indicates there are 29 known active faults are located within a search radius of 50 miles from the Project site. The analysis used coordinates generally correlating to the central portion of the site. Table 5.1-1 lists the estimated maximum earthquake magnitude (M) and peak ground acceleration (g, or percent of the force of gravity) for the most dominant faults in relationship to the central portion of the Project site, listed by increasing distance, for the three different acceleration-attenuation relationships (i.e., mathematical equations related to ground motion) applied in the DSHA.



D:\Projects\CEN\Centennial\MXD\EIR\Ex\_geologic\_hazards.mxd



Sources:  
 Geocon Inc. 2006  
 Earth Consultants International 2002

	Project Boundary
	Planned Area
<b>Geologic Hazards</b>	
	Faults (approximate locations)
	Alquist-Priolo Zone
	Recommended Fault Setbacks (200' to 1,000' wide)*
	Landslide Area

# Geologic Hazards

Centennial Project

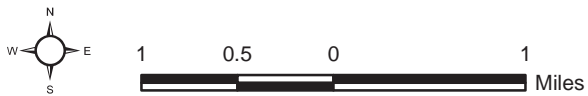


Exhibit 5.1-2

**TABLE 5.1-1  
DOMINANT FAULTS IN THE VICINITY OF THE PROJECT SITE (DSHA)**

Fault Name	Approximate Distance From Central Portion of the Site (miles)	Maximum Earthquake Magnitude (M)	Peak Ground Acceleration <sup>a</sup> (g)		
Southern San Andreas	0.7	8.2	0.53 (59%)	0.46 (59%)	0.59 (59%)
Garlock	7	7.7	0.31 (35%)	0.26 (35%)	0.35 (35%)
San Gabriel	8	7.3	0.34 (40%)	0.28 (40%)	0.40 (40%)
Pleito	12	7.1	0.23 (24%)	0.19 (24%)	0.24 (24%)
Santa Ynez (East)	17	7.2	0.20 (20%)	0.14 (20%)	0.17 (20%)
Santa Ynez (Connected)	17	7.4	0.21 (21%)	0.15 (21%)	0.18 (21%)
San Cayetano	19	7.2	0.20 (20%)	0.14 (20%)	0.18 (20%)
White Wolf	23	7.2	0.11 (18%)	0.18 (18%)	0.15 (18%)
DSHA: Deterministic Seismic Hazard Analysis; g: ground movement as a percent of the force of gravity					
<sup>a</sup> The three columns represent the results of the three different mathematical equations utilized to calculate the Peak Ground Acceleration, per standard practice for seismic assessment.					
Source: Geocon 2015 (Appendix 5.1-A).					

As shown, the nearest known active fault is the Southern San Andreas Fault, located less than one mile south of the central portions of the site and the dominant source of potential ground motion. Because the analysis used coordinates generally correlating to the central portion of the Project site, this fault is shown as 0.7 mile away; however, it is located along the southern boundary of the Project site (see Exhibits 5.1-1 and 5.1-2). Earthquakes that might occur on the San Andreas Fault Zone or other faults in the Southern California and Northern Baja California area are potential generators of significant ground motion at the site. The estimated deterministic maximum earthquake magnitude and peak ground acceleration for the Southern San Andreas Fault are 8.2g and 0.59g (i.e., 59 percent the force of gravity), respectively. While listing peak accelerations is useful for comparison of potential effects of fault activity in a region, other considerations are important in seismic design, including frequency and duration of motion and soil conditions underlying the site. These other considerations are collectively addressed in the 2015 Geocon Report.

### ***Probabilistic Seismic Hazard Analysis***

Probabilistic estimates of seismic risk are based on the premise that the potential for an earthquake in an area is a function of the combined annual probabilities for earthquakes on all faults capable of generating energy of a certain level in that area. This method assumes earthquakes occur randomly in time and that the annual probability for earthquake occurrences is the same from year to year. A higher frequency of small to moderate earthquake occurrence is also considered. By calculating the expected accelerations from considered earthquake sources, the EZ-FRISK program calculates the total average annual expected number of occurrences of site acceleration greater than a specified value.

Table 5.1-2 presents the site-specific probabilistic seismic hazard parameters including the three different acceleration-attenuation relationships (i.e., mathematical equations related to ground motion) applied in the PSHA and the probability of exceedance.

**TABLE 5.1-2  
PROBABILISTIC SEISMIC HAZARD PARAMETERS (EZ-FRISK)**

<b>Probability of Exceedance</b>	<b>Peak Ground Accelerations (g)<sup>a</sup></b>		
2% in a 50-Year Period	1.19 (119%)	0.88 (88%)	1.18 (118%)
5% in a 50-Year Period	0.90 (90%)	0.69 (69%)	0.94 (94%)
10% in a 50-Year Period	0.69 (69%)	0.54 (54%)	0.73 (73%)
g: ground movement as a percent of the force of gravity			
<sup>a</sup> The three columns represent the results of the three different mathematical equations utilized to calculate the Peak Ground Acceleration, per standard practice for seismic assessment.			
Source: Geocon 2015 (Appendix 5.1-A).			

In addition to the three relationships applied in the EZ-FRISK program, the CGS has a program that calculates the ground motion for a 10 percent of probability of exceedance in 50 years based on an average of several attenuation relationships. Table 5.1-3 presents the calculated results from the Probabilistic Seismic Hazards Mapping Ground Motion page from the CGS website.

**TABLE 5.1-3  
PROBABILISTIC SEISMIC HAZARD PARAMETERS (CGS)**

<b>Calculated Acceleration Firm Rock (g)</b>	<b>Calculated Acceleration Soft Rock (g)</b>	<b>Calculated Acceleration Alluvium (g)</b>
0.72 (72%)	0.72 (72%)	0.72 (72%)
CGS: California Geological Survey; g: g: peak ground acceleration (ground movement) as a percent of the force of gravity		
Source: Geocon 2015 (Appendix 5.1-A).		

### ***Secondary Seismic Effects***

The secondary effects of seismic ground shaking from earthquakes that may affect the Project site include liquefaction and settlement. Liquefaction is a phenomenon in which loose, saturated, and relatively cohesionless soil deposits lose their strength during strong ground motion. Primary factors that control the development of liquefaction include intensity and duration of ground motion; characteristics of subsurface soil; in situ (i.e., in the position originally formed) stress conditions; and the depth to groundwater. Based on previous geotechnical studies on the Project site and experience with similar geologic

conditions, the 2015 Geocon Report concludes that there is a potential for liquefaction occurring within the main alluvial drainages for the Project where shallow groundwater (less than 50 feet) and loose alluvium is present. In the event liquefaction occurs, the primary geotechnical constraint is associated with potential settlement due to seismic shaking. Groundwater depths across the site are discussed further below. Liquefaction potential is greatest along Oso Canyon, where relatively shallow groundwater was encountered during both the previous geotechnical investigations and the hydrogeologic investigation. However, no development is proposed in Oso Canyon.

Seismically induced settlement (i.e., liquefaction and settlement of dry sands) can occur during or after seismic shaking and results from rearranging of sand particles in the soil matrix. Settlement of dry sands, not related to liquefaction, has not been estimated throughout the Project site, but would be expected to occur in areas with alluvial deposits and/or known liquefaction potential.

## Groundwater

Groundwater and/or seepage were encountered within several of the exploratory trenches and borings performed during the field investigations. Groundwater/seepage was found as shallow as 3 feet and as deep as 55 feet. However, due to the geologic conditions and the natural and artificial water sources inherent to the site, groundwater conditions are expected to fluctuate seasonally. Occasional seeps and springs were also observed during the investigations and were mapped.

Seven well logs with readings from 1956 to 1971, located approximately a mile to the south and west of the Project site, were obtained from the County of Los Angeles Department of Water Resources. Review of the data indicated a high groundwater table variance from 3,226 feet above msl to 3,385 feet above msl. Surface elevations varied from 3,350 feet above msl to 3,430 feet above msl, equating to 45 to 117 feet below ground surface (bgs). However, given the distance from the wells to the site and the noncontiguous drainages, application of these high groundwater elevations can only be general (Geocon 2015).

On-site groundwater studies performed between March 2004 and December 2005 were conducted by Bookman-Edmonston (a division of GEI Consultants) to evaluate groundwater as a source for on-site potable water. Their study included numerous borings and several monitoring wells (see Appendix F of the Geotechnical Report in Appendix 5.1-A). They identified two aquifers located along the northern and southeastern portion of the site; the highest groundwater elevation was measured at 35 feet bgs. Considering that the monitoring period covered two of the wettest years on record in California, this may not represent the normal groundwater elevations for area (i.e., normal elevations would be deeper).

### 5.1.4 PROJECT DESIGN FEATURES

**PDF 1-1** A Geologic Safety Zone has been incorporated into the Project that establishes review procedures and setbacks for areas subject to potential surface fault rupture. This zone is applied to areas designated as Alquist-Priolo Earthquake Fault Zones and unnamed faults identified on the site as part of the Project's

site-specific geotechnical investigations. Also, Section 2690 of the *California Public Resources Code*, specifies that no human-occupied structures can be located within an Alquist-Priolo Earthquake Fault Zone unless specific investigations prove these areas to be free of active faulting.

This Geologic Safety Zone institutes a minimum 100-foot setback (i.e., 100 feet in each direction) from the fault lines that traverse any development area. The width of the setback may potentially be reduced to 50 feet (in each direction), with the approval of the County, provided there is no evidence of fault activity from trenching performed as part of an additional fault investigation during the site development process.

The Project, through the use of a Geologic Safety Zone, requires that:

1. No habitable structures be built within the San Andreas Alquist-Priolo Zone unless specific geotechnical investigations determine there is no active faulting present.
2. Development be setback at least 50 feet from any identified active fault on site.
3. Development will not be adversely affected by geotechnical problems.

### 5.1.5 THRESHOLD CRITERIA

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact if it would:

- Threshold 1-1** Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known active fault trace. Refer to Division of Mines and Geology Special Publication 42.
- Threshold 1-2** Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic groundshaking.
- Threshold 1-3** Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction and lateral spreading.
- Threshold 1-4** Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides.
- Threshold 1-5** Result in substantial soil erosion or the loss of topsoil.
- Threshold 1-6** Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

- Threshold 1-7** Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.
- Threshold 1-8** Have soils incapable of adequately supporting the use of onsite wastewater treatment systems where sewers are not available for the disposal of wastewater.
- Threshold 1-9** Conflict with the Hillside Management Area Ordinance (L.A. County Code, Title 22, § 22.56.215) or hillside design standards in the County General Plan Conservation and Open Space Element.

### 5.1.6 ENVIRONMENTAL IMPACTS

The Project was designed to avoid or minimize geotechnical constraints on the Project site. Several geotechnical investigations of the site have been conducted, and the results of the investigations were used to guide the site-planning process. Therefore, land uses were configured (1) to avoid designated setback zones for fault lines and the landslide located within the northwestern portion of the site and (2) in consideration of localized geotechnical conditions (see Exhibit 5.1-2).

The geologic investigations conducted across the Project site and incorporated within the 2015 Geocon Report determined that there is the potential for strong seismic ground shaking from on-site and regional active faults; there are also shallow groundwater areas, potentially liquefiable soils, compressible upper alluvial and surficial deposits, and some expansive soils. These are all common and easily remediated conditions. The 2015 Geocon Report concludes that there are no soil or geologic conditions present on or near the Project site that would preclude the safe development of all proposed land uses on the Project site (including homes, schools, commercial and industrial uses, community use and recreation areas, utility lines and other infrastructure, and water/wastewater treatment facilities) given incorporation of all existing and future, tract map-level, geotechnical recommendations into grading and construction plans and specifications; this includes compliance with County subdivision specifications, County zoning and building code requirements, and Project's Grading Plan, and the Specific Plan's Hillside Design Guidelines. All geotechnical recommendations found in the previously prepared and 2015 Geocon reports are standard engineering techniques, and the 2015 Geotechnical Report (Appendix 5.1-A) has determined the Project development is feasible provided the seismic and other geotechnical constraints identified within the Project site's grading boundaries are addressed, via future, tract map-level geotechnical studies to be performed as part of Project implementation consistent with County and State building code requirements.

It should be emphasized that, while the Project site has identified geotechnical constraints, the overall seismic risk at the Project site is the same as Southern California in its entirety. Compliance with geotechnical recommendations, which reflect building code requirements, would result in the construction of earthquake-resistant structures. However, in the event of a major seismic event, no structure is completely safe from damage. Incorporation of these measures reduces the potential risk from seismic and geotechnical conditions to the maximum extent practicable under current engineering practice.

**Threshold 1-1**      **Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known active fault trace? Refer to Division of Mines and Geology Special Publication 42.**

## **On-Site Impacts**

As described above, the nearest Alquist-Priolo active fault zone to the Project site is the San Andreas Fault Zone. As shown on Exhibit 5.1-2, the Project has been designed to avoid all designated fault buffer zones via the Geologic Safety Zone (PDF 1-1). Specifically, both the San Andreas Earthquake Fault Zone and the 100-foot setback (in both directions) placed on the unnamed faults on the Project site in accordance with the recommendation of the 2015 Geocon Report, are proposed as open space and drainage areas (see Exhibit 4-1 Centennial Project –Conceptual Land Use Plan). This is consistent with AVAP Policy LU 3.1 (although the Project is exempt from this policy due to location in an Economic Opportunity Area [EOA]), Policy PS 2.1, and Policy PS 2.3, related to limiting development on or near fault traces.

This Geologic Safety Zone institutes a minimum 100-foot setback (i.e., 100 feet in each direction) from the fault lines that traverse any development area. The width of the setback may be reduced to 50 feet (in each direction), with the approval of the County of Los Angeles Department of Public Works, provided there is no evidence of fault activity from trenching performed as part of an additional fault investigation during the site development process.

The Project would include the following types of sensitive land uses: schools, hospital, and public assembly sites. With respect to schools, the California Department of Education's (CDE's) Title 5 requirements would be implemented by local school districts and would ensure that school site location decisions and building designs meet all applicable seismic and public safety concerns. Hospitals are also required to reflect seismic safety concerns in their location decisions and building designs pursuant to building code requirements.

The Project must incorporate all applicable geotechnical recommendations identified in the geotechnical documents previously prepared for the Project. These recommendations include those reviewed and compiled in the *Preliminary Geotechnical Summary Report, Centennial – Tejon Ranch, Los Angeles County, California* prepared by Geocon Incorporated and dated June 2015, and those to be identified in the geotechnical reports for the Final Engineering and Grading Plans (which must incorporate the findings of all soils engineering and geologic studies) for individual tract maps and the associated final grading plans to be processed as the Project is implemented.

Implementation of the following would ensure impacts related to the proximity to active faults would be less than significant level: implementation of the Geologic Safety Zone (PDF 1-1); compliance with County subdivision specifications, County building code requirements, the Project's Grading Plan, the Specific Plan's Hillside Design Guidelines, and existing and future tract map-level geotechnical recommendations identified for all

development on the Project site; and the requirements of CDE Title 5 for proposed schools. Therefore, the Project would result in less than significant impacts related to fault rupture or other constraints related to proximity of the Project site to known active faults.

## Off-Site Impacts

None of the off-site Project features, which include intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, involve habitable structures or otherwise sensitive land uses. Also, all off-site Project features would be required to comply with County and State geotechnical review and building code requirements as applied to the Project, as applicable. For instance, the California Aqueduct bridge crossings would require structural engineering design that reflects the seismic conditions of the area, and the five new intersections along SR-138 and associated deceleration/acceleration lanes would require remedial grading to ensure a stable foundation. There would be less than significant impacts related to geologic and seismic conditions from implementation of required off-site Project features.

***Impact Summary:*** There would be less than significant impacts from the Project site's proximity to active faults with implementation of the Geologic Safety Zone (PDF 1-1); implementation of the requirements of CDE's Title 5; and compliance with County subdivision specifications, County building code requirements, the Project's Grading Plan, the Specific Plan's Hillside Design Guidelines, and existing and future, tract map-level, geotechnical recommendations for the Project, as described in Section 5.1.4.

**Threshold 1-2**      **Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic groundshaking?**

**Threshold 1-3**      **Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure, including liquefaction and lateral spreading?**

## On-Site Impacts

**Ground Shaking.** Similar to conditions in the nearby communities of Palmdale, Lancaster, Santa Clarita and most of Los Angeles County, the Project site could experience moderate to severe ground shaking due to a major earthquake generated on one or more active earthquake faults on or near the site and in the region within the life of the Project. The analysis of seismic risk at the Project site determines that, with incorporation of geotechnical recommendations presented in all existing and future, tract map-level, geotechnical reports (which include conformance with applicable building codes), there would be less than significant impacts related to seismic ground shaking.

**Liquefaction and Lateral Spreading.** Liquefaction is defined as the transformation of a granular material from a solid state into a liquefied state. Liquefaction is a phenomenon in



which loose, saturated, and relatively cohesionless soil deposits lose their strength (the ability to bear the weight of overlying structures) due to saturation with water during strong ground motions. Primary factors that control the development of liquefaction include intensity and duration of ground motion, characteristics of subsurface soil, in situ<sup>4</sup> stress conditions, and the depth to groundwater. Lateral spreading is a liquefaction-related phenomena wherein lateral (i.e., horizontal) ground displacement occurs on gentle slopes due to liquefaction in underlying sediments.

Based on previous geotechnical studies on the Project site and experience with similar geologic conditions, the 2015 Geocon Report concludes there is a potential for liquefaction to occur within the main alluvial drainages on the Project site where shallow groundwater (less than 50 feet bgs) and loose alluvium are present. As discussed previously, on-site investigations have encountered groundwater levels ranging from 35 feet bgs to 55 feet bgs, not including seepage as shallow as 3 feet bgs. In the event liquefaction occurs, the primary geotechnical concern is associated with potential settlement and its effect on overlying structures or facilities (e.g., sidewalk, utility lines). Liquefaction potential is greatest along Oso Canyon, where relatively shallow groundwater was encountered during both the previous geotechnical investigations and the hydrogeologic investigation. However, no development is proposed within Oso Canyon. Accordingly, the Geotechnical Report directs that additional analysis be performed to evaluate liquefaction potential for each future tract map. These analyses would be performed in conformance with County/CBC standards in place at the time as each tract map is proposed.

The Project was designed such that the majority of proposed development areas are outside anticipated liquefiable zones. These Project areas are proposed to remain as open space or to become greenways, detention/infiltration basins, and/or hydromodification facilities. Where proposed development and/or habitable structures would overlie liquefiable sediments, the condition is remediated by either removing (overexcavating) the liquefiable soils and recompacting surficial sediments or by applying “ground modification techniques”. Ground modification techniques provide in situ (i.e., without removal/in place) remediation of liquefaction potential by making the underlying granular materials more dense. Because one of the factors necessary for liquefaction to occur is loose soils (making the soils more dense), using techniques such as deep dynamic compaction, stone columns, and/or vibro-replacement remediates the potential for liquefaction. These are standard engineering techniques used to remediate unstable soils and would be specified and implemented, as appropriate for each future tract map prepared for the Project. This is consistent with AVAP Policy LU 3.5 (although the Project is exempt from this policy due to location in an EOA) and Policy PS 2.2, related to limiting development in landslide and liquefaction areas. With implementation of all applicable geotechnical recommendations, the Project would result in less than significant impacts related to the presence of liquefiable soils as well as lateral spreading potential.

Seismically induced settlement can occur during or after seismic shaking based upon rearrangement of sand particles in the soil matrix, either subsequent to liquefaction or in dry

---

<sup>4</sup> This term is said of a rock, mineral, or fossil in its natural position (i.e., the situation in which it was originally formed or deposited) (American Geological Institute 1984).

sands. Settlement has not yet been estimated throughout the Project site, but settlement is expected to occur given the extensive alluvial deposits as well as known liquefaction potential in limited areas east of the Aqueduct. As discussed above, quantitative liquefaction and settlement analyses would be performed for the tract maps as development is proposed. Overexcavating and recompacting liquefiable and sandy soils to ensure stable foundations for proposed structures, in accordance with existing and future, tract map-level, geotechnical recommendations, would mitigate potential impacts related to seismically induced settlement. Therefore, there would be less than significant impacts related to seismically induced settlement.

## Off-Site Impacts

None of the proposed off-site Project features—including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings—involve habitable structures or otherwise sensitive land uses. Also, all off-site Project features would be required to comply with County and State geotechnical review and building code requirements as applied to the Project, as applicable. There would be less than significant impacts related to geologic and seismic conditions from implementation of required off-site Project features.

***Impact Summary:*** There would be less than significant impacts related to seismicity with implementation of the Geologic Safety Zone (PDF 1-1) and compliance with County subdivision specifications, County building code requirements, the Project's Grading Plan, the Specific Plan's Hillside Design Guidelines, and existing and future, tract map-level, geotechnical recommendations.

**Threshold 1-4**      **Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides?**

## On-Site Impacts

A single existing landslide has been mapped on the Project site, located in the northwestern corner of the Project site in Oso Canyon (Exhibit 5.1-2, Geologic Hazards). This large ancient landslide was investigated using review of existing geologic maps of the area, a soil boring, and exploratory trenches (which are more informative than soil borings). The landslide and associated buffer zone are entirely within the proposed open space preserve, and there would be no development on the Project site on or adjacent to this landslide. Therefore, there would be no impact related to the presence of this landslide.

Other than the landslide described above, as discussed in Section 5.1.3, Environmental Setting, a small, shallow landslide was mapped along a north-facing arroyo slope and several other small, shallow slumps and erosional sloughing were observed during on-site geotechnical investigations along the more steeply eroded arroyos. These latter features do not exceed widths of 50 feet and, while noted in the geotechnical studies for the site, are not mapped due to their small size and geotechnical insignificance. Observations and exploratory excavations indicate the shallow landslides on the relatively steep slopes initially failed in permeable cohesionless gravelly sands of Older Alluvium. The 2015 Geocon

Report states the small surficial landslides and slumps are not considered an adverse impact with respect to site development, as these can be mitigated with standard remedial grading techniques (removal and recompaction). This is consistent with AVAP Policy LU 3.5 (although the Project is exempt from this policy due to location in an EOA) and Policy PS 2.2, related to limiting development in landslide and liquefaction areas. Therefore, incorporation of all existing and future, tract map-level geotechnical recommendations into any development in the vicinity of these small landslides/slumps would ensure that potential impacts from landslides would be reduced to a less than significant level.

## Off-Site Impacts

None of the proposed off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, involve habitable structures or otherwise sensitive land uses. Also, all off-site Project features would be required to comply with County and State geotechnical review and building code requirements as applied to the Project, as applicable. There would be less than significant impacts related to geologic and seismic conditions from implementation of required off-site Project features.

***Impact Summary:*** There would be less than significant impacts from landslides with compliance with County subdivision specifications, County building code requirements, the Project's Grading Plan, the Specific Plan's Hillside Design Guidelines, and other geotechnical recommendations for the Project.

### **Threshold 1-5      Would the project result in substantial soil erosion or the loss of topsoil?**

The analysis below discusses the potential for erosion to affect the Project site subsequent to construction of proposed structures, and relates exclusively to the geologic units present on the site. Please refer to Section 5.2, Hydrology and Flood, and Section 5.4, Water Quality, of this EIR for a discussion of the potential for erosion resulting from grading during construction and impacts to hydrology and water quality, respectively.

## On-Site Impacts

Localized layers of unconfined, clean, gravelly sand of the Old Alluvium Formation are subject to erosion and surficial landslides under seasonal heavy rains or if underlain by perched groundwater conditions. Cohesionless zones encountered at finish grade may require undercutting and, if encountered in cut slopes, may require stabilization fills to reduce the potential for slope erosion and shallow sloughage. Compliance with County subdivision specifications, County building code requirements, the Project's Grading Plan, the Specific Plan's Hillside Design Guidelines, and existing and future, tract map-level, geotechnical recommendations for the Project, would reduce impacts related to soil erosion to a less than significant level.

## Off-Site Impacts

None of the proposed off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, involve habitable structures or otherwise sensitive land uses. Also, all off-site Project features would be required to comply with County and State geotechnical review and building code requirements applied to the Project, as applicable. There would be less than significant impacts related to geologic and seismic conditions from implementation of required off-site Project features.

**Impact Summary:** There would be less than significant impacts related to erosion potential in the Old Alluvium Formation with compliance with County subdivision specifications, County building code requirements, the Project's Grading Plan, Hillside Design Guidelines, and other geotechnical recommendations for the Project.

**Threshold 1-6** **Would the project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse (including hydrocompaction/hydroconsolidation)?**

**Threshold 1-7** **Would the project be located on expansive soil as defined in Table 18-1 of the Uniform Building Code (1994), creating substantial risks to life or property?**

**Threshold 1-8** **Would the project site have soils incapable of adequately supporting the use of onsite waste water treatment systems where sewers are not available for the disposal of wastewater?**

There are a variety of natural soil characteristics that have the ability to adversely affect development of a site and for which specific engineering measures must be implemented to counteract the presence of such limitations. The analysis below discusses potentially adverse soil characteristics that could affect construction of proposed structures, including hydroconsolidation, expansive soils, rippability, and corrosivity. This analysis also discusses the potential for existing or induced subsidence to affect the Project site.

Liquefaction potential on the Project site is analyzed above under the discussion of Thresholds 1-2 and 1-3. Landslides are analyzed above under the discussion of Threshold 1-4.

Regarding Threshold 1-8, the proposed wastewater management for Project would involve on-site conveyance and treatment, via aboveground treatment units, which are addressed in the 2015 Geocon Report as part of the overall land use plan. However, wastewater management would not use septic tanks or underground, alternative, treatment systems such that the ability of soils to support the infrastructure is relevant. Therefore, this threshold is not applicable to the Project and is not analyzed below.

## On-Site Impacts

**Hydroconsolidation (Compressible/Collapsible Soils).** The Geotechnical Analysis concludes that topsoil, colluvium, and alluvium are susceptible to hydroconsolidation, a type of compressibility in soils. Removal of topsoil and colluvium with subsequent recompaction would be required where these sediments underlie proposed development areas; this is a standard engineering practice. Consolidation tests performed on samples of alluvium indicate that, below a depth of 15 feet, this material has low compressibility potential and relatively minor volume change characteristics upon saturation (i.e., hydroconsolidation) and that the upper 15 feet of alluvial soils would require removal and recompaction prior to placing fill. Where these soil conditions are encountered in the Project's development area, they would be remediated through incorporation of the standard engineering practices (generally overexcavation and recompaction) that would be specified in the tract map-level geotechnical reports to be prepared as the Project is implemented. Compliance with County subdivision specifications, County building code requirements, the Project's Grading Plan, the Specific Plan's Hillside Design Guidelines, and existing and future tract map-level, geotechnical recommendations for the Project would reduce impacts related to hydroconsolidation to a less than significant level.

**Expansive Soils.** Expansion testing on the Quail Lake Formation indicates a variable range of expansion indices from low to high. Highly expansive clay exposed at finish grade would require remedial grading (i.e., overexcavation and replacement) to provide a low expansive soil cap. Other units present on site consist of topsoil, alluvium, colluvium landslide debris, Older Alluvium, the Oso Canyon Formation, and the Neenack Volcanic Formation. These materials exhibit a very low to low expansion potential and would not require remedial grading to reduce expansion potential. Compliance with County subdivision specifications, County building code requirements, the Project's Grading Plan, the Specific Plan's Hillside Design Guidelines, and existing and future, tract map-level geotechnical recommendations for the Project, would reduce impacts related to the presence of expansive soils to a less than significant level.

**Rippability.** The rippability of a geologic material is a measure of its ability to be excavated with conventional excavation equipment, and is defined by the following levels of rippability: light, moderate, heavy, and very heavy effort. These are relative terms, expressing a continuum of effort needed to excavate underlying geologic formations on the Project site. The only areas of known substantial bedrock material are located in the Neenach and Oso Canyon formations. Excavations within the Oso Canyon Formation that encounter strongly cemented zones observed in this unit would likely require a very heavy effort with conventional heavy-duty grading equipment and/or localized breaking or possible blasting. Once ripped or broken up, numerous oversized rock fragments would be generated that would require special placement procedures and compaction, when placed in fills. The 2015 Geocon Report states that additional subsurface work would need to be performed on the Neenach Volcanic Formation to evaluate this unit's degree of weathering and rippability characteristics. Such additional geotechnical investigation would be performed for each tract map as the Project is implemented.

No development is planned within known areas (i.e., outcrops) of the Oso Canyon and Neenach Volcanic Formations. Existing bedrock outcrops are located in proposed open space areas. However, if bedrock is discovered in areas within the development footprint, heavy effort may be necessary, including blasting as noted above. Blasting can be precisely controlled by current standard procedures to limit the possibility of creating rock falls and damage due to vibration. A Blasting Plan would be required, to be reviewed and approved by the County of Los Angeles Fire Department, to conduct blasting on the Project site during construction, which would include procedures to limit rock falls, vibration, and other safety concerns to the maximum extent. In general, the blasting procedure would involve multiple days of pre-blast drilling and set up, followed by the “shot” event, which is the actual explosive use. Pre-blasting procedures vary depending on the size of the area to be blasted, depth of drilling, type of material, existing utilities, and development. Typically, only one “shot” event occurs per day.

In addition, vibration monitoring would be performed near existing structures to control and record ground vibration during blasting events. Impacts associated with blasting would be potentially significant, but would be reduced to a level considered less than significant with application of MM 12-7, which requires preparation and implementation of a Blasting Plan (see Section 5.12, Noise). The 2015 Geocon Report concludes that excavation in these two geologic units, while more constrained, is feasible and can be safely accomplished with incorporation of all geotechnical recommendations. All other geologic units mapped on the site would require light to moderate effort and only conventional equipment to excavate (i.e., they would not require implementation of MM 12-7). Therefore, the varying levels of rippability of the geologic and surficial units present within the Project site’s development boundary would represent a less than significant impact with implementation of MM 12-7.

**Corrosivity.** Water soluble sulfate testing performed on representative samples of the soil and geologic units on the Project site indicate that the materials have low sulfate content and a corresponding negligible sulfate rating based upon Table 19-A-4 of the 1997 Uniform Building Code (UBC). Samples were tested from the various soil and geologic units present across the Project site to provide a representative composite of the corrosivity potential (i.e., negligible, as noted above). Potential of hydrogen (pH)<sup>6</sup> and resistivity on represented soil samples indicates pH values that vary from 5.2 to 8.3 and resistivity values that range from 800 ohm-cm to 9,338 ohm-cm.<sup>7</sup> These results indicate that the materials tested vary from low to moderate in overall corrosive potential. Overall, there is the potential for corrosion of buried ferrous (iron) metals. The lower the ohm value, the higher the corrosive potential. Regarding pH, soils that are generally either extremely alkaline (with a high pH) or extremely acidic (with a low pH) are likely to be corrosive to steel. Soils with a pH of 5.5 or lower (acidic) are likely to be corrosive to concrete (USDA NRCS 2017).

---

<sup>5</sup> Because of the large size of the Project site, samples were taken of all surficial and geologic units present on the Project site to develop a representative composite of geotechnical conditions across the site, rather than to reflect conditions in any one place on the Project site. Therefore, the number of samples and the physical location of each sample is not relevant, nor is it depicted within the geotechnical reports.

<sup>6</sup> Hydrogen potential (pH) is a measure of the strength of an acid or a base. A neutral solution has a pH of 7; acids a pH between 0 and 7; bases a pH from 7 to 14.

<sup>7</sup> In physics, ohm is a measure of resistivity. Resistivity is measured in ohm-centimeters (cm).

However, because the presence of water-soluble sulfates is not a visually discernible characteristic, other soil samples could yield different sulfate concentrations elsewhere on the site. Therefore, the geotechnical investigation recommends that additional testing of finish-grade soil samples be performed to determine soluble sulfate contents of soils that would be in direct contact with concrete slabs and foundations. Such additional geotechnical investigation would be performed for each tract map as the Project is implemented. Existing and future, tract map-level, geotechnical recommendations must be implemented during site development consistent with building code requirements. Compliance with County subdivision specifications, County building code requirements, the Project's Grading Plan, the Specific Plan's Hillside Design Guidelines, and existing and future tract map-level, geotechnical recommendations for the Project related to corrosive soils would reduce impacts related to the presence of potentially corrosive soils to a less than significant level.

**Subsidence.** Subsidence is a sinking or downward settling of the surface that may be caused by natural geologic processes (e.g., solution, compaction) and/or by withdrawal of oil, natural gas, or groundwater. The hydrogeologic investigation performed by Bookman-Edmonston from 2004 through 2006 (see Appendix F of the Geotechnical Report in Appendix 5.1-A) reports that historical groundwater withdrawal in the Antelope Valley Groundwater Basin, within which the Project site is partially located, has resulted in subsidence within the northern portion of the Lancaster sub-basin approximately 25 miles north of the Project site. However, there has been no subsidence or a negligible amount of subsidence in the adjacent Nennach and other western Antelope Valley groundwater sub-basins in the Project site vicinity. The hydrogeologic investigation determines that increased groundwater pumping and recharge as part of site development would not result in adverse impacts to the underlying groundwater basins. Further discussion of the hydrogeologic conditions in the Antelope Valley Basin can be found in the Bookman-Edmonston report located in Appendix F of Appendix 5.1-A. Therefore, the Project would result in no impacts related to current or future subsidence.

## Off-Site Impacts

None of the proposed off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, involve habitable structures or otherwise sensitive land uses. Also, all off-site Project features would be required to comply with County and State geotechnical review and building code requirements as applied to the Project, as applicable. There would be less than significant impacts related to geologic and seismic conditions from implementation of required off-site Project features.

***Impact Summary:*** There would be less than significant impacts related to existing soil characteristics (i.e., hydroconsolidation, rippability, corrosivity, and subsidence) with compliance with (1) County subdivision specifications, County building code requirements, the Project's Grading Plan, the Specific Plan's Hillside Design Guidelines, and existing and future tract map-level, geotechnical recommendations for the Project, and MM 12-7.

**Threshold 1-9**      **Would the project conflict with the Hillside Management Area Ordinance (L.A. County Code, Title 22, § 22.56.215) or hillside design standards in the County General Plan Conservation and Open Space Element?**

### **On-Site Impacts**

In accordance with Section 22.56.217, Hillside Management Areas- Additional Regulations, Subsection C.7., a conditional use permit is required for any development located wholly or partly in a Hillside Management Area, except for: development within any adopted Specific Plan, provided that such development complies with the provisions of that Specific Plan. Therefore, the Specific Plan implements the applicable requirements of the County's Hillside Management Areas Ordinance through Appendix 2-B, Hillside Design Guidelines, which supports the grading plan and goals provided in Chapter 3 of the Centennial Specific Plan. The Guidelines provide direction for site specific grading plans to minimize the height of visible slopes, provide for more natural-appearing manufactured slopes, minimize grading quantities, minimize slope maintenance and water consumption, increase non-motorized connectivity, and provide for stable slopes and building pads. Implementation of the Project's required Hillside Design Guidelines set forth in Appendix 2-B of the Specific Plan will ensure that Project implementation is consistent with the County's goals and policies related to hillside management.

The Hillside Design Guidelines include, but are not limited to, requiring that: at least 50 percent of the development footprint is located on the flattest portions of the site (i.e., those areas having slopes of less than 25 percent) when that area does not contain rare, sensitive, or State or federally listed threatened or endangered species; undulating banks for graded slopes be used to maintain the natural pattern of the topography to the greatest extent feasible; and undulating patterns and varying grades be used for roadway segments that exceed 1,000 feet in length. Project development would require grading of sloped areas as well as cutting and filling of some hillside areas. Slopes would not be graded at angles steeper than a 2:1 ratio (horizontal to vertical), in accordance with the Project's Grading Plan, County building code requirements, the Specific Plan's Hillside Design Guidelines, and all grading-related recommendations of the geotechnical reports to be prepared for each tract map as the Project is implemented.

The 2015 Geocon Report notes that because of the complexity of bedrock structure and masking by superposed Quaternary units (i.e., colluvium, alluvium, Older Alluvium), observation of excavations and cut slopes during grading by an engineering geologist will be required to map as-graded exposures and to recommend specific remediation, if warranted. Areas with slopes in excess of 25 percent generally occur west of the California Aqueduct. From a geotechnical safety point of view, the impact of topographic alterations for areas with slopes over 25 percent would not result in development hazards, nor would it adversely affect human health and safety given conformance with all geotechnical recommendations for grading in these slopes, which includes compliance with County subdivision standards, County building code requirements, the Project's Grading Plan, Specific Plan's Hillside Design Guidelines, as well as Occupational Safety and Health Agency (OSHA) requirements for construction safety. This is consistent with AVAP Policy LU 3.4 (although the Project is



exempt from this policy due to location in an EOA) and Policy PS 2.2, related to development within Hillside Management Areas (although the Project is exempt from this policy due to development within any adopted Specific Plan complying with the provisions of that Specific Plan), as well as Policy PS 2.4, related to ensuring development does not result in slope instability.

In accordance with County procedures for tract map processing, a quantitative slope stability analysis would be performed at such time as tract-map-level development is proposed and when the locations and heights of proposed cut and fill slopes are known, and the design and construction of the Project would be required to incorporate all geotechnical recommendations. Therefore, there would be no conflict with the County's Hillside Management Ordinance. There would be less than significant impacts related to slope stability.

### **Off-Site Impacts**

None of the proposed off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, involve habitable structures or otherwise sensitive land uses. Also, all off-site Project features would be required to comply with County and State geotechnical review and building code requirements as applied to the Project, as applicable. There would be less than significant impacts related to geologic and seismic conditions from implementation of required off-site Project features.

***Impact Summary:*** There would be less than significant impacts related to slope stability, including with designated Hillside Management Areas, with compliance with (1) County subdivision specifications, County building code requirements, the Project's Grading Plan, Specific Plan's Hillside Design Guidelines, and existing and future, tract map-level geotechnical recommendations for the Project.

### **5.1.7 MITIGATION MEASURES**

With compliance with existing regulations and the implementation of PDF 1-1 and MM 12-7, no other mitigation measures are necessary.

### **5.1.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION**

All impacts from development of the Project related to geotechnical conditions would be less than significant with implementation of applicable County subdivision specifications, County building code requirements, the Project's Grading Plan, Specific Plan's Hillside Design Guidelines, and other geotechnical recommendations for the Project described in PDF 1-1 and MM 12-7 in Section 5.12, Noise, of this Draft EIR.

### 5.1.9 REFERENCES

- American Geological Institute, The. (Bates, R.L. and J. Jackson, Eds.). 1984. *Dictionary of Geological Terms* (3<sup>rd</sup> Edition). New York, NY: Doubleday.
- California, State of. 2015 (access date). *California Code of Regulations* (Title 5, Education and Title 24, Building Standards Code). Sacramento, CA: the State.
- . 2002 (January, effective). *California Education Code* (Title 1, General Education Code Provisions; Division 1, General Education Code Provisions; Part 10.5, School Facilities; Chapter 1, Schoolsites; Section 17212.5). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=EDC&division=1.&title=1.&part=10.5.&chapter=1.&article=1](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=EDC&division=1.&title=1.&part=10.5.&chapter=1.&article=1).
- . 1997 (January, effective date). *California Education Code* (Title 1, General Education Code Provisions; Division 1, General Education Code Provisions; Part 10.5, School Facilities; Chapter 1, Schoolsites; Section 17212). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=EDC&division=1.&title=1.&part=10.5.&chapter=1.&article=1](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=EDC&division=1.&title=1.&part=10.5.&chapter=1.&article=1).
- . 1994 (January, effective, as amended). *California Public Resources Code* (Division 2, Geology, Mines and Mining; Chapter 7.5, Earthquake Fault Zoning; Sections 2621–2630). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=2.&title=&part=&chapter=7.5.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=2.&title=&part=&chapter=7.5.&article=)
- . 1991 (April, effective, as amended). *California Public Resources Code* (Division 2, Geology, Mines and Mining; Chapter 7.8, Seismic Hazards Mapping). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=2.&title=&part=&chapter=7.8.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=2.&title=&part=&chapter=7.8.&article=)
- Geocon, Inc. 2015 (August). *Preliminary Geologic Summary Report, Centennial – Tejon Ranch, Los Angeles County, California*. San Diego, CA: Geocon. (Appendix 5.1-A)
- Los Angeles, County of. 2015 (updated through October 16). *Los Angeles County, California – Code of Ordinances* (Title 26, Building Code). Tallahassee, FL: Municode Corporation for the County. [https://www.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances?nodeId=TIT26BUCO](https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances?nodeId=TIT26BUCO).
- Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.
- . 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.
- U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS). 2017 (May 5, last accessed. (April). National Soil Survey Handbook, Title 430-VI,

Part 618 (Subpart B), 618.80 “Guides for Estimating Risk of Corrosion Potential for Uncoated Steel” and 618.81 “Guide for Estimating Risk of Corrosion Potential for Concrete”. Washington, D.C.: USDA, NRCS.

[https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2\\_054224#80](https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/ref/?cid=nrcs142p2_054224#80).

## 5.2 HYDROLOGY AND FLOOD

### 5.2.1 PURPOSE

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that hydrology and flooding issues be evaluated as part of the environmental documentation process. The impacts of the proposed development on the Project site are analyzed at a Project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts related to hydrology and flooding are described in Sections 6.0 and 7.0, respectively. Water quality issues are analyzed in Section 5.4, Water Quality; water supply is analyzed in Section 5.18, Water Resources (Supply and Services); and recycled water use is analyzed in Section 5.19, Wastewater.

### Summary

In 2014, the County of Los Angeles (County) prepared a Low Impact Development Standards Manual (LID Standards Manual) to implement the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit for storm water and non-storm water discharges issued to the County by the California Regional Water Quality Control Board, Los Angeles Region (CAS004001, Order No. R4- 2012-0175) (MS4 Permit). The LID Standards Manual also implements the County's Low Impact Development (LID) requirements (County Code, Section 12.84). The objectives and goals of the LID Standards Manual, the County MS4 permit, and the County LID standards per Chapter 12.84 of the County Code are to (1) lessen the adverse impacts of storm water runoff from development and urban runoff on natural drainage systems, receiving waters, and other water bodies; (2) minimize pollutant loadings from impervious surfaces by requiring development projects to incorporate properly designed, technically appropriate Best Management Practices (BMPs) and other LID strategies; and (3) minimize erosion and other hydrologic impacts on natural drainage systems by requiring development projects to incorporate properly designed, technically appropriate hydromodification control development principles and technologies (County Code, Section 12.84).

The proposed Project has been designed to meet or exceed County MS4 Permit, LID Standards Manual and LID requirements, and hydromodification and hydrology (flood control) requirements for new development. The Project will implement site-design, source-control, LID, hydromodification, flow-control and runoff water quality BMPs and treatment requirements. Most Project runoff will be subject to control and treatment in a regional system that consists of 28 detention and retention basins located throughout the Project site (see Exhibit 5.2-4). Other developed areas will provide runoff control and treatment by utilizing distributed, smaller or parcel-specific LID measures (see Exhibit 5.4-2 in Section 5.4, Water Quality). As discussed in Section 5.4, Water Quality, these regional and distributed measures will also meet County LID standards for new development and will provide sufficient treatment capacity to reduce potential surface and ground water quality impacts to less than significant levels.

The hydromodification BMPs for the Project would be consistent with County requirements for new development set forth in Section 8 – Hydromodification Impacts of the County LID Standards Manual, as incorporated in Mitigation Measure (MM) 2-1. Performance standards for post-development peak flow rates and volumes during major (50-year) storm events are also consistent with County requirements and are incorporated in MM 2-2. Both mitigation measures require that Project compliance with flood-control performance standards be confirmed in a Drainage System Engineering and Planning Report submitted to the County during the review and approval of each Project tract map. All Project development will be consistent with the County LID requirements. Project runoff will not exceed the planned storm drain capacity and will not require construction of additional drainage facilities not considered in this EIR and that could have significant environmental effects.

During construction, the Project will comply with and implement the requirements of the General Construction Permit issued by the State Water Resources Control Board (CAR000002, Order 2009-0009-DWQ as amended by Order 2010-0014-DWQ and Order 2012-0006-DWQ)(Construction General Permit). The Construction General Permit requires that potential risks to water quality be evaluated for construction activity, and the implementation of a Storm Water Pollution Prevention Plan (SWPPP), including specific BMPs that will avoid potentially significant construction period storm water impacts based on the Project risk assessment.

Portions of the Project along the northern and eastern site boundaries are located within a 100-year floodplain area mapped by the Federal Emergency Management Agency (FEMA)(see Exhibit 5.2-5). As discussed in Section 4.0, Project Description, and as required by MM 2-3, these areas will be subject to a Specific Plan Floodplain Safety Overlay (see Exhibit 4-6, Centennial Project – Safety Overlay Districts) that precludes habitable residential, commercial, school and institutional structures in the floodplain. All applications for Project tract maps that would locate any structures not precluded by the Floodplain Safety Overlay in the floodplain must include a Drainage System Engineering and Planning Report that provides a detailed description of the floodplain boundaries and a description of applicable flood protection measures. This report must demonstrate that, after construction, structure designs and floodplain flows will comply with all applicable FEMA and County of Los Angeles floodplain flood flow and development standards. If required, a conditional letter of map revision (CLOMR) from FEMA will be obtained prior to any construction within a mapped 100-year floodplain. There will be no housing development in on-site floodplains, and no significant impacts will occur from placing structures within a floodplain.

Potential mudflow impacts will be reduced to less than significant levels by capturing debris flows in on-site basins and engineered and natural stream channels and by minimizing disturbance in on-site locations with slopes in excess of 25 percent that could generate mudflows. Storm water basins will be managed to avoid potential mosquito-borne health vectors by implementing California Department of Public Health (CDPH) recommendations and fully discharging captured storm water within 96 hours. An integrated pest management program must be developed and confirmed during the County review and approval process for Project tract maps (see MM 4-2). The Project site is not subject to tsunamis, seiches or dam and levee failure inundation.

## Section Format

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce significant impacts; and level of significance after mitigation, if any. This information is presented in the following format (please refer to Section 2.0, Introduction, and Section 5.0 for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Relevant Plans, Policies, and Regulations
- Environmental Setting
- Project Design Features
- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- References

## References

All references cited for preparation of this analysis are listed in Section 5.2.9. The primary technical references for this section are listed below.

1. Psomas. 2017 (April). *Centennial Master Plan Hydrology*. Santa Clarita: Psomas (Appendix 5.2-A).
2. Geosyntec Consultants. 2016 (March). *Draft Centennial Project Hydromodification Technical Report*. Oakland, CA: Geosyntec (Appendix 5.2-B).

## 5.2.2 RELEVANT PLANS, POLICIES, AND REGULATIONS

### Federal

#### *Sections 401 and 404 of the Clean Water Act*

Section 401 of the Clean Water Act (CWA, *United States Code* [USC], Title 33, Sections 1251 et seq.) requires that any person applying for a federal permit or license that may result in a discharge of pollutants into “waters of the U.S.” obtain a State water quality certification which concludes that the activity complies with all applicable water quality standards, limitations, and restrictions. Subject to certain limitations, no license or permit may be issued by a federal agency until a Section 401-required certification has been granted. Further, no license or permit may be issued if certification has been denied. The CWA Section 404 permits and authorizations, described in the next paragraph, are subject to Section 401 certification by the local Regional Water Quality Control Boards (RWQCB).

Section 404 of the CWA is a program that regulates the discharge of dredged and fill material into “waters of the U.S.”, including wetlands. Activities in “waters of the U.S.” that are regulated under this program include fills for development (including physical alterations to drainages to accommodate storm drainage, stabilization, and flood-control improvements); water resource projects (such as dams and levees); infrastructure development (such as highways and airports); and conversion of wetlands to uplands for farming and forestry. The U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE) have issued Section 404(b)(1) Guidelines (*Code of Federal Regulations* [CFR], Title 40, Section 230) that regulate dredge and fill activities, including water quality aspects of such activities. Subpart C of Sections 230.20–230.25 contains water quality regulations applicable to dredge and fill activities. Among other topics, these guidelines address discharges that alter substrate elevation or contours; suspended particulates and water clarity; nutrients and chemical content; current patterns and water circulation; water fluctuations (including those that alter erosion or sediment rates); and salinity gradients. As discussed in Section 5.7, Biological Resources, approximately 1.8 acres of drainages have been delineated as federally jurisdictional waters by the USACE (see Table 5.7-9, Jurisdictional Wetlands and Waters Summary).

#### *National Pollutant Discharge Elimination System*

The NPDES permit program is authorized by the federal CWA and regulates point sources that discharge pollutants into “waters of the U.S.”. Point sources are discrete conveyances such as pipes or man-made ditches. Examples of pollutants include, but are not limited to, rock, sand, dirt as well as agricultural, industrial, and municipal waste discharged into “waters of the U.S.”. Point sources that discharge into municipal sewer systems (e.g., residential wastewater conveyance pipes) do not require individual permits, but the sewer systems do require an NPDES permit.

In California, responsibility for implementing the NPDES program has been delegated to the State Water Resources Control Board (SWRCB) and the nine RWQCBs acting under the auspices of the state board. The State and regional boards typically issue NPDES permits that

also include waste discharge requirements (WDRs) under State law. The Los Angeles County MS4 permit and the state General Construction Permit have been issued as NPDES permits and as WDRs and are discussed in more detail below.

The MS4 permit program has been implemented in two phases. Phase I, which was initiated in 1990, includes permits for medium (serving between 100,000 and 250,000 people) and large (serving 250,000 people) municipalities. Phase II was implemented as a General Permit for the Discharge of Storm Water from Small MS4s (WQ Order No. 2013-0001-DWQ) and covers smaller municipalities and non-traditional Small MS4s such as military bases, public campuses, prisons, and hospital complexes. The Phase II Small MS4 General Permit regulates discharges from small MS4s with a population density of at least 1,000 people per square mile and a population of at least 10,000.

### ***Executive Order 11198***

In 1977, the President of the United States issued Executive Order 11198 to regulate impacts associated with development within a designated 100-year floodplain. This Executive Order is implemented through FEMA's Floodplain Mapping Program and through federal agency review of projects that may require federal permits or approvals. Under this Executive Order, the USACE is the regulating agency authorized to provide leadership and to take action to:

- Avoid development in the base floodplain unless it is the only practical alternative;
- Reduce the hazard and risk associated with floods;
- Minimize the impact of floods to human safety, health, and welfare; and
- Restore and preserve the natural and beneficial values of the base floodplain.

Flood hazard areas identified on the Flood Insurance Rate Map (FIRM) are identified as Special Flood Hazard Area (SFHAs). SFHAs are areas that will be inundated by a flood event and have a one percent chance of being equaled or exceeded in any given year. The one-percent annual chance flood is also referred to as the "base flood" or "100-year flood". SFHAs are labeled as "Zone A". Moderate flood hazard areas (labeled "Zone B" or "Zone X") are also shown on the FIRM and are the areas between the limits of the base flood and the 0.2-percent-annual-chance (or 500-year) flood. The areas of minimal flood hazard, which are the areas outside the SFHA and higher than the elevation of the 0.2-percent-annual-chance flood, are labeled "Zone C" or "Zone X".

## **State**

### ***California Porter-Cologne Act***

The Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act)(*California Water Code*, Sections 13000 et. seq.) is California's primary statute governing water quality and water pollution issues, including sediment transport and protection of surface waters and groundwater. The Porter-Cologne Act provides the SWRCB and nine Regional Water Quality Control Boards (RWQCBs) the authority to protect water quality and is the primary vehicle for implementing California's responsibilities under the federal CWA. Each RWQCB must formulate and adopt a water quality control plan (commonly referred to as a "basin



plan”) for the region within its jurisdiction. The basin plan must conform to the policies set forth in the Porter-Cologne Act and the State water policy established by the SWRCB. The basin plan establishes beneficial uses for surface and groundwaters in the region and includes narrative and numeric water quality standards to protect those beneficial uses. Each RWQCB is also authorized to include water discharge prohibitions applicable to particular conditions, areas, or types of waste within its jurisdiction. The Act requires that, unless otherwise authorized by a general or other permit, reports of waste discharges to regulated waters of the state must be provided to each RWQCB. The RWQCB may issue discharge permits under State law in response to a report of waste discharge. These permits are commonly referred to as “waste discharge requirements” (WDRs) and are issued by the RWQCBs for activities within each regional board’s jurisdiction.

### **Construction General Permit**

The NPDES program allows for the issuance of general permits that cover specific actions by multiple parties, such as construction activities. Dischargers covered under a general permit must comply with the permit terms and conditions. In 2009, the SWRCB issued the statewide Construction General Permit to regulate discharges or pollutants in storm water associated with construction activities (NPDES No. CAR000002, Water Quality Order 2009-0009-DWQ as amended by 2010-0014-DWQ and 2012-006-DWQ). Dischargers are required to obtain coverage under the Construction General Permit if a project disturbs one or more acres of soil or disturbs less than one acre, but is part of a larger common plan of development that in total disturbs one or more acres.

The Construction General Permit requires that projects implement an SWPPP that includes specific BMPs and establishes numeric effluent limitations to meet water quality and technology-based standards. Major components of the adopted Construction General Permit include the those discussed below.

**Risk-Based Permitting Approach.** The Construction General Permit includes a three-tiered system for discharges (identified as Risk Levels 1, 2, and 3) that is based on the relative risk a project poses to causing water quality impacts. Risk levels are established by calculating two factors: (1) the project’s sediment risk and (2) receiving water risk during periods of soil exposure (i.e., grading and site stabilization) (SWRCB 2012a). Sediment risk is determined by the relative amount of sediment that can be discharged from the construction site given the duration of construction, project location, and other project site details. Receiving water risk is based on whether a project drains to a sediment-sensitive waterbody. A high-risk waterbody has one of the following conditions:

- It is listed as impaired for sediment on the most recent List of Impaired Waterbodies maintained in compliance with CWA Section 303(d);
- It has a USEPA-approved Total Maximum Daily Load implementation plan for sediment; or
- It has been designated in an applicable basin plan for COLD, SPAWN, and MIGRATORY beneficial uses.

Depending on the level of risk identified for a project, the Construction General Permit requirements progressively increase. Certain short-duration projects of less than 5 acres and constructed during one dry season may qualify for a rainfall erosivity waiver under the permit.

**Numeric Action Levels and Numeric Effluent Limitations.** To be covered by the Construction General Permit, dischargers must meet specific Numeric Action Levels (NALs) for hydrogen potential (pH) and turbidity. Exceedance of an NAL does not constitute a permit violation, but does trigger mandatory implementation of additional BMPs and/or corrective actions. In addition, the Construction General Permit requires that Risk Level 3 dischargers with direct discharges to surface waters monitor the receiving water body if an effluent sampling result exceeds receiving water monitoring triggers (i.e., effluent pH outside the range of 6.0 and 9.0 pH units or turbidity exceeding 500 Nephelometric Turbidity Units [NTU]). Where active treatment systems are used, discharges must meet Numeric Effluent Levels (NELs) for turbidity. Exceedances of the Active Treatment System turbidity NEL are considered to be violations of the Construction General Permit.

**Post-Construction Standards.** The Construction General Permit requires that the pre-project water balance (i.e., the volume of rainfall that ends up as runoff) be replicated under post-construction conditions for the smallest storms up to the 85<sup>th</sup> percentile storm event (or the smallest storm event that generates runoff, whichever is larger). In addition, for projects that disturb more than two acres, the post-project time of runoff concentration must be equal to or greater than pre-project time of concentration. Finally, BMPs to reduce pollutants in storm water discharges that are reasonably foreseeable after all construction phases have been completed must be implemented under the permit.

**Best Management Practices.** The Construction General Permit specifies mandatory, minimum BMPs to prevent storm water pollution and post-construction impacts. The required level of BMPs increases with a project's risk level. The minimum BMPs for all projects include site run-on control, perimeter controls, and good housekeeping practices, among numerous other requirements. BMPs must be implemented to meet the Best Available Technology Economically Achievable (BAT)/Best Conventional Pollutant Control Technology (BCT) standard.

**Rain Event Action Plan.** During the rainy season, the permit requires that adequate sediment control materials be available to control sediment discharges in the event of a predicted storm. Risk Level 2 and 3 sites must also develop and implement a Rain Event Action Plan (REAP) designed to protect all exposed portions of the site within 48 hours prior to any likely precipitation event. A written REAP specific for each rain event is required whenever there is a 50 percent or greater chance of receiving precipitation in the project area.

**Monitoring and Reporting Requirements.** In addition to visual monitoring at all sites, the Construction General Permit requires the following:

- Sampling, analysis, and monitoring requirements for non-visible pollutants at all sites;

- Effluent and receiving water monitoring for pH and turbidity for all Risk Level 3 sites;
- Receiving water bioassessment sampling before and after project completion for larger Risk Level 3 sites; and
- Electronic submission of an Annual Report no later than September 1 of each year via the SMARTS website. Each Annual Report must include sampling data, a summary of all exceedances and violations, corrective actions, names of all responsible parties, and training documentations.

### ***California Green Building Standards Code***

In January 2013, the State of California enacted the third revision of the California Green Building Standards Code (CALGreen Code) as part 11 of the California Building Standards Code (Title 24). CALGreen measures are designed to improve public health, safety, and general welfare by utilizing design and construction methods that reduce the negative environmental impact of development and encourage sustainable construction practices.

CALGreen provides mandatory direction to developers of all new construction and renovations of residential and non-residential structures with regard to all aspects of design and construction, including but not limited to site drainage design, storm water management, and water use efficiency. Required measures are accompanied by a set of voluntary standards that are designed to encourage developers and cities to aim for a higher standard of development.

Under CALGreen, all residential and non-residential sites are required to be planned and developed to keep surface water from entering buildings and to incorporate efficient outdoor water use measures. Construction plans are required to show appropriate grading and surface water management methods such as swales, water collection and disposal systems, French drains, water retention gardens, and other water measures that keep surface water away from buildings and aid in groundwater recharge. Plans should also include outdoor water use plans that utilize weather or soil moisture controlled irrigation systems. Non-residential structures are also required to develop an irrigation water budget for landscapes greater than 2,500 square feet that conforms to a local water efficient landscape ordinance or to the state Model Water Efficient Landscape Ordinance (MWELo), per Title 31, Green Building Standards Code, where no local ordinance is applicable. The MWELo was recently updated by the California Governor's Drought Executive Order (B-19-25) on July 15, 2015. The MWELo requirements for the project are discussed in Section 5.18, Water Supply.

## **County of Los Angeles**

### ***Storm Water Permitting (Municipal Separate Storm Sewer System Permit)***

In 2012, the California Regional Water Quality Control Board, Los Angeles Region issued an MS4 permit covering Los Angeles County and several municipalities within the County in accordance with the federal NPDES permit program and WDRs under state law (CAS004001, Order No. R4-2012-0175) (MS4 Permit). In 2013, the County amended Chapter 12.84 of the Los Angeles County Code to require that new development utilize LID BMPs in conformance

with the MS4 Permit. In 2014, the County prepared the LID Standards Manual to provide guidance for new development in meeting the storm water runoff standards in Chapter 12.84 of the County Code and in the MS4 Permit.

### County Low Impact Development Standards

As amended in 2013, Chapter 12.84 requires that new development:

- Mimic undeveloped storm water runoff rates and volumes in any storm event up to and including the “Capital Flood” event (a 50-year storm);
- Prevent pollutants of concern from leaving the development site in storm water as the result of storms, up to and including a water quality design storm event; and
- Minimize hydromodification impacts to natural drainage systems.

To achieve these objectives, Chapter 12.84 requires compliance with the following standards:

1. The project shall retain 100 percent of the Storm Water Quality Design Volume (SWQDv) on site, through infiltration, evapotranspiration, rainfall harvest and use, or a combination thereof, unless the Director of Public Works determines that it would be technically infeasible to do so.
2. If the Director determines that it would be technically infeasible to retain 100 percent of the SWQDv on site, the project shall comply with one of the following alternative compliance measures:
  - a. The project shall provide for on-site biofiltration of 1.5 times the portion of the SWQDv that is not retained on site.
  - b. The project shall include infiltration or bioretention BMPs to intercept the portion of the SWQDv that is not retained on site at an off-site location, as approved by the Director of Public Works. The project shall also provide for treatment of the portion of the SWQDv discharged from the project site, as approved by the Director of Public Works.
  - c. The project shall provide for the replenishment of groundwater supplies that have a designated beneficial use in the Basin Plan.
    - i. Groundwater replenishment projects shall include infiltration or bioretention BMPs to intercept the portion of the SWQDv that is not retained on site at an off-site location, as approved by the Director of Public Works.
    - ii. Groundwater replenishment projects shall also provide for treatment of the portion of the SWQDv discharged from the project site, as approved by the Director of Public Works.
  - d. The project shall include infiltration, bioretention, or rainfall harvest and use BMPs to retrofit an existing development with similar land uses as the project to intercept the portion of the SWQDv that is not retained on site.

- e. The County, independently or in conjunction with one or more cities, may apply to the RWQCB for approval of a regional or sub-regional storm water mitigation program to substitute in part or wholly for the provisions of this chapter for the area covered by the regional or sub-regional storm water mitigation program. If the RWQCB approves the program, provisions of the program shall apply in lieu of any conflicting provisions of this chapter.

Development projects that consist of five or more residential units, or nonresidential development projects, must further comply with the 2014 LID Standards Manual. As required, the excess storm water runoff volume ( $\Delta V$ , defined by the Los Angeles County Department of Public Works [LACDPW] as the post-developed runoff volume minus the pre-developed runoff volume for the 85<sup>th</sup> percentile storm event) from each lot upon which such development is occurring shall be infiltrated at the lot level or in the alternative, the excess storm water runoff volume from the entire development site (including streets and public rights-of-way) shall be infiltrated in sub-regional infiltration facilities built for this specific purpose. The tributary area of a sub-regional infiltration facility shall be limited to five acres, but may be exceeded with approval of the Director of LACDPW. When infiltration of all excess storm water runoff volume is not technically feasible, on-site storage, reuse, or other water conservation uses of the excess runoff volume is required and shall be implemented as authorized by the Director of LACDPW in accordance with the requirements and provisions of the LID Standards Manual.

#### County Low Impact Development Standards Manual

The 2014 LID Standards Manual was prepared by LACDPW and updates and provides a compilation of the following documents:

- Development Planning for Storm Water Management: A Manual for the Standard Urban Storm Water Mitigation Plan (SUSMP Manual, September 2002).
- Technical Manual for Stormwater Best Management Practices in the County of Los Angeles (2004 Design Manual, February 2004).
- Stormwater Best Management Practice Design and Maintenance Manual (2010 Design Manual, August 2010).
- Low Impact Development Standards Manual (2009 LID Manual, January 2009).

The LID Standards Manual also supersedes the water quality portions of the following ordinances and policies:

- Water Quality section of the Los Angeles County Hydrology Manual
- Interim Drainage Policy for Quartz Hill
- Acton Interim Drainage Policy and Guidelines
- Antelope Valley Interim Drainage Policy
- Financing the Cost to Maintain Standard Urban Stormwater Mitigation Plan Devices/Systems

- Permanent Standard Urban Storm Mitigation Plan Devices for No Fee Miscellaneous Transfer Drains, Small Drainage Systems, and Storm Drain Connection Permits
- Interim Peak Flow Runoff Criteria for New Development
- Policy for New Percolation Basin Testing, Design, and Maintenance
- Clarification on the Policy for Financing the Cost to Maintain Standard Urban Stormwater Mitigation Plan (SUSMP) Devices/Systems Constructed by New Development or Other Agencies (LADPW 2014).

The LID Standards Manual requires that “Designated Projects”, which include large scale residential and nonresidential development projects, prioritize the selection of BMPs to retain 100 percent of the SWQDv on site through infiltration, evapotranspiration, storm water runoff harvest and use, or a combination thereof, unless it is demonstrated that it is technically infeasible to do so. BMPs should be implemented in the following order of preference: (1) infiltration and/or bioretention and (2) storm water runoff harvest and use.

Designated Projects that are unable to fully retain the SWQDv on site through retention-based storm water quality control measures must implement alternative compliance measures (e.g., on-site biofiltration, off-site groundwater replenishment, off-site infiltration and/or bioretention, and off-site retrofit). Prior to off-site mitigation, the portion of the SWQDv that cannot be reliably retained on site must be treated to meet effluent quality standards.

The LID Standards Manual indicates site conditions where infiltration may not be possible, including the following:

- Locations where the corrected in-situ infiltration rate is less than 0.3 inch per hour and it is not technically feasible to amend the in-situ soils to attain an infiltration rate necessary to achieve reliable performance of retention-based storm water quality control measures for the SWQDv on site.
- Locations where seasonal high groundwater is within 10 feet of the surface.
- Locations within 100 feet of a groundwater well used for drinking water.
- Brownfield development sites or other locations where pollutant mobilization is a documented concern.
- Locations with potential geotechnical hazards.
- Smart growth and infill or redevelopment locations where the density and/or nature of the project would create significant difficulty for compliance with the on-site retention requirement.
- Locations where infiltration could cause adverse impacts to biological resources.
- Locations where infiltration would cause health and safety concerns.

The LID Standards Manual also indicates where runoff harvest and use may not be possible:

- Projects that would not provide sufficient irrigation or (where permitted) domestic grey water demand for use of stored runoff due to limited landscaping or extensive use of low-water-use plant palettes in landscaped areas.
- Projects that are required to use recycled water for landscape irrigation.
- Development projects in which the storage and reuse of storm water runoff would conflict with local, State, or federal ordinances or building codes.
- Locations where storage facilities would cause potential geotechnical hazards, as outlined in a report prepared by a licensed geotechnical engineer.
- Locations where storage facilities would cause health and safety concerns.

Chapter 12.84 and the LID Standards Manual establishes requirements for hydromodification, hydrology (flood), and water quality control and require projects to fully mitigate for off-site drainage impacts caused by hydromodification and changes in water quality, flow velocity, flow volume, and the depth/width of flow, as determined by the Director of Public Works, in accordance with the requirements and provisions specified in the LID Standards Manual. If the Director of Public Works determines that it is infeasible for a project to comply with applicable mitigation standards, then the project must obtain written consent to the unmitigated impacts from the owner of every impacted downstream property. In addition, the project must comply with one of the following alternative requirements:

1. The project shall infiltrate on site at least the runoff from a 2-year, 24-hour rainfall event;
2. The runoff flow rate, volume, velocity, and duration for the project's post-development condition shall not exceed the pre-development condition for the 2-year, 24-hour rainfall events; or
3. The erosion potential (Ep), as defined in the LID Standards Manual, in the receiving water channel shall approximate one, as demonstrated by a hydromodification analysis study approved by the Director of Public Works.

### ***Los Angeles County Flood Control Act***

The Los Angeles County Flood Control Act of 1915 (Act) authorized the formation of the Los Angeles County Flood Control District (District or LACFCD) for the purpose of controlling and conserving the district's flood, storm, and other waste waters for beneficial and useful purposes. The Act enables the District to identify projects that would improve conservation and replenishment of water resources. The Act also empowers the District to protect the harbors, waterways, public highways, and property within its jurisdiction from damage from such waters. Providing for recreational use of district facilities and enhancing scenic beauty are also parts of its duties. The District, which is administered by the Los Angeles County Department of Public Works (LACDPW), is also authorized to establish special zones and to acquire and to conserve imported and reclaimed water.

In 1986, the LACDPW issued a memorandum entitled “Level of Flood Protection and Drainage Protection Standards” for all development projects in Los Angeles County (Psomas 2017). This memorandum has served as the County policy concerning flood protection and requires that flood-control facilities in the county be designed to convey the “Capital Flood” (the storm event used by LACDPW for flood-control facility design purposes, which is defined as a 50-year frequency design storm occurring in a previously saturated watershed). The standard method for runoff computations for sizing of flood-control structures accepted by the County is the Los Angeles County Modified Rational Hydrology Method. Design criteria for major drainage facilities require that facilities provide enough capacity for storm water runoff generated by a 50-year return frequency standard hypothetical storm from a burned watershed with consideration of sediment-loaded flows (e.g., burned and bulked flows). County-approved programs for the application of this method are described in the current LACDPW Hydrology Manual (LACDPW 2006).

### ***Antelope Valley Comprehensive Plan of Flood Control and Water Conservation***

The Antelope Valley Comprehensive Plan of Flood Control and Water Conservation (AV Drainage Plan) was adopted by the Los Angeles County Board of Supervisors on June 23, 1987. The AV Drainage Plan objective is to “provide mitigation for the regional flood control needs”. The AV Drainage Plan was proposed “because development in this [Antelope Valley] area has not always adequately addressed the area-wide flood hazards” (LACDPW 1987).

The AV Drainage Plan area covers approximately 1,200 square miles of land in northern Los Angeles County that are tributary to the inland basin dry lake areas in and around the Edwards Air Force Base, including the Oso Canyon and East Drainage areas of the Project site. The AV Drainage Plan requires new development projects to detain the change in peak flow from the predevelopment condition and to percolate the change in volume. Percolation basins are specified as the preferred design concept and are required to be sized on a 25-year rainfall frequency storm event. As discussed below, the Project has been designed to meet the most current County flow and flood-control standards for a 50-year storm event, which is more stringent and provides a greater level of protection than the 25-year rainfall frequency storm event in the AV Drainage Plan.

### ***Los Angeles County Green Building Standards Code***

In 2008, the County adopted the Green Building Program, which included the Drought-Tolerant Landscaping, Green Building, and Low Impact Development Ordinances (the Ordinances), and created an Implementation Task Force and Technical Manual. In November 2013, in response to the mandates set forth in the 2010 CALGreen Code, the Board of Supervisors adopted the Los Angeles County Green Building Standards Code (Title 31 of the Los Angeles County Code). The CALGreen Code and the Ordinances adopted in 2008 comprise the County’s primary green building and low impact development standards.

### ***Los Angeles County Building Code***

The Los Angeles County Building Code (Title 26, Section 110 of the Los Angeles County Code) specifically restricts the construction of buildings and/or structures within designated flood-hazard areas. As stated in Section 110.1.2 of the County Code,



A person shall not perform work for which a building or grading permit is required within the boundaries of an established floodway if such work increases the flood hazard to adjacent properties by either increasing the capital flood water surface elevation, deflecting flows or increasing bank erosion. Such work may be performed within an established floodway, and a building or grading permit therefore may be issued, where provisions are made to the satisfaction of the Building Official to avoid such an increase in the flood hazard.

***Los Angeles County General Plan and Antelope Valley Area Plan***

The *Los Angeles County General Plan* and the *Antelope Valley Area Plan (AVAP)*, part of the County General Plan, were updated in 2015 and include goals and policies that address hydrology and flood issues in the unincorporated County. The AVAP goals and policies applicable to the analysis of hydrology and flooding with Project implementation are listed below. Section 5.8, Land Use, Entitlements, and Planning, presents a more in-depth analysis of the Project's consistency with relevant plans, policies and regulations.

**Goal LU 1:** A land use pattern that minimizes threats from hazards.

**Policy LU 3.3:** Except within economic opportunity areas, limit the amount of potential development in Flood Zones designated by the Federal Emergency Management Agency, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

**Goal COS 3:** A clean water supply untainted by natural and man-made pollutants and contaminants.

**Policy COS 1.3:** Limit the amount of potential development in groundwater recharge areas through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

**Goal COS 2:** Effective conservation measures provide an adequate supply of clean water to meet the present and future needs of humans and natural ecosystems.

**Policy COS 2.3:** Require onsite stormwater infiltration in all new developments through the use of appropriate measures, such as permeable surface coverage, permeable paving of parking and pedestrian areas, catch basins, and other low impact development strategies.

**Goal COS 17:** Buildings are sustainable, conserving energy, water, and other resources, and limiting greenhouse gas emissions.

**Policy COS 17.8:** Require onsite stormwater infiltration in all new developments through use of appropriate measures, such as permeable surface coverage, permeable paving of parking and pedestrian areas, catch basins, and other low impact development strategies.

**Goal PS 3:** Protection of the public through flood hazard planning and mitigation.

**Policy PS 3.1:** Limit the amount of potential development in Flood Zones designated by the Federal Emergency Management Agency through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

**Policy PS 3.2:** Require onsite stormwater filtration in all new developments through use of appropriate measures, such as permeable surface coverage, permeable paving of parking and pedestrian areas, catch basins, and other low impact development strategies.

**Policy PS 3.3:** Review the potential local and regional drainage impacts of all development proposals to minimize the need for new drainage structures.

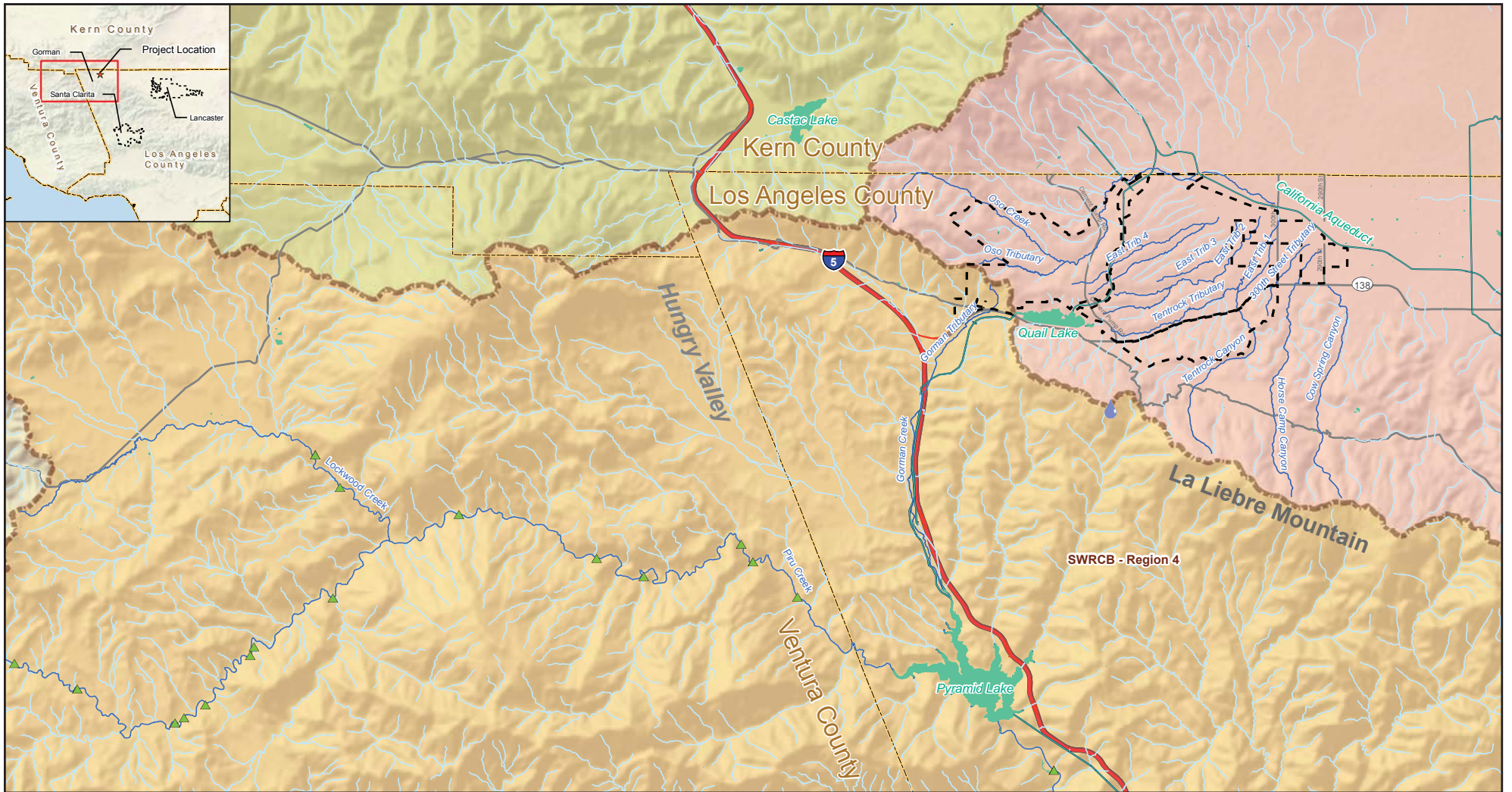
### 5.2.3 ENVIRONMENTAL SETTING

#### On-Site Watercourses and Drainage Areas

Approximately 97.3 percent of the Project site, including locations that will be preserved in open space and remain undeveloped, is located within the Antelope Valley Watershed (95.5 percent of the site) and the much smaller Quail Lake Watershed to the south (1.8 percent of the site), both of which are within the jurisdiction of the Lahontan RWQCB. Approximately 2.7 percent of the site drains to Gorman Creek, which is located about 4.5 miles downstream from the southwestern edge of the Project site. Gorman Creek is within the Santa Clara River Watershed and the Santa Clara-Calleguas Hydrologic Unit, Piru Hydrologic Area as defined in the *Water Quality Control Plan for the Los Angeles Region* (Los Angeles Basin Plan). The Santa Clara River watershed is under the jurisdiction of the Los Angeles RWQCB. Exhibit 5.2-1, Regional Water Quality Control Board Boundaries, shows the jurisdictional boundaries of the Los Angeles and Lahontan RWQCBs relative to the Project site.

As discussed in Section 5.18, Water Supply, in December 2015, the California Superior Court entered an adjudication Judgment and Physical Solution for the consolidated Antelope Valley Groundwater Cases litigation. A copy of the Judgment and Physical Solution is attached as Appendix 5.18-E of this Draft EIR. The adjudication regulates groundwater use in the Antelope Valley basin and surrounding watershed to avoid overdraft conditions and to ensure that future groundwater production is consistent with a total sustainable yield of approximately 110,000 acre-feet per year. Most of the Project site is located within the adjudication area boundary, including the Antelope Valley groundwater basin and its contributing watershed (see Exhibit 5.18-3 in Section 5.18, Water Resources, for a map of the Antelope Valley Adjudication Area as defined in the litigation). The groundwater basin and watershed includes low lying alluvial portions of the Antelope Valley in Los Angeles County and Kern County, which receive flows from drainages that originate in the surrounding mountains and foothills. Most of the surrounding drainages flow only during storm events and are dry during other periods. In general, the valley floor lacks defined natural channels outside the foothills and is subject to unpredictable sheet-flow patterns.

D:\Projects\CEN\Centennial\Graphics\EIR\EX\_RWQCB\_20151105.ai



- Surface Water Monitoring Locations
- Sandberg Rain Gauge
- Highways
- Channels of Interest
- Other Channels
- Aqueduct
- Lakes and Reservoirs
- Centennial Project Boundary
- County Boundary
- RWQCB Boundaries**
  - Central Valley
  - Lahontan
  - Los Angeles

Source: Geosyntec Consultants 2015

# Regional Water Quality Control Board Boundaries

# Exhibit 5.2-1

Centennial Project



For more information concerning the Antelope Valley Watershed, please see Section 5.18.3, Environmental Setting (specifically, the subsection entitled “Antelope Valley Groundwater Basin”). For more information regarding site geology, topography, and drainage characteristics, please see Section 5.7, Biological Resources (specifically, Section 5.7.3, Environmental Setting “Characteristics of the Site”).

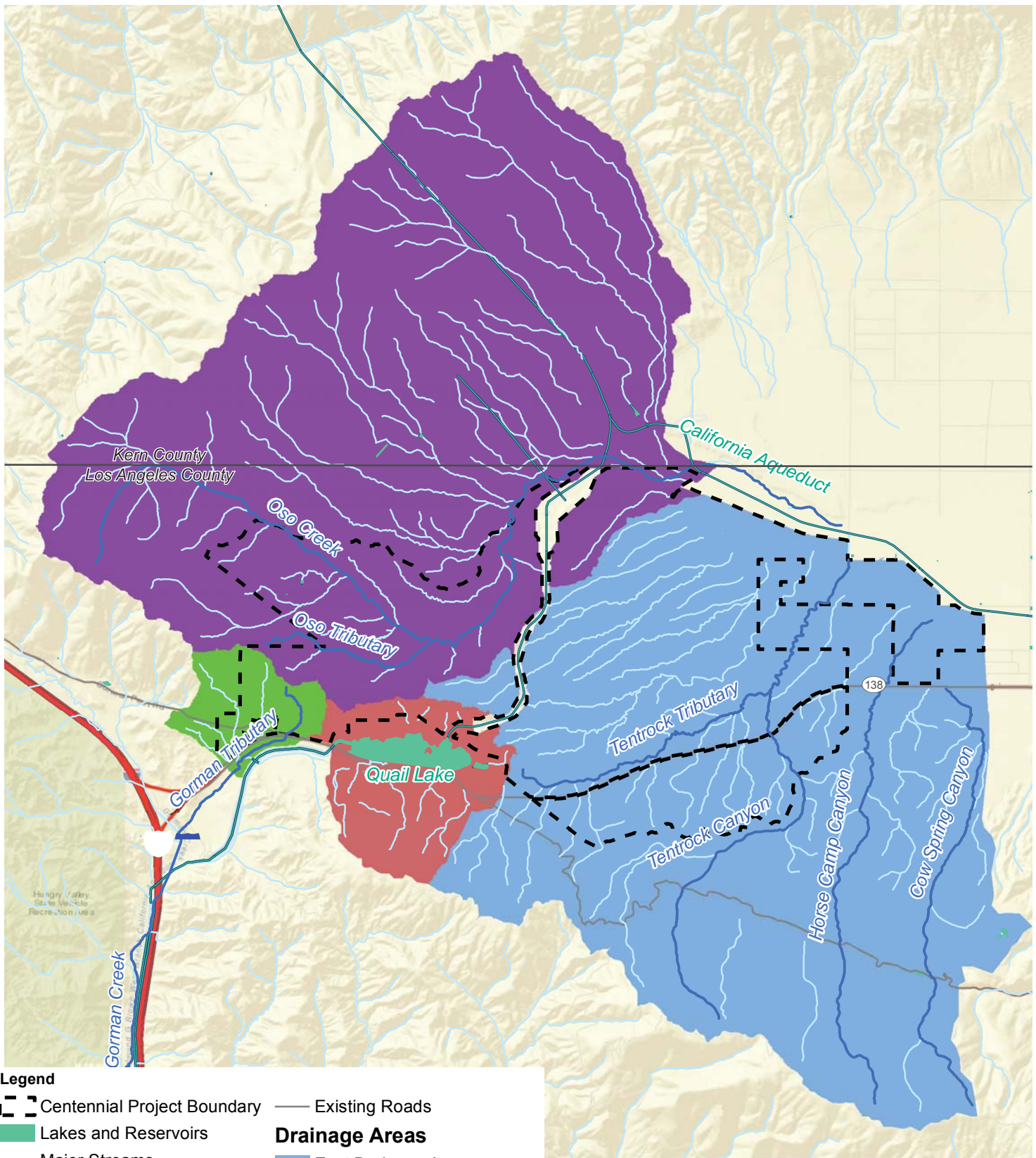
The drainage area of the Project site is within both Los Angeles County and Kern County. As shown on Exhibit 5.2-2, Drainage Areas on the Project Site, four drainage systems extend into portions of the Project site. The two largest systems are the East Drainage Area and the Oso Creek Drainage Area. Portions of the Gorman Creek Drainage Area and the Quail Lake Drainage Area also extend into the west and southwest portions of the site. Larger canyons that have flows in the Project area include Oso Canyon and Tentrock Canyon. As shown on Exhibit 5.2-3, Existing Watershed and Drainage Nodes, Little Sycamore Creek and Los Alamos Creek are tributary to Oso Creek and traverse through a small portion of the site from the north.

There are 15 larger tributary systems within the Project site, including 12 within the East Drainage Area, as listed in Table 5.2-1 below.

**TABLE 5.2-1  
EXISTING DRAINAGE AREAS AND ASSOCIATED TRIBUTARY SYSTEMS  
WITHIN THE PROJECT SITE**

Drainage Area	Tributary System	Tributary Area (sq mi)
<b>East Drainage Area</b>	Cow Spring Canyon	5.6
	Horse Camp Canyon	1.9
	300 <sup>th</sup> Street Tributary	1.1
	Tentrock Canyon	13.0
	East Tributary 1	0.5
	East Tributary 2	2
	East Tributary 3	1.1
	East Tributary 4	2.1
	East Tributary 6	1.2
	East Tributary 7	0.3
	East Tributary 8	0.3
	East Tributary 9	0.4
<b>Oso Canyon Drainage Area</b>	Oso Creek	31.3
<b>Quail Lake Drainage Area</b>	Quail Lake	3.2
<b>Gorman Drainage Area</b>	Gorman Tributary	1.5
sq mi: square miles		
Source: Geosyntec 2016		





**Legend**

- Centennial Project Boundary
- Lakes and Reservoirs
- Major Streams
- Minor Streams
- Aqueduct
- Highways
- Existing Roads
- Drainage Areas**
- East Drainage Area
- Gorman Creek Drainage Area
- Oso Creek Drainage Area
- Quail Lake Drainage Area

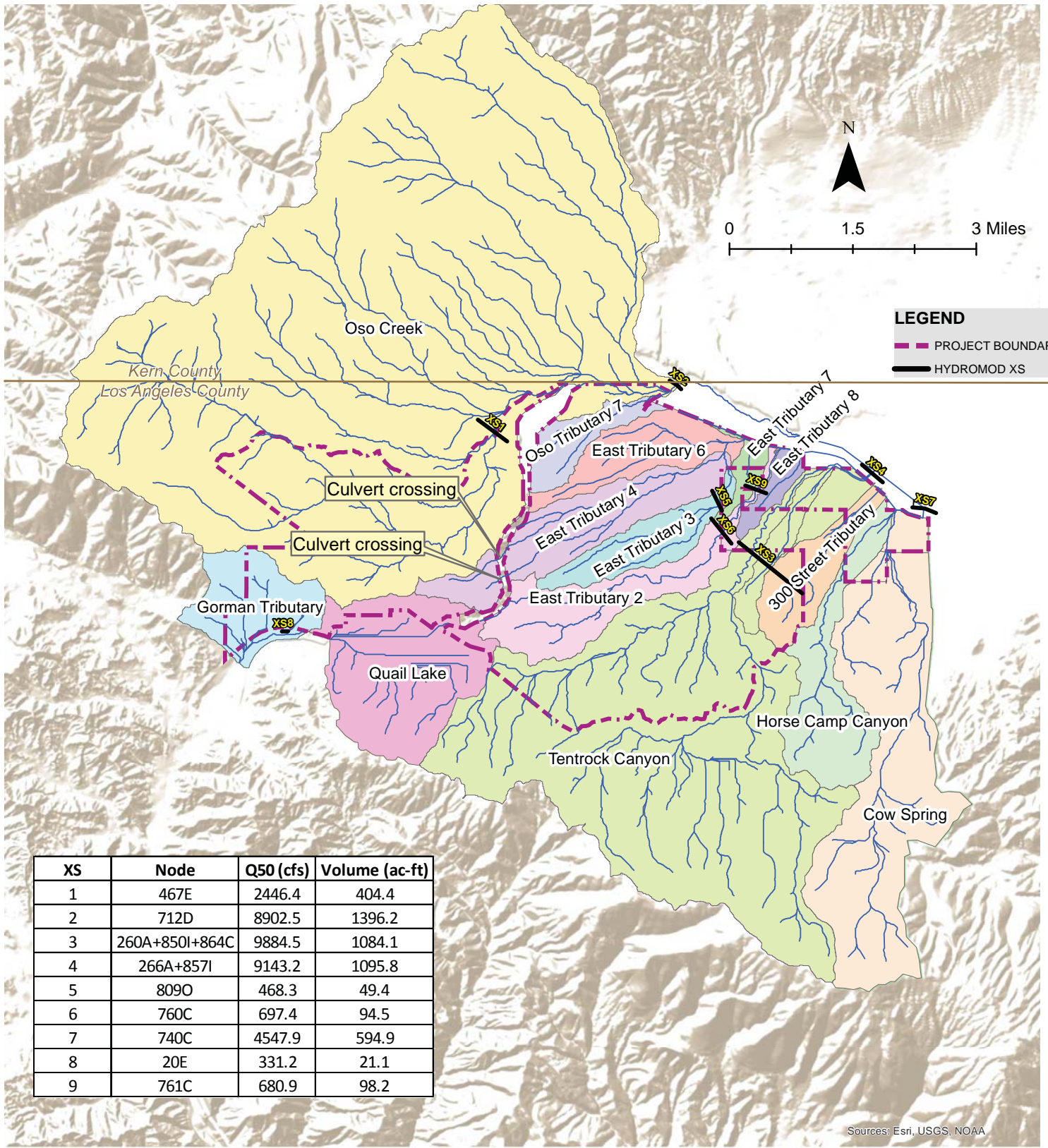
Source: Geosyntec Consultants 2016

### Drainage Areas on the Project Site

### Exhibit 5.2-2

Centennial Project





XS	Node	Q50 (cfs)	Volume (ac-ft)
1	467E	2446.4	404.4
2	712D	8902.5	1396.2
3	260A+850I+864C	9884.5	1084.1
4	266A+857I	9143.2	1095.8
5	809O	468.3	49.4
6	760C	697.4	94.5
7	740C	4547.9	594.9
8	20E	331.2	21.1
9	761C	680.9	98.2

Sources: Esri, USGS, NOAA

Source: Geosyntec Consultants 2017

## Existing Watershed and Drainage Nodes

## Exhibit 5.2-3

Centennial Project





Exhibit 5.2-4, Proposed Infiltration Basin Locations, shows the locations of the proposed development areas and the 28 regional detention and retention basins that comprise the primary hydromodification and hydrology BMPs that will be implemented for the Project. As discussed in Section 5.2.5 below and in Section 5.7 Biological Resources (specifically, Threshold 7-3) and as shown in Exhibit 5.2-5, Receiving Channels of Concern and 100-Year Floodplain, the Project will avoid most of the watercourses and watershed areas in the Gorman Creek, Quail Lake, and Oso Creek Drainage Areas. Approximately 18 percent of the proposed development would occur west of the West Branch of the Aqueduct, and drainage impacts in this area would primarily affect Oso Creek tributaries flowing north from the south side (i.e., the northerly face) of Oso Canyon. Drainage impacts in the Gorman Creek Drainage Area would largely be avoided. No drainage impacts will occur in the Quail Lake Drainage Area.

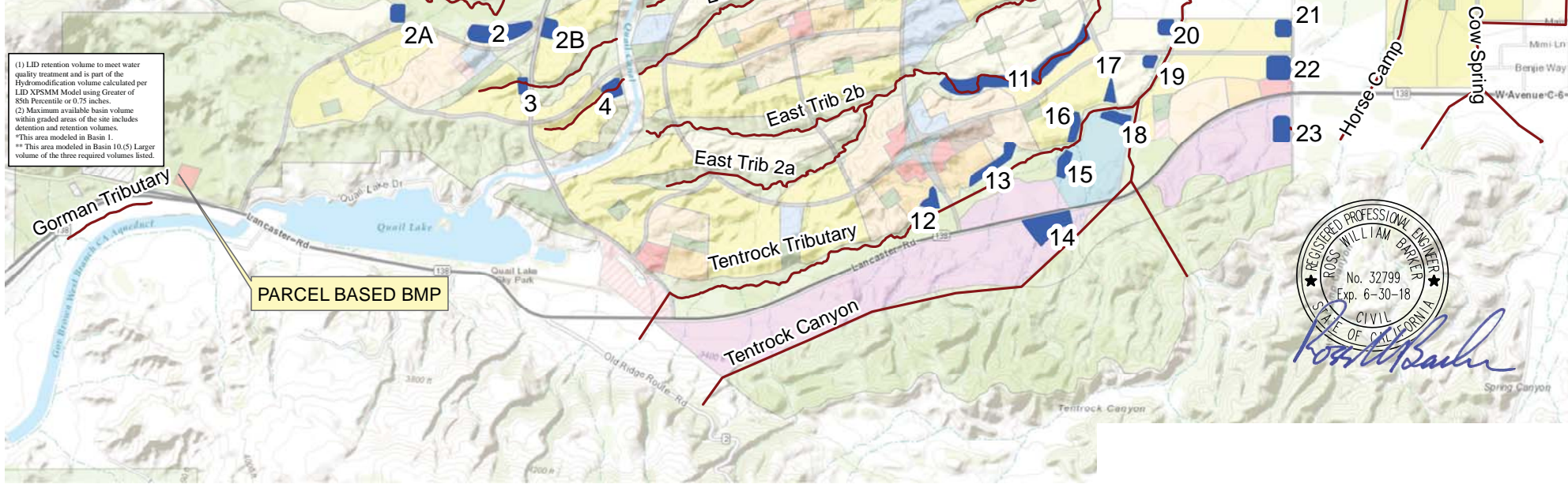
Approximately 88 percent of the proposed development would occur east of the West Branch of the Aqueduct. As discussed in Section 5.2.5 below and in Section 5.7 Biological Resources (Threshold 7-3) and as shown on Exhibit 5.2-2, most of the Project impacts to existing drainages would occur in the East Drainage Area. Smaller drainages in this location would generally be integrated with the Project's storm drain system. Flow patterns associated with several existing larger tributary systems, including East Tributary systems and the Cow Spring Canyon, Horse Camp Canyon, the 300<sup>th</sup> Street Tributary systems, will largely be maintained by avoiding or constructing flow controls in existing channels or by recreating existing channels after site grading. Flow, LID, and hydromodification management facilities (e.g., detention and retention basins) will be constructed adjacent to channels, primarily in downstream reach locations. Approximately 17 basins would be at the elevation of the development pads, 3 would be adjacent to a channel, and 8 would be within a channel.

The following sections provide additional information about existing conditions in the four drainage areas that extend into the Project site, as shown on Exhibit 5.2-2.

### ***East Drainage Area***

The East Drainage Area includes approximately 18,900 acres, of which 41 percent is within the Project site. Flows in the drainage that are conveyed through the East Tributary systems originate just west of the West Branch of the Aqueduct where flows are conveyed under the Aqueduct via existing culverts. All watersheds contributing runoff to the East Tributaries are located on the Project site and within areas of proposed development. Flows from the north-facing slopes of La Liebre Mountain are conveyed to the north and east under State Route (SR) 138 through Cow Spring Canyon, Horse Camp Canyon, the 300<sup>th</sup> Street Tributary, Tentrock Canyon, and lower-lying tributaries. Ground elevations within the East Drainage Area range from 2,960 feet above sea level (msl) to 5,800 feet above msl. Flows from the East Drainage Area reach the East Branch of the Aqueduct to the east of the Project boundary and are conveyed by crossings at 292<sup>nd</sup> Street and 286<sup>th</sup> Street. In low-flow conditions, East Drainage Area flows are infiltrated in the valley floor prior to reaching the Aqueduct crossings.

Regional Basin ID	L.LD Retention Volume Required (acre-ft) (1)	Total Footprint Provided (acres)	Retention Depth Provided (ft)	Retention Volume Provided (af)	Total Basin Volume Provided (acre-ft) (2)
Basin 0	0.0*	2	4	4	10.0
Basin 1	50.7	55	6	252	420.0
Basin 2	5.0	15	2	24	120.0
Basin 2A	1.35	4	2	6	30.0
Basin 2B	2.14	4	2	5	25.0
Basin 3	1.5	4	2	6	30.0
Basin 4	2.4	4	2	6.4	32.0
Basin 5	7.2	10	6	48	80.0
Basin 6	16.6	23	6	108	180.0
Basin 7	2.0	7	6	33	55.0
Basin 8	18.6	18	4	50	125.0
Basin 9	0.0**	1.5	6	7	12.0
Basin 10	5.0	4.5	2	7	35.0
Basin 11	19.6	30	2	51	255.0
Basin 12	7.1	3	4	8	20.0
Basin 13	3.2	6	2	9	45.0
Basin 14	22.3	29	4	100	250.0
Basin 15	3.4	5	4	16	40.0
Basin 16	2.2	5	2	8	40.0
Basin 17	1.2	2	2	3	15.0
Basin 18	5.8	8	6	39	65.0
Basin 19	0.8	2	4	4	9.0
Basin 20	1.0	2	2	2	10.0
Basin 21	2.1	4	4	9	23.0
Basin 22	6.9	9	4	24	60.0
Basin 23	8.4	7	2	10	50.0
Basin 24	10.8	22	4	68	170.0
Basin 25	3.8	8	4	24	60.0
<b>Total Volume</b>	<b>207.5</b>	<b>294</b>	<b>99</b>	<b>928</b>	<b>2266.0</b>



(1) LID retention volume to meet water quality treatment and is part of the Hydromodification volume calculated per LID XFSMM Model using Greater of 85th Percentile or 0.75 inches.  
(2) Maximum available basin volume within graded areas of the site includes detention and retention volumes.  
\*This area modeled in Basin 1.  
\*\* This area modeled in Basin 10.(5) Larger volume of the three required volumes listed.



Source: Psomas 2017

# Proposed Infiltration Basin Locations

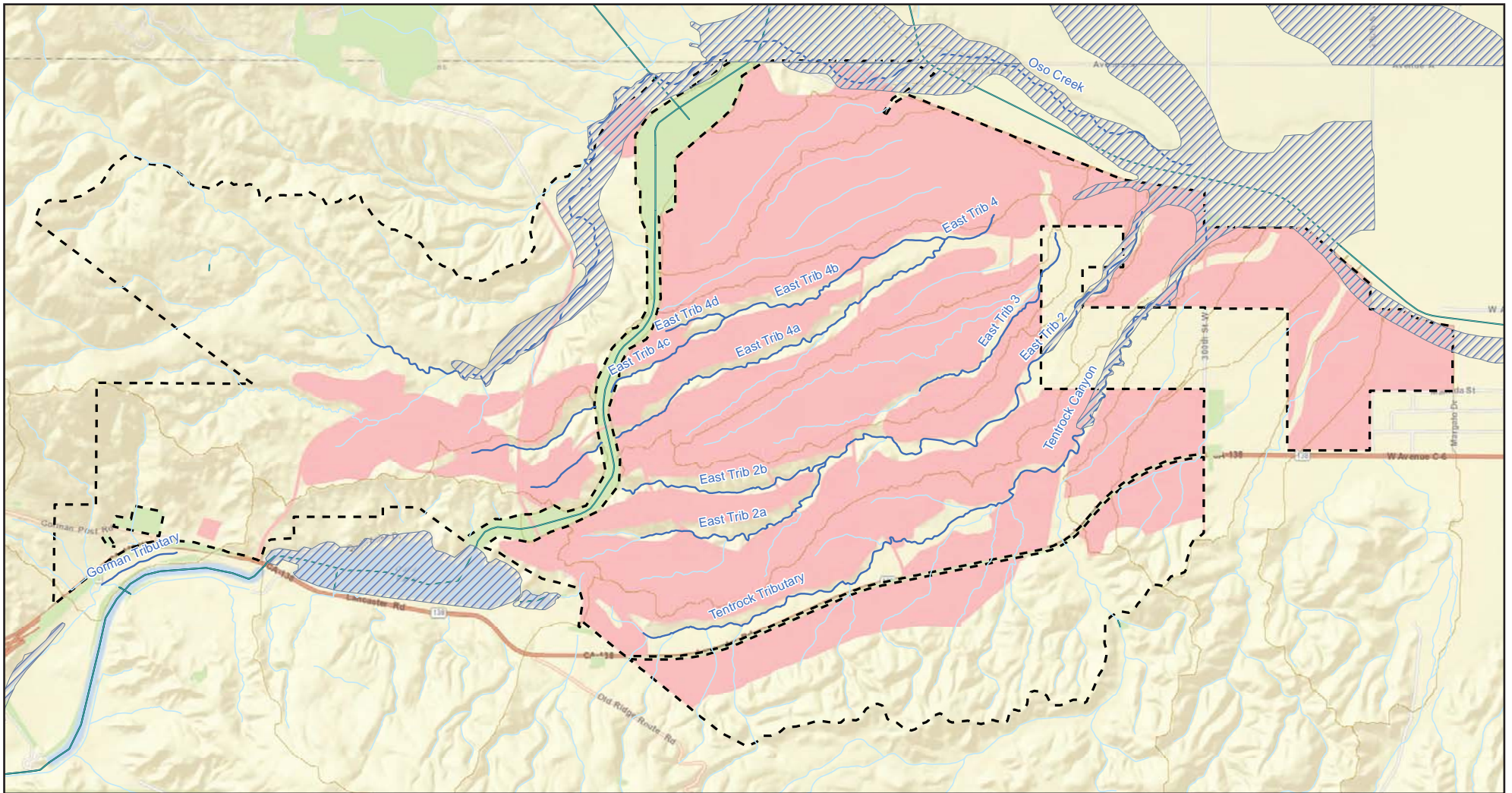
# Exhibit 5.2-4

Centennial Project

D:\Projects\CEN\Centennial\GRAPHICS\EIR\Ex\_InfiltrationBasinLocations\_20170511.ai



D:\Projects\3CEN\Centennial\GRA\PHICSEIR\EX\_ReceivingChannelsOfConcern\_20151201.ai



- Legend**
- Existing Development
  - Proposed Development
  - 100-Year Flood Plain
  - Centennial Project Boundary
  - Receiving Channels of Concern
  - Other Channels
  - Aqueduct
  - Watershed Boundary

Source: Geosyntec 2015

# Receiving Channels of Concern and 100-Year Floodplain

# Exhibit 5.2-5

Centennial Project



### ***Oso Canyon Drainage Area***

The Oso Canyon Drainage Area drains approximately 20,040 acres, of which approximately 16 percent is located on the Project site. Ground elevations in the drainage range from 3,000 feet above msl to 4,500 feet above msl. The primary watercourse in the Oso Canyon Drainage Area is Oso Canyon Creek (Oso Creek), which originates in the Tehachapi Mountains to the northwest of the site. Oso Creek drains northwest to east through the northern part of the site and merges with Los Alamos Creek at the eastern site boundary. The flows are conveyed across the West Branch of the California Aqueduct; reenter the extreme eastern portion of the site; and then merge with flows from Little Sycamore Canyon off site after crossing the East Branch of the Aqueduct. Flows in the main stem of Oso Creek are typically ephemeral in the Project area and generally infiltrate when they reach the valley floor under low-flow conditions.

### ***Quail Lake Drainage Area***

The Quail Lake Drainage Area encompasses approximately 2,026 acres, of which approximately 17 percent is on the Project site. Ground elevations in the drainage range from 3,320 feet above msl at Quail Lake to approximately 3,600 feet above msl. Quail Lake is 1 of 29 storage facilities used to convey water in the State Water Project (SWP) and is managed by the California Department of Water Resources (DWR). The SWP conveyance system, which includes Quail Lake, is used to provide imported water for urban and agricultural uses throughout California, including Southern California. The lake was historically a sag pond along the San Andreas Fault and was expanded to store approximately 7,500 acre-feet of imported water from the West Branch of the Aqueduct. The SWP system conveys water from Quail Lake south to Pyramid Lake and further downstream to Castaic Lake, which is the southern terminus of West Branch of the California Aqueduct. Pyramid Lake stores SWP water for delivery to Southern California; provides regulated storage for the Castaic power plant; and provides flood protection along Piru Creek. Downstream of Pyramid Lake, Piru Creek flows south approximately 19 river miles to Piru Lake (which is formed by the Santa Felicia Dam) and then flows for approximately 6 miles below the Santa Felicia Dam southward to join Reach 4 of the Santa Clara River. The point of confluence with the Santa Clara River is located approximately 40 miles south of the Project site.

### ***Gorman Drainage Area***

The Gorman Drainage Area encompasses approximately 963 acres, of which approximately 55 percent is within the Project site boundaries. The primary direction of surface water flow is westerly along SR-138. Ground elevations range from 3,100 feet above msl at the outlet to Gorman Creek to 3,600 feet above msl in the drainage. As shown in Exhibit 5.2-2, the Gorman Tributary flows into Gorman Creek about 1.5 miles downstream from the Project boundary. Gorman Creek flows to Cañada de los Alamos in the Lower Hungry Valley before discharging to Pyramid Lake about six miles downstream from the Project boundary.

## **Existing Drainage Geomorphic Conditions**

The dominant factors influencing existing drainage channels on the Project site are hydrology, channel geometry, bed and bank material, and sediment supply.

The Project site is predominately undeveloped with localized changes related to ongoing livestock grazing and agriculture. Most of the Project site is currently used for cattle grazing, which has occurred for over 150 years. Portions of the eastern half of the site are used for agriculture. A few residential dwellings are located near the center of the northern property line, including single-family units and several trailers used in support of grazing and property caretaking activities. An inactive hunters' camp, located in the western portion of the site, consists of six trailers, a shooting range, and two outhouses. The site contains two aboveground water storage tanks and a water well (Geosyntec 2016).

Several unpaved roads exist on the Project site. Paved roadways also traverse portions of the site and provide access to the National Cement Plant located to the north, facilities associated with the Aqueduct, and agricultural operations. SR-138 traverses through the southern portion of the Project site and 300<sup>th</sup> Street West runs north from SR- 138. Several siphons and culverts have been installed in conjunction with the Aqueduct to convey flows from existing drainages over or under the Aqueduct. Minor agricultural drainage ditches have also been constructed in certain locations (Geosyntec 2016).

The existing site channel network is generally a dynamic (i.e., changing) system originating locally in the foothills of the Tehachapi Mountains to the west and north of the site and the La Liebre Mountains to the south. Uplift along the San Andreas Fault has tipped the valley floor down toward the north causing drainage channels to trend along south-facing hill slopes. Sediment production is highest in the upgradient portions of the Oso Canyon and East Drainage Areas. In the downstream and eastern portions of the Oso Canyon and East Drainage Areas, the alluvial valley floor is broader; the longitudinal slope is flatter; sediment supply is high relative to sediment transport capacity; and the bed and banks consist of unconsolidated sands and fine gravel that promotes infiltration. East of the West Branch of the Aqueduct, and outside the Project's northeastern boundary, the channels become less defined and Oso Creek and the Eastern Drainage Area channels disappear into flat agricultural areas associated with the western portion of Antelope Valley (Geosyntec 2016).

Certain channels on the site consist of a primary (bankfull) channel situated in a wider, alluvial valley corridor and a compound channel morphology that consists of a low flow channel within a primary channel and a larger overbank channel which is then contained within an alluvial valley corridor. Bed material on the site consists predominantly of sand, with some intermixed gravel and localized cobbles and boulders. Sparse grass was observed in certain drainages but not in amounts that would provide added strength to the channels. Most of the existing channel reaches are live-bed alluvial channels in which the bed material is composed of sediments produced and transported from upstream locations and are sensitive to perturbations in bed sediment supply. Bank material consists predominantly of silty sand to sandy loam. Bank material in the broad valley floor is generally loosely consolidated alluvial silts, sands, and gravels. Bank vegetation consists of grasses and shrubs, with some trees in the upper reaches of Oso Creek. Root density of the more prevalent grasses and shrubs is low to moderate and does not appear to add significant strength to the bank material. Silty sand to sandy loam materials comprise the bed and bank in many of the more eroded channels. This uniformity in channel material is a function of historic channel incision into the relatively homogenous native alluvium (Geosyntec 2016).

Existing sediment supply has been affected by prior land uses. Cattle grazing reduced vegetation cover in canyon bottoms, which has increased surface rill and gully erosion. Cattle access to active channels and bank vegetation grazing has disturbed stream channel banks and bed and increased in-channel sediment supplies (Geosyntec 2016).

The Sediment Yield Map for the Western United States published by the National Resources Conservation Service (NRCS; formerly Soil Conservation Service) indicates three ranges of sediment yield apply to the Project site's drainage areas. A sediment yield rate of 0.5 to 1.0 acre-foot per square mile per year (af/mi<sup>2</sup>/yr) applies to mountainous terrain south of the site within the La Liebre Mountain Range, with 40 percent of that rate generated from out-of-stream sources (i.e., sheet and rill erosion) and 60 percent from in-stream sources (i.e., channel and gully erosion). A sediment yield rate of 0.2 to 0.5 af/mi<sup>2</sup>/yr applies to the undulating hills on the Project site and the Tehachapi Mountain Range north and west of the site, with 60 percent of that rate generated from out-of-stream sources and 40 percent from in-stream sources. A sediment yield rate of 0.1 to 0.2 af/mi<sup>2</sup>/yr applies to the flat alluvium associated with the Antelope Valley floor within and east of the Project site, with 60 percent of that rate generated from out-of-stream sources and 40 percent from in-stream sources (Geosyntec 2016).

## **Floodplains**

As shown in Exhibit 5.2-5, Receiving Channels of Concern and 100-Year Floodplain, the Federal Emergency Management Agency (FEMA) has identified the 100-year floodplain for the Oso Creek drainage. Northern portions of the Project site are also identified as within a 100-year floodplain and as flood-prone areas on the *Flood Hazard Zones Policy Map* of the *Los Angeles County General Plan (Figure 12.2)* (DRP 2015). As discussed in Thresholds 2-6 and 2-7 below, no habitable residential, school, administration, or commercial structures will be constructed in these locations.

## **Existing Runoff Conditions**

The hydrology calculations for the Project were prepared using the Los Angeles County Department of Public Works' methodology as outlined in their Hydrology Manual (January 2006). Where soils and rainfall data were not available (area south of County line) in the Manual and for areas in Kern County, data was obtained from the National Oceanic and Atmospheric Administration (NOAA) Rainfall Atlas. Soil classifications were obtained from NRCS data and then compared to Los Angeles County soil types for areas within Los Angeles County (where there were overlapping soil groups). The dominant Los Angeles County soil classification number was then assigned to the NCRS classification.

In 2013, County LID standards were amended to require that new development mimic undeveloped storm water runoff rates and volumes for a 50-year storm event. The County method for analyzing a project site's pre-and post-development storm water runoff rates and volumes includes the preparation of an existing conditions hydrologic and hydraulic model using a hydrology module developed by the County for use within the XPSWMM analysis program (LACDPW 2006). The proposed development will result in an increased amount of impervious surfaces in the Project area and increase the volume of storm water flowing from

currently undeveloped locations. The XPSWMM program is utilized to estimate post-development conditions with proposed flow-control measures; to compare the results with preconstruction conditions; and to verify compliance with the County's storm water runoff rate and volume performance standards.

To implement the XPSWMM analysis for existing site conditions, on-site watersheds were mapped in accordance with County criteria and 9 "cross sections" were identified at downstream (outbound flow) locations along the Project boundary. The analysis methodology is described in more detail in Threshold 2-2 below and in Appendix 5.2-A (Psomas 2017). The locations of the cross sections under existing conditions are shown on Exhibit 5.2-3, Existing Watersheds and Cross Sections. Rainfall rates associated with a 50-year storm were estimated for areas within Los Angeles County, based on the design rainfall isohyets in the Los Angeles County Hydrology Manual where the data is available and, where data was not available and for areas in Kern County, the NOAA Atlas 14 data was used (see Appendix 5.2-A). Runoff into existing watercourses generated by the precipitation was calculated using the existing levels of impervious and pervious surfaces on the site (Psomas 2017). Table 5.2-2, Existing Runoff Discharge Rates and Volumes, 50-Year Storm Event, Cross Sections Along Project Boundaries, summarizes the peak flow rate (also called the "Q" rate) and volume of storm water runoff at each of the 16 nodes during a 50-year storm event under existing conditions and utilizing the County analysis methodology. These nodes are depicted on Exhibit 5.2-3, Existing Watershed and Drainage Nodes.

**TABLE 5.2-2  
EXISTING CONDITIONS PEAK DISCHARGE RATES AND VOLUMES,  
50-YEAR STORM EVENT, EXISTING CROSS SECTIONS ALONG PROJECT BOUNDARIES**

Existing Cross Section I.D.	Peak Discharge Rate (Q)(cfs)	Runoff Volume (acre feet)
1	2446.4	404.4
2	8902.5	1396.2
3	9884.5	1084.1
4	9143.2	1095.8
5	468.3	49.4
6	697.4	94.5
7	4547.9	594.9
8	331.2	21.1
9	680.9	98.2

cfs: cubic feet per second  
Source: Psomas 2017 (Appendix 5.2-A)

## 5.2.4 PROJECT DESIGN FEATURES

**PDF 2-1** The Project will implement a comprehensive system of site design, source control, low impact development, and hydromodification Best Management Practices that meets or exceeds the hydrology (storm water runoff) standards

for new development in the County LID standards (Los Angeles County Code, Section 12.84) and the County LID Standards Manual which were adopted and prepared by the County of Los Angeles Department of Public Works to comply with the revised Los Angeles County Municipal Separate Storm Sewer System (MS4) Permit (Order No. R4-2012-0175).

**PDF 2-2** The Project will incorporate a Floodplain Safety Overlay that applies to on-site locations that have been designated as Federal Emergency Management Agency (FEMA) Zone A floodplain zones. No habitable residential, commercial, school and institutional building construction will occur in Project site locations subject to the Floodplain Safety Overlay.

### 5.2.5 THRESHOLD CRITERIA

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact if it would:

**Threshold 2-1** Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site.

**Threshold 2-2** Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site.

**Threshold 2-3** Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

**Threshold 2-4** Conflict with the Los Angeles County Low Impact Development Ordinance (L.A. County Code, Title 12, Ch. 12.84).

**Threshold 2-5** Create drainage system capacity problems, or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

**Threshold 2-6** Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, or within a floodway or floodplain.

**Threshold 2-7** Place structures, which would impede or redirect flood flows, within a 100-year flood hazard area, floodway, or floodplain.

- Threshold 2-8** Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.
- Threshold 2-9** Place structures in areas subject to inundation by seiche, tsunami, or mudflow.
- Threshold 2-10** Add water features or create conditions in which standing water can accumulate that could increase habitat for mosquitoes and other vectors that transmit diseases such as the West Nile virus and result in increased pesticide use.

## 5.2.6 ENVIRONMENTAL IMPACTS

The analysis of potential Project impacts associated with Thresholds 2-1 to 2-10 is primarily based on the *Centennial Master Plan Hydrology* study prepared by Psomas (Appendix 5.2-A) and the *Centennial Project Hydromodification Technical Report* prepared by Geosyntec (Appendix 5.2-B).

- Threshold 2-1** **Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?**

The Hydromodification Technical Report prepared by Geosyntec evaluates impacts to natural streams using the Ep methodology that is an alternate methodology identified in the County LID Manual. This evaluation is summarized below to demonstrate how the Centennial Master Plan Hydrology analysis results in no increases in downstream flow conditions and therefore does not result in hydromodification impacts. Per the requirements of MM 2-1, the Project will be designed to meet the requirements of Section 8 – Hydromodification Impacts of the County LID Standards Manual, which will be confirmed through the preparation of a Drainage System Engineering and Planning Report to be submitted with each Project tract map application.

Changes in runoff patterns caused by introducing development-related impervious surfaces and drainage infrastructure can modify natural watershed and stream hydrologic (water flow) and geomorphic (landform) processes. These potential channel changes are commonly referred to as hydromodification impacts and can cause channel erosion, migration, or sedimentation unless managed and controlled. The Project hydromodification impact analysis includes geomorphic field assessments conducted by Geosyntec from August 31 and September 1, 2015. The analysis also utilizes relevant data and reports, including but not limited to, aerial photography; NRCS soils and sediment yield rate data; the Los Angeles and Lahontan RWQCB Basin Plans that include the Project site; scientific and/or academic publications related to hydromodification; laboratory analysis of grain size distribution from soil samples collected on site; and an assessment of the potential hydromodification impacts of the Project under post-development conditions and with planned BMPs (Geosyntec 2016).



One method for predicting the likelihood of channel changes due to watershed and channel hydrologic and geomorphic variables and for sizing and situating hydromodification BMPs and other controls utilizes the concept of erosion potential (Ep). Ep is defined as the ratio of post-project long-term effective work or sediment transport capacity within a channel boundary compared with pre-project conditions (i.e., post-project conditions/pre-project conditions). This ratio is affected by changes in hydrology, channel geometry, and bed and bank material due to land use alterations. Recent studies that have analyzed and further developed the Ep methodology include the Southern California Coastal Water Research Project's Technical Report 753, which documents an empirical relationship between Ep and stream instability in the Southern California region (i.e., a 2007 report by Palhegyi and Rathfelder) that identifies a widely accepted method of quantitatively accounting for sediment supply changes without replacing bed sediment sources and the derivation of upper-end Ep values in Southern California.

The County MS4 permit, LID standards per Chapter 12.84 of the County Code, and the LID Standards Manual require that projects discharging to natural drainage systems implement hydrologic control measures to prevent accelerated downstream erosion and to protect stream habitat. New development must minimize hydromodification impacts to natural drainage systems, and the LID standards per Chapter 12.84 of the County Code requires full on-site mitigation for off-site drainage impacts caused by hydromodification (Geosyntec 2016).

In order to avoid significant environmental impacts related to erosion/siltation, the Project will be designed to meet the requirements of Section 8 – Hydromodification Impacts of the County LID Standards Manual.

Receiving channels of concern for hydromodification impacts were identified with a desktop assessment and supported by a geomorphic field assessment. Per the Los Angeles County MS4 Permit, receiving waters that are not susceptible to hydromodification impacts include lakes, sumps, tidally influenced water bodies, large rivers, and modified engineered conveyances (LARWQCB 2012). Receiving waters that are considered susceptible to hydromodification impacts are the remaining natural stream channels. In addition to being susceptible channels, the Project's receiving channels of concern for hydromodification are limited to State and federal jurisdictional drainage features and drainages downstream of Project development (e.g., via outfalls). Existing tributary systems that would not be subject to Project development area runoff discharges under post-development conditions were determined to not be receiving channels of concern for hydromodification, many of which will be graded with drainage features incorporated into the proposed storm drainage system.

Such tributary systems include East Tributary 6, for which the existing channels will be removed entirely by the Project; East Tributaries 7, 8, and 9, which do not have defined channels in either the existing or proposed condition; East Tributary 1, 300<sup>th</sup> Street Tributary, and several side channels throughout the Project site, which will have reduced drainage area due to diversion of runoff to downgradient outfalls; and Horse Camp Creek and Cattle Camp Creek, for which the susceptible channels are all upgradient of the Project outfalls. All other existing susceptible tributary systems and tributary reaches that could



potentially receive Project development area runoff discharges under developed conditions were identified as receiving channels of concern for hydromodification impacts, which are listed in Table 5.2-3 and generally include state jurisdictional drainage features in the East, Oso Creek, and Gorman Drainage Areas. No receiving channels will receive Project development area runoff discharges under developed conditions in the Quail Lake Drainage Area.

**TABLE 5.2-3  
RECEIVING CHANNELS OF CONCERN FOR HYDROMODIFICATION**

Drainage Area	Watershed	Reach	Percent Impervious
East Drainage Area	Tentrock Canyon	Tentrock Canyon	1.1
		Tentrock Tributary	
	East Tributary 2	East Tributary 2	1.0
		East Tributary 2a	
		East Tributary 2b	
	East Tributary 3	East Tributary 3	1.0
	East Tributary 4	East Tributary 4	1.0
		East Tributary 4a	
		East Tributary 4b	
		East Tributary 4c	
Oso Canyon Drainage Area	Oso Creek	Oso Creek	0.4
Gorman Drainage Area	Gorman Tributary	Gorman Tributary	3.6
Source: GeoSyntec 2016 (Appendix 5.2-B)			

Discharge locations from the East Drainage Area associated with drainage crossings of the East Branch of the Aqueduct at approximately 292<sup>nd</sup> Street and 286<sup>th</sup> Street were not considered jurisdictional features and were not identified as receiving channels of concern. Surface water runoff is only expected to occur at these discharge locations during high magnitude, low frequency storm events. Potential hydrology and flood impacts at these locations are considered in Threshold 2-2.

### **Construction Impacts**

The primary hydromodification concern during construction is potential erosion and sedimentation caused by soils carried in runoff flows that could physically alter receiving channels. As discussed in Section 5.2.2 above, the Project must comply with the state General Construction Permit, which requires that construction period BMPs be implemented in accordance with an impact risk assessment. A SWPPP must be prepared and implemented that includes BMPs that meet or exceed the permit requirements applicable to the level of construction risk. Hydromodification construction period BMPs may include erosion controls that prevent erosion and sediment controls that trap sediment carried in runoff in basins or other facilities. The permit requires that BMPs incorporate the best available

technology economically achievable and best conventional pollutant control technology. BMP implementation must be based on the phase of construction and current weather conditions to control erosion and sediment. A Construction Site Monitoring Program that identifies monitoring and sampling requirements during construction is a required component of the SWPPP.

Project construction is anticipated to be classified as Risk Level 2 as defined in the General Construction Permit. Hydromodification erosion, sediment and other applicable BMPs will be implemented in response to the risk assessment (Geosyntec 2016). Additional information concerning the implementation of the Construction General Permit during Project construction is provided in Section 5.4, Water Quality, of this EIR. Through implementation of all requirements of the Construction General Permit, construction period hydromodification impacts related to erosion and other discharges of sediment in runoff would be less than significant and no additional mitigation is required.

### ***Operational Impacts***

Potential operational hydromodification impacts could occur if the post-Project long-term effective work or sediment transport capacity in a channel is greater than existing levels (i.e., Ep greater than 1.0 or other applicable level as described in the County LID standards per Chapter 12.84 of the County Code. Additional runoff from developed impervious surfaces could mobilize sediment and physically alter receiving channels. As discussed above, all existing tributary systems on the Project site that could receive runoff from developed areas were classified as receiving channels of concern for hydromodification impacts (see Table 5.2-3). Impacts to these channels could be significant if post-development runoff conditions are not controlled to meet the requirements in Section 8 – Hydromodification Impacts of the County LID Standards Manual, as required by MM 2-1.

The Project will meet the requirements in Section 8 – Hydromodification Impacts of the County LID Standards Manual in MM 2-1 by implementing nonstructural and structural site design measures that reduce erosion and sedimentation risks; on-site distributed and parcel-based LID measures that capture and avoid runoff and sediment mobilized by runoff; and by constructing a regional runoff retention and detention system that includes 28 basins distributed throughout the site (see Exhibit 5.2-4). The following sections describe these measures in more detail.

### **Non-Structural Site Design Measures**

#### ***Minimize Impervious Areas/Preservation of Open Spaces***

Project design to minimize impervious areas and reduce increases in runoff volumes and rates associated with development. Undeveloped areas with uncompacted soils also provide opportunities for infiltration of runoff in impervious areas and help to preserve pre-development infiltration, evapotranspiration, percolation, subsurface flow, groundwater recharge, and surface runoff conditions. The Project includes preserved open spaces of approximately 5,787 acres (approximately 47 percent) of the 12,323-acre Project site proposed for active and passive recreational use in the form of parks (i.e., 163 acres of Park Overlay) or natural resource protection (i.e., 5,624 acres of Open Space).

*Prioritize Soils for Development and Infiltration*

Development on the Project site is generally located on existing poorly infiltrating soils, and avoids soils with higher infiltration rates for flow and volume management and groundwater recharge. Distributed and parcel-based LID and regional BMPs will be implemented to provide infiltration capacity for developed areas that affect locations with higher infiltration rates.

*Establish Riparian Buffer Zones*

Riparian buffer zones are included in the Project design to prevent changes to channel geometry (i.e., narrowing of the floodplain width) or bed and bank materials that can contribute to increased erosion independent of upstream flow changes; sustainably support existing flora and fauna; to maintain existing native wood and leaf debris input into the drainage system; to filter storm water runoff before it enters a receiving channel; and to maintain the hydrologic connectivity between channels and floodplains. Existing riparian corridor widths will be conserved while avoiding in-stream constrictions (i.e., culverts, bridges, and at-grade crossings) to the extent possible.

*Prohibit Disturbance within Riparian Corridors*

In addition to riparian buffers, riparian corridors on the Project site will be protected by prohibiting cattle grazing and other significant erosion-inducing activities, such as off-highway vehicle use. These activities adversely affect channel vegetation and erosion; decrease the resistance of channel bed and banks; and increase the risk of further erosion when water is flowing.

*Avoid Significant Bed Material Supply Sources in Site Design*

The Project will reduce changes in bed sediment supply associated with hydromodification impacts by avoiding development in locations and channels that are significant contributors of bed material load. Where feasible, development is located outside natural channels and on existing soils that have a lower potential to contribute bed material to a receiving channel.

*Pass Through Sediments from Natural Open Space*

Drainage pathways for open spaces upstream of development have been designed to pass coarse bed sediments from natural areas and channels to alluvial receiving channels of concern. Maintaining natural bed sediment supplies to channels reduces the potential for excess erosion in alluvial channels.

Structural Site Design Measures

*Distributed Volume and Flow Management*

The Project includes volume and flow management structural measures that achieve the following hydromodification control objectives:

- Detain runoff in basins or similar facilities for release in a controlled way that mimics pre-development in-stream sediment transport capacity.

- Manage excess runoff volumes through infiltration; evapotranspiration; storage and use; discharge at a rate below the critical low-flow rate; or by downstream discharge to a conveyance system and locations that are not susceptible to hydromodification.

Distributed facilities are smaller-scale facilities typically treating runoff from one or a few parcels, including LID BMPs and hydromodification-control detention facilities such as underground vaults and pipes. Exhibit 5.4-2, Low Impact Development (LID) Drainage Areas Within Project, shows the locations of the primary distributed LID management measures that will be implemented for portions of the Project site. As discussed in Threshold 2-2 below and Section 5.4, Water Quality, these measures provide flood and water quality controls in addition to hydromodification control. Distributed and parcel-based measures will meet the LID performance standard incorporated into MM 4-1 (see Section 5.4, Water Quality).

#### *Regional Detention and Retention Basins*

Regional detention and retention basins are storm water management facilities designed to detain or infiltrate runoff from multiple parcels or project areas. The basins are typically shallow with flat, vegetated bottoms. Regional basins are constructed by either excavating a depression or building a berm to create aboveground storage. Runoff is stored in the basin and in the pore spaces of the underlying surface soils. Storm water treatment measures such as swales, filter strips, and sedimentation forebays that intercept runoff prior to reaching the basins minimize fine sediment loads and reduce basin maintenance requirements. Basin outlet structures are designed to mimic pre-development in-stream sediment transport capacity. As discussed in Threshold 2-2 below, and in Section 5.4, Water Quality, the regional detention and retention basin system has been sized and designed to also meet applicable flood control and water quality requirements.

The regional infiltration detention system for the Project includes 28 basins that will provide both hydromodification and flow control and water quality treatment for the majority of the proposed development area. The locations of the basins are shown on Exhibit 5.2-4. Normalized sizing charts were applied to the proposed development areas that are tributary to each basin to identify the flow retention and duration volumes required to match the pre-development flow conditions based on site soils and geology, infiltration rates, and stream channel resiliency (i.e., critical shear stress values). The hydromodification control volumes required to meet the performance standard and the total volume provided for hydromodification, as well as flood and water quality control at each basin location, are listed in Table 5.2-4.

**TABLE 5.2-4  
SUMMARY OF REGIONAL RETENTION AND DETENTION  
FOR HYDROMODIFICATION CONTROL**

Regional Basin Number	Receiving Channel	Discharges to a Receiving Channel of Concern for Hydromodification (Y/N)	Tributary Area	Tributary Percent Impervious	Required LID Retention Volume	Total Retention Volume Provided	Total Basin Volume Provided
			(acres)	(%)	(acre-feet)	(acre-feet)	(acre-feet)
Basin 0	East Tributary 4	Y	21.5	54.9	0.00*	4	10
Basin 1	Aqueduct crossing at ~292 <sup>nd</sup> St	N	1,528.5	52.0	50.7	252	420
Basin 2	Oso Creek	Y	326.9	45.0	5.0	24	120
Basin 2a	Oso Creek	Y	64.1	30.0	1.35	6	30
Basin 2b	Oso Creek	Y	76.5	43.8	2.14	5	25
Basin 3	East Tributary 4c	Y	52.2	42.0	1.5	6	30
Basin 4	East Tributary 4a	Y	97.9	47.7	2.4	6.4	32
Basin 5	Oso Creek	Y	321.4	36.3	7.2	48	80
Basin 6	East Tributary 4a	Y	533.4	52.6	16.6	108	180
Basin 7	East Tributary 4b	Y	230.5	33.4	2.0	33	55
Basin 8	East Tributary 4	Y	398.6	47.1	18.6	50	125
Basin 9	East Tributary 3	Y	48.0	30.0	0.00**	7	12
Basin 10	East Tributary 3	Y	164.4	28.8	5.0	7	35
Basin 11	East Tributary 2	Y	754.6	52.3	19.6	51	255
Basin 12	Tentrock Tributary	Y	30.7	86.0	7.1	8	20
Basin 13	Tentrock Tributary	Y	114.0	59.1	3.2	9	45
Basin 14	Tentrock Tributary	Y	420.9	90.8	22.3	100	250
Basin 15	Tentrock Tributary	Y	59.8	91.0	3.4	16	40

**TABLE 5.2-4  
SUMMARY OF REGIONAL RETENTION AND DETENTION  
FOR HYDROMODIFICATION CONTROL**

Regional Basin Number	Receiving Channel	Discharges to a Receiving Channel of Concern for Hydromodification (Y/N)	Tributary Area	Tributary Percent Impervious	Required LID Retention Volume	Total Retention Volume Provided	Total Basin Volume Provided
			(acres)	(%)	(acre-feet)	(acre-feet)	(acre-feet)
Basin 16	Tentrock Tributary	Y	99.5	57.5	2.2	8	40
Basin 17	Tentrock Tributary	Y	43.8	42.0	1.2	3	15
Basin 18	Tentrock Tributary	Y	101.6	91.0	5.8	39	65
Basin 19	Tentrock Canyon	Y	36.9	30.0	0.8	4	9
Basin 20	Tentrock Canyon	Y	43.4	30.0	1.0	2	10
Basin 21	Aqueduct crossing at ~292 <sup>nd</sup> St	N	70.8	42.0	2.1	9	23
Basin 22	Aqueduct crossing at ~292 <sup>nd</sup> St	N	182.8	59.3	6.9	24	60
Basin 23	Aqueduct crossing at ~292 <sup>nd</sup> St	N	148.5	91.0	8.4	10	50
Basin 24	Aqueduct crossing at ~292 <sup>nd</sup> St	N	550.8	48.7	10.8	68	170
Basin 25	Aqueduct crossing at ~286 <sup>th</sup> St	N	148.3	35.3	3.8	24	60

N/A: not applicable  
 \*This area modeled in Basin 1  
 \*\*This area modeled in Basin 10  
 Source: Geosyntec 2016, Psomas 2017.

As shown in Table 5.2-4, no receiving channels of concern would potentially be affected by development area discharges from Basin 1 and Basins 21 through 25, and no hydromodification control volumes are required at these locations. The total volumes for Basin 1 and Basins 21 through 25 (see the last column of Table 5.2-4) represent capacity provided for flood and water quality control. Basin 0 and Basins 2 through 20 would discharge to receiving channels of concern. Table 5.2-4 shows that the detention and retention volumes required to meet the hydromodification control standard has been provided at these locations.

### *In-Channel Controls and Channel Restoration*

To provide additional hydromodification control, the Project includes in-channel measures that protect or restore receiving channel hydraulic properties and bed and bank material resistance to control runoff and sediment. In general, in-channel measures are most effective in locations where a receiving channel of concern has previously been impacted by erosive flows and excessive sediment, erosion or deposition or where it is a hardened channel. As discussed in Section 5.7, Biological Resources, the receiving channels of concern for hydromodification impacts are regulated by the California Department of Fish and Wildlife (CDFW) or the Los Angeles or Lahontan RWQCBs. A small portion of the on-site channels in the western portions of the Project site is subject to federal jurisdiction. Any in-channel measures within State or federal jurisdictional waters will not be constructed until all required permits and approvals have been obtained from the appropriate State and federal agencies.

In-channel measures used to reduce hydromodification risks are discussed in more detail in Appendix 5.2-B (Geosyntec 2016). The Project's proposed in-channel hydromodification measures include grade-control structures, bed and bank reinforcement, and flow diversions.

Grade-control structures maintain the existing channel slope while allowing for minor amounts of local scour. These control measures consist of a narrow trench across the width of the channel that is backfilled with concrete or similar material and a constructed "plunge pool" consisting of boulders and vegetation. Grade-control structures are proposed within portions of the East Tributary system, including East Tributary Reaches 2, 2a, 2b, 4a, 4b, 4c, and 4d (Geosyntec 2016).

Bed and bank reinforcement measures control erosion by stabilizing bed and bank surfaces and by re-establishing native plant communities. Receiving channels of concern within the lower alluvial portions of the site have often abandoned older channels and created new flow paths as a result of the high level of sediment production that occurs within the Tehachapi and La Liebre Mountain Watersheds. Sediment from the upper reaches of the watersheds accumulates in alluvial locations and diverts channel flows. Buried bank stabilization will be provided as necessary along the edges of proposed channels adjacent to development that are susceptible to movement from sediment deposition, including most or all of the receiving channels of hydromodification concern (Geosyntec 2016).

Flow-diversion measures redirect runoff to channels that are susceptible to hydromodification impacts to other watercourses or receiving facilities that are not susceptible to hydromodification effects. Storm water diversions to non-susceptible receiving facilities will be implemented for the 300<sup>th</sup> Street tributary and its smaller side channels as well as East Tributary 1 to decrease tributary areas and to reduce flow volumes.

### *Design for Stream Constrictions*

In-channel hydraulic constrictions (e.g., culverts and bridge crossings) may be unavoidable in certain situations and could potentially create backwater effects upstream and higher shear stresses near piers and abutments. These localized effects will be managed with

proper in-stream energy dissipation; design of in-stream structures for anticipated toe down scour without undermining infrastructure; and stream crossings with spans that are long enough to limit reductions in cross-sectional flow area. Stream constriction measures will be implemented where new road crossings intersect with channels, including along the Tentrock Tributary, within Tentrock Canyon, along Oso Creek, and along East Tributary Reaches 2a, 2b, 2, 3, 4a, 4b, 4c, and 4d.

#### *Dissipate Flow Energy at Outfalls*

Energy dissipation at the Project drainage system outfalls will be required to minimize localized scour in the receiving channels and to reduce the potential for in-channel sharp changes in channel slope resulting from the formation of scour holes caused by concentrated flows of concern. Energy dissipation measures used to reduce hydromodification risks are discussed in more detail in of Appendix 5.2-B (Geosyntec 2016).

#### *Replace Significant Bed Material Sources*

As shown on Exhibit 5.2-4, the proposed on-site regional detention and retention basins would generally be located adjacent to post-development channels. If in-channel basins are required due to topographic or hydrological constraints, bed material sources at in-channel basin outfalls will require replacement as a result of sediment accumulation at these locations. If required, replacement bed material sources would be selected to approximate the same grain size distribution as the receiving channel and would not contain a significant amount of fine sediment. Natural bed sediment deposited in on-site locations would be utilized to the extent feasible to replace bed material. Further information concerning the criteria and methods for replacing bed material is provided in Appendix 5.2-B (Geosyntec 2016).

As discussed in Section 5.18, Water Resources, the Project's potable and recycled water infrastructure, including potable and recycled water treatment, delivery, metering and monitoring, will be managed by a water district or public utility district (PUD) that will serve the Project (the "Project Water Purveyor"). The Project Water Purveyor could also operate and maintain non-construction hydromodification BMPs on the site, and would be responsible for BMP inspections, monitoring, maintenance, and enforcement. Until the Project Water Purveyor or a similar BMP management agency is established, the Project Applicant/Developer will be responsible for all hydromodification BMPs, including design, permitting, construction, operations, and maintenance.

Implementation of the Project's structural and non-structural measures summarized above, including distributed and parcel-specific LID measures and the regional runoff retention and detention basin system, will meet the requirements in Section 8 – Hydromodification Impacts of the County LID Standards Manual, as required in MM 2-1. LID measures will also meet or exceed County LID performance standards as required by MM 4-1 (see Section 5.4, Water Quality). Pursuant to MM 2-1, the effectiveness of Project hydromodification controls will be confirmed during the County tract map approval process. A Drainage System Engineering and Planning Report must be submitted with each tract map application to demonstrate that the proposed BMPs will meet the requirements in Section 8 – Hydromodification Impacts of the County LID Standards Manual for all applicable receiving



channels of concern (see MM 2-1). With mitigation, potential operational hydromodification impacts will be less than significant.

## Off-Site Impacts

Proposed off-site Project facilities are described in Section 4.0, Project Description, and include intersections with SR-138, utility connections, water wells, and Aqueduct crossings. None of these smaller locations would generate runoff volumes and silt or sediment flows in amounts that could cause significant hydromodification impacts under post-development conditions. Runoff from new impervious surfaces related to intersection improvements along SR-138, utility connections, and Aqueduct crossings would be controlled and distributed to parcel-specific LID facilities or to the proposed regional detention and retention basin system (see Exhibit 5.4-2).

Off-site well installation would result in a nominal increase in impervious surface area of up to approximately 312 square feet per well. Storm water runoff from the proposed off-site well locations currently drains as sheet flow, and the installation off-site well impervious surfaces would not create additional runoff volumes that could generate significant hydromodification impacts. All off-site well locations will implement parcel-specific hydromodification and other flow or water quality controls as required by the County LID Ordinance. Potential impacts would be less than significant.

***Impact Summary:*** The Project will implement a comprehensive system of site-design, source-control, LID, and hydromodification BMPs that will meet or exceed the hydromodification control requirements of the County MS4 Permit, the LID standards per Chapter 12.84 of the County Code, and the LID Standards Manual. MM 2-1 requires compliance with County requirements for hydromodification control. All distributed and parcel-specific LID control facilities will comply with the LID performance standard in MM 4-1 (see Section 5.4, Water Quality), consistent with County requirements. Project compliance with the requirements in Section 8 – Hydromodification Impacts of the County LID Standards Manual will be confirmed by the County during the tract map application and review and approval process. Runoff from most off-site locations will be controlled in the proposed regional or distributed, parcel-specific LID facilities. Off-site water wells will comply with all applicable LID requirements. During construction, the Project will comply with the Construction General Permit and will implement hydromodification BMPs based on the level of risk determined for the site in accordance with an SWPPP. With the implementation of MM 2-1, MM 4-1, and compliance with all laws and regulations, including the LID standards per Chapter 12.84 of the County Code and the Construction General Permit, potential impacts from existing drainage pattern alterations that could result in substantial erosion or siltation on or off the site will be less than significant.

**Threshold 2-2      Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?**

As discussed in Section 5.2.3 above, Project development will alter portions of the existing drainage pattern, primarily in the East Drainage Area, and will introduce new impervious surfaces into the site. These changes could result in on- or off-site flooding unless managed with flow controls and a storm drain system.

Potential Project on- and off-site hydrology and flooding impacts were analyzed by comparing post-development peak runoff rates and volumes, including the implementation of flow-control measures such as detention and retention basins, with predevelopment levels. The County LID Standards Manual includes the following hydrology analysis methodological requirements and performance standards (Psomas 2017):

- A 50-year design storm event must be used to design storm water conveyance facilities.
- There must be no increase in peak discharges off site (50-year design storm event).
- There must be no increases in runoff volume off site (50-year design storm event).
- Design flows must be adjusted for burned and bulked scenarios.
- Individual watershed areas within the site must average 40 acres and shall not exceed approximately 60 acres.
- The hydrologic analysis must use the Modified Rational Method (also referred to as MODRAT), as defined by the County and an approved computer program.
- BMPs must be utilized to meet flow, storm water quality, and LID requirements.

The analysis of potential Project hydrology impacts was performed by using the County's Modified Rational Hydrology Method and the XPSWMM computer program with a Los Angeles County module as described in the LACDPW Hydrology Manual (LACDPW 2006). The LACDPW was also consulted on the selection of the software used for the Project analysis. The County's most current requirement that peak discharges and volumes match pre-development conditions for a 50-year storm event represents the most stringent hydrology standard utilized by the County and significantly exceeds previous standards based on a 25-year storm event or other, less intensive design flow criteria. The 50-year post-development peak and volume discharge control requirement has been incorporated into MM 2-2.

Data required for developing the hydrologic parameters used in the analysis for each watershed were collected from multiple sources, including the County, the National Oceanic and Atmospheric Administration (NOAA), the National Resource Conservation Service (NRCS), and the U.S. Geological Service (USGS). Table 5.2-5, Summary of Hydrologic Data

Sources, summarizes the data sources and methodologies used for the Project hydrologic analysis.

**TABLE 5.2-5  
SUMMARY OF HYDROLOGY DATA SOURCES**

<b>Parameter</b>	<b>Source or Method</b>
Watershed Characteristics (areas, slope, length)	USGS National Elevation Data Set Digital Elevation Model
Rainfall Depths	Los Angeles County (for LA County where available) and NOAA Atlas 14 (for LA County area where data was not available and for Kern County)
Rainfall Distribution	MODRAT
Runoff	MODRAT
Soils Data	Los Angeles County Shapefiles (GIS)
USGS: U.S. Geological Survey; NOAA: National Ocean and Atmospheric Administration; MODRAT: Modified Rational Method; GIS: Geographic Information Systems	
Source: Psomas 2017 (Appendix 5.2-A)	

Existing and post-development hydrologic conditions were analyzed by using ARC GIS software and the XPSWMM program to process the watershed data and to perform all calculations. Existing site conditions were analyzed by initially using the ARC GIS system to develop the following information:

- Determine all reaches with a contributing area of approximately 40 acres or more.
- Delineate watersheds.
- Determine the longest flow path, length, and slope for each watershed.
- Determine the centroid and rainfall depth of each watershed.
- Assign rainfall depth and soil type data to each watershed.

The ARC GIS data was imported into the XPSWMM program (with the Los Angeles County module) to perform the following functions and hydrologic calculations for the site:

- Assign Los Angeles County nomenclature to each watershed.
- Calculate the time of concentration for each watershed.
- Calculate the peak discharge from and generate a hydrograph for each watershed.
- Route runoff from each watershed downstream.

As shown in Exhibit 5.2-3 and summarized in Table 5.2-2, existing condition peak flows and volumes for a 50-year storm event were analyzed at 16 existing locations or “nodes” at upstream and downstream points along the Project boundary. Post-development hydrologic conditions were evaluated by modifying the existing conditions model, including the following methods:

- Proposed land uses were imported into the XPSWMM program and existing watershed boundaries were removed from areas of proposed development.
- Post-development watersheds were delineated manually based on the proposed Project land uses and on-site detention retention and LID facilities, including 28 regional basins.
- A conservative single rainfall value was assumed for each post-development watershed.
- Post-development flow lengths were estimated and proposed graded slopes were assigned to each watershed.
- The proposed Project storm drain system and post-development drainage channel alignment properties were determined.
- The time of concentration in each watershed was calculated.

Post-development storm water runoff volumes will be affected by the amount of impervious area introduced into each watershed. The Project hydrology analysis integrated pre- and post-development impervious surface data into the delineation of each watershed based on proposed land uses and the proposed grading plan. Post-development watersheds were further subdivided as necessary to meet the County 40- to 60-acre analysis size requirement (LADPW 2006). The hydrology analysis method is described in more detail in the *Centennial Master Plan Hydrology* study attached as Appendix 5.2-A of this EIR (Psomas 2017). Appendix 3 of the study provides representative maps of the pre-development watersheds, subareas, channel reaches, and flow analysis points used in the analysis. Appendix 4 of the study provides representative maps of the post-development (proposed conditions) watersheds, subareas, channel reaches, and flow analysis points.

### ***Construction Impacts***

The primary hydrology concern during Project construction is that construction activities could substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off the site. As discussed in Section 5.2.2 above, the Project must comply with the state General Construction Permit, which requires the implementation of construction period BMPs in accordance with an impact risk assessment for the Project. An SWPPP must be prepared and implemented that includes BMPs that meet or exceed the permit requirements applicable to the level of construction risk. Hydrology construction period BMPs may include on-site flow retention controls that prevent runoff and/or catchments or basins that collect and control runoff. The permit requires that BMPs incorporate the best available technology economically achievable and best conventional pollutant control technology. BMP implementation must be based on the phase of construction and current weather conditions to control erosion and sediment. A Construction Site Monitoring Program that identifies monitoring and sampling requirements during construction is a required component of the SWPPP.

Project construction is anticipated to be classified as Risk Level 2, as defined in the General Construction Permit. Other applicable BMPs will be implemented in response to the risk assessment (Geosyntec 2016). Additional information concerning the implementation of the

Construction General Permit during Project construction is provided in Section 5.4, Water Quality, of this EIR. Through implementation of all requirements of the Construction General Permit, construction period hydrology and flood impacts would be less than significant and no additional mitigation is required.

### ***Operational Impacts***

Potential operational flood and hydrology impacts could occur if the peak rate or amount of surface runoff under post-project condition increases above pre-development levels and results in flooding on or off the site. The Project will increase the amount of impervious surfaces, and runoff would increase from new, impervious locations on the site, which could result in significant flooding impacts. As discussed above, the County MS4 permit, the LID standards per Chapter 12.84 of the County Code, and the LID Standards Manual require flow-control measures designed to ensure that upstream or downstream flooding will not occur during a 50-year storm event. MM-2-2 requires that the Project comply with this hydrology performance standard.

To achieve these objectives, the Project will implement a 28-basin regional flow-control system with sufficient capacity to reduce peak runoff flow rate and volumes from a 50-year storm event to levels consistent with or below pre-development conditions. As discussed in Threshold 2-1 above and in Section 5.4, Water Quality, other on-site measures (e.g., break structures and parcel-based BMPs) also provide hydrology and flood controls. The Project hydrology analysis conservatively assumes that the required level of development flow control is achieved by utilizing the proposed regional basin system and does not consider the additional peak and total runoff volume attenuation that would be provided by other proposed measures (Psomas 2017).

The 28 regional detention and retention basins are storm water management facilities that are designed to detain or infiltrate runoff. The basins impound water at depths of approximately six to eight feet to promote higher infiltration rates and to minimize evaporation losses; they are designed to allow for regular maintenance and monitoring of infiltration rates to ensure optimum operating efficiency. Basin outlet structures are designed to mimic pre-development runoff peak flow rates and volumes for a variety of storm events with recurrence intervals from 2 years to the 50-year design storm. The regional runoff retention and detention system for the Project includes 28 basins that will provide runoff, hydromodification and water quality controls for the majority of the proposed development area. The locations of the 28 basins are shown on Exhibit 5.2-4. The volume of flood control required and the total volume capacity provided for each basin are listed in Table 5.2-6. As shown in Table 5.2-6, all basins have been sized to meet and exceed the required storage volume for a 50-year storm event and therefore will meet and exceed volume requirements from storm events with a more frequent recurrence interval.

Consistent with LACDPW policy, storm event flow rates are based on “clear” flow that does not include a bulking factor that will result from debris flows generated from natural hillside areas in either a natural condition or a burned condition that would exist after a fire burns the natural vegetation. This bulking factor has the effect of increasing the peak flow rates. To manage this effect, debris-carrying channels and debris basins will be designed as part of the construction permit plans to intercept and manage the debris flows so that the storm water

discharge from the debris basins will meet the design “clear” flow rates to the regional detention and retention basins.

**TABLE 5.2-6  
SUMMARY OF REGIONAL RETENTION AND DETENTION BASINS  
FOR FLOOD CONTROL**

<b>Regional Basin Number</b>	<b>Flood Control Retention Volume Provided (acre-feet)</b>	<b>Total Basin Volume Provided (acre-feet)</b>
Basin 0	4	10
Basin 1	252	420
Basin 2	24	120
Basin 2A	6	30
Basin 2B	5	25
Basin 3	6	30
Basin 4	6.4	32
Basin 5	48	80
Basin 6	108	180
Basin 7	33	55
Basin 8	50	125
Basin 9	7	12
Basin 10	7	35
Basin 11	51	255
Basin 12	8	20
Basin 13	9	45
Basin 14	100	250
Basin 15	16	40
Basin 16	8	40
Basin 17	3	15
Basin 18	39	65
Basin 19	4	9
Basin 20	2	10
Basin 21	9	23
Basin 22	24	60
Basin 23	10	50
Basin 24	68	170
Basin 25	24	60
<b>Total Volume</b>	928	<b>2,266</b>
Source: Psomas 2017		

As discussed in Section 5.2.3, peak runoff rates and volumes for a 50-year storm event under existing conditions were estimated at 9 existing locations or “cross sections” at downstream locations along the Project boundary utilizing the County’s methodology. The locations of the cross sections under existing conditions are shown on Exhibit 5.2-3. Table 5.2-2, Existing Runoff Discharge Rates and Volumes summarizes the peak flow rate (also called the “Q” rate)

and volume of storm water runoff at each of the 9 nodes during a 50-year storm event under existing conditions.

The existing condition nodes were relabeled to conduct the post-development analysis and are located at the same points along the Project boundary. The locations and identification labels for the post-development nodes are shown in Exhibit 5.2-6, Location and Designation of Storm Water Runoff Discharge Cross Sections with Project.

Table 5.2-7, Summary of Pre- and Post-Development Peak Discharge Rates for the 50-Year Storm Event, and Table 5.2-8, Summary of Pre- and Post-Development Runoff Volumes for the 50-Year Storm Event, summarize the rate (Q) of peak discharge and runoff volume at the same discharge nodes under existing and post-development conditions for a 50-year storm event. The tables show that post-development peak flow rates and volumes during the 50-year design storm event will either be unchanged from existing conditions or will be lower than under existing conditions. Consequently, post-development conditions in all locations will meet or exceed the County flood and hydrology control standards.

**TABLE 5.2-7  
SUMMARY OF PRE- AND POST-DEVELOPMENT PEAK  
DISCHARGE RATES FOR THE 50-YEAR STORM EVENT**

Existing XS	Proposed XS	Existing Condition Q (cfs)	Developed Condition Q with Controls (cfs)	Difference from Existing Conditions (cfs)
<b>Gorman Watershed</b>				
8	8	331.2	331.2	0
<b>Oso Creek Watershed</b>				
1	1	2446.4	2346.3	-100.1
2	2	8902.5	8844.1	-58.4
<b>Tentrock/East Trib Watersheds</b>				
3	3	9884.5	9433.1	-451.4
4	4	9143.2	2484.6	-6658.6
<b>East Tributary Watersheds</b>				
5	5	468.3	42.7	-425.6
6	6	697.4	197.5	-499.9
9	9	680.9	315.8	-365.1
<b>Cow Springs/Horse Camp Canyon/300<sup>th</sup> Street Trib Watersheds</b>				
7	7	4547.9	2104.9	-2443.0
Q: peak flow rate; cfs: cubic feet per second				
Note: numbers may not balance due to rounding error.				
Source: Psomas 2017 (Appendix 5.2-A)				

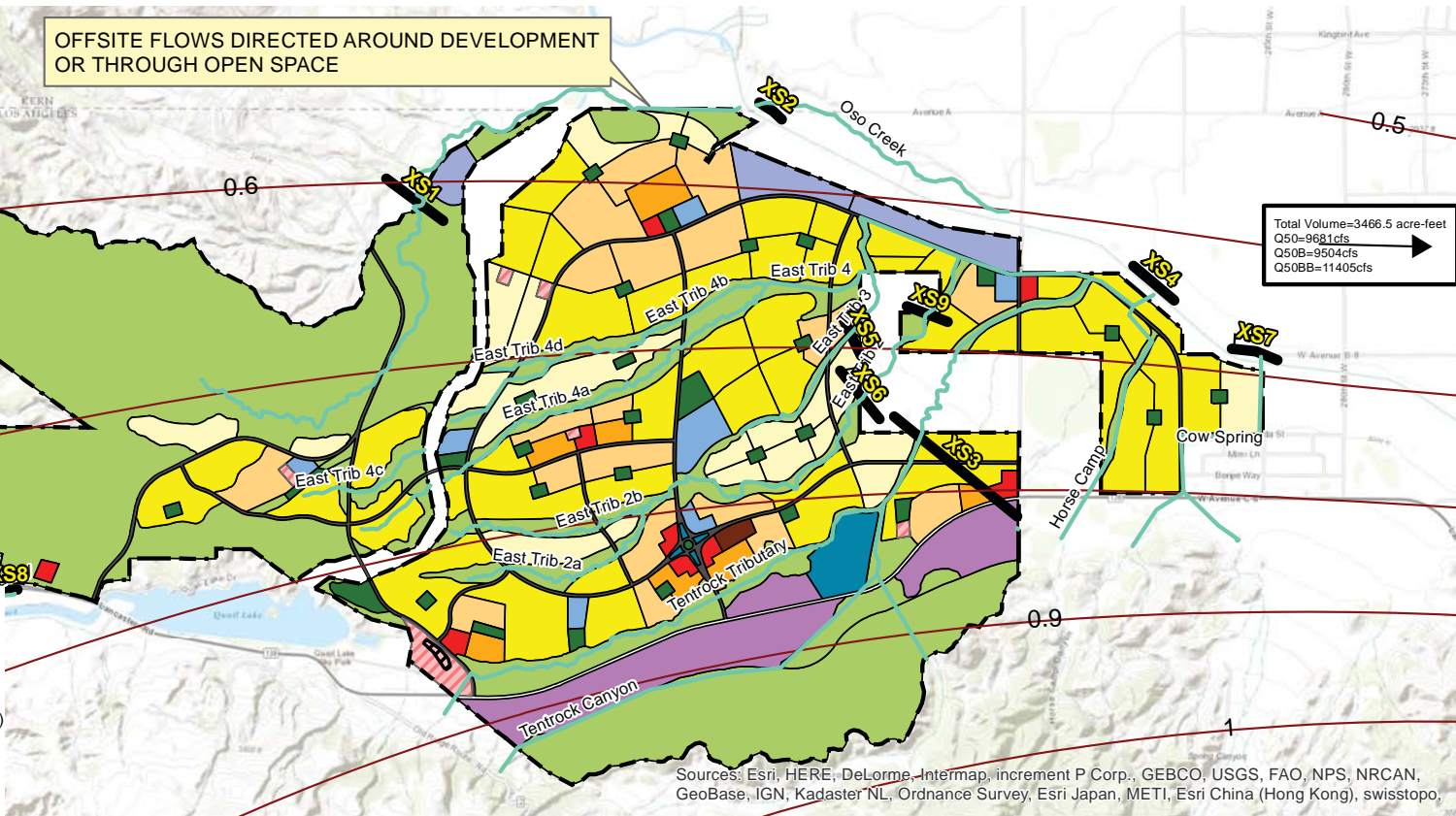


*William Barker*

OFFSITE FLOWS DIRECTED AROUND DEVELOPMENT  
OR THROUGH OPEN SPACE

**Legend**

- PROJECT BOUNDARY
- HYDROMOD XS
- Flow Paths
- 85th\_Percentile\_Isohyet
- HABITAT (1% IMP)
- VLDR (30% IMP)
- LDR (42% IMP)
- MDR (55% IMP)
- HDR (86% IMP)
- VHDR (86% IMP)
- C (96% IMP)
- BP (91% IMP)
- I/C (81% IMP)
- OS (1% IMP)
- UTILITY (91% IMP)
- R/E Overlay (82% IMP)
- SCHOOL Overlay (82% IMP)
- PARK Overlay (10% IMP)
- ROW (91% IMP)
- NAP (1% IMP)



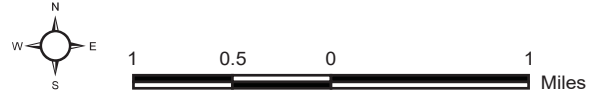
Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo,

Source: Psomas 2017

**Location and Designation of Storm Water Runoff Discharge Cross Sections with Project**

**Exhibit 5.2-6**

Centennial Project



D:\Projects\CEN\Centennial\Graphics\EIR\Ex\_StormWaterRunoff\_20170511.ai



**TABLE 5.2-8  
SUMMARY OF PRE- AND POST-DEVELOPMENT  
RUNOFF VOLUMES FOR THE 50-YEAR STORM EVENT**

Existing Cross Section	Proposed Cross Section	Existing Volume (acre-feet)	Proposed Volume (acre-feet)	Difference from Existing Conditions (acre-feet)
Gorman Watershed				
8	8	21.1	21.1	0
Oso Creek Watershed				
1	1	404.4	358.3	-46.1
2	2	1396.2	1335.7	-60.5
Tentrock/East Trib Watersheds				
3	3	1084.1	1032.0	-52.1
4	4	1095.8	953.8	-142
East Tributary Watershed				
5	5	49.4	28.3	-21.1
6	6	94.5	86.3	-8.2
9	9	98.2	94.6	-3.6
Cow Springs/Horse Camp Canyon/300 <sup>th</sup> Street Trib Watersheds				
7	7	594.9	400.3	-194.6
cf: cubic feet; af: acre-feet				
Source: Psomas 2017 (Appendix 5.2-A)				

As discussed in Section 5.18, Water Resources, the Project's potable and recycled water infrastructure, including potable and recycled water treatment, delivery, metering and monitoring, will be managed by a water district or PUD that will serve the Project (the "Project Water Purveyor"). The Project Water Purveyor could also operate and maintain the flood and hydrology BMPs within the site, and would be responsible for BMP inspections, monitoring, maintenance, and enforcement. The Project Water Purveyor will be funded through a rate-payer system and fees. Until the Project Water Purveyor or a similar BMP management agency is established, the Project Applicant/Developer will be responsible for all hydrology BMPs, including design, permitting, construction, operations, and maintenance.

The implementation of the proposed flood-control measures summarized above, including the regional runoff retention and detention basin system, will meet or exceed the hydrology performance standard required by the County based on a 50-year storm event and incorporated in MM 2-2. These results are conservative because the development conditions analysis does not include flow attenuation effects that would be achieved by parcel-specific or distributed BMPs that will also be implemented on the site. Pursuant to MM 2-2, the effectiveness of Project hydrology controls will be confirmed during the County tract map approval process. A Drainage System Engineering and Planning Report must be submitted with each tract map application to demonstrate that the proposed BMPs will achieve the

hydrology performance standard for a 50-year design storm event (see MM 2-2). With mitigation, potential operational hydrology and flood impacts will be less than significant.

## Off-Site Impacts

Proposed off-site Project facilities are described in Section 4.0, Project Description, and include intersections with SR-138, utility connections, water wells, and Aqueduct crossings. None of these smaller locations would generate peak flow rate or volumes that could cause significant flooding impacts under post-development conditions. Runoff from new impervious surfaces related to intersection improvements along SR-138, utility connections, and Aqueduct crossings would be controlled in the proposed regional detention and retention basin system or in distributed or parcel-specific LID facilities as necessary to meet LID requirements (see Exhibit 5.4-2).

Off-site well installation would result in a nominal increase in impervious surface area of up to approximately 312 square feet per well. Storm water runoff from the proposed off-site well locations currently drains as sheet flow, and the installation of off-site well impervious surfaces would not create additional peak flow and total runoff volumes that could generate significant flood impacts. All off-site well locations will implement parcel-specific flow or other hydromodification and water quality controls as required by the County LID requirements. Potential impacts would be less than significant.

**Impact Summary:** The Project will implement a comprehensive system of site design, source control, LID, and hydromodification BMPs that will meet or exceed the hydrology and flood control requirements of the County MS4 Permit, the LID standards per Chapter 12.84 of the County Code, and the LID Standards Manual. MM 2-2 requires compliance with the County 50-year storm event hydrology and flood-control standards. The analysis of pre- and post-development runoff utilizing the County's methodology shows that the post-development 50-year storm event peak flow rates and runoff volumes will be the same or lower than under existing conditions. Project compliance with the hydrology and flood-control performance standards will be confirmed by the County during the tract map application and review and approval. Runoff from most off-site locations will be controlled in the proposed regional facilities. Other off-site facilities, such as water wells, will comply with all applicable LID requirements. During construction, the Project will comply with the Construction General Permit and will implement hydrology and flood-control BMPs based on the level of risk determined for the site in accordance with an SWPPP. With the implementation of MM 2-2 and compliance with all laws and regulations, including the LID standards per Chapter 12.84 of the County Code and the Construction General Permit, potential impacts from existing drainage pattern alterations or changes in peak flow rates and volumes that could cause flooding on or off the site will be less than significant.

**Threshold 2-3**      **Would the project create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?**

### **On-Site Impacts**

Potential construction-related storm water runoff impacts are addressed above under Threshold 2-1 and Threshold 2-2 and will be less than significant due to compliance with the state's General Construction Permit. Potential on-site water quality impacts related to substantial additional sources of polluted runoff are discussed in Section 5.4, Water Quality, and will be less than significant with mitigation.

As discussed in Threshold 2-2 and Section 5.4, Water Quality, and as required by MM 2-2 and MM 4-1, the Project will construct and maintain distributed and parcel-specific LID and regional flood, flow, and water quality facilities that will meet or exceed applicable County, State, and federal hydrology and water quality control requirements. The locations of the primary distributed and parcel-specific LID facilities are shown in Exhibit 5.4-2. The locations of the 28 runoff detention and retention basins that comprise the region control system are shown in Exhibit 5.2-4. Each basin has been sized to provide sufficient capacity to meet hydrology and flood, hydromodification, and water quality protection requirements.

As shown in Tables 5.2-7 and 5.2-8, runoff peak flow rates and volumes under developed conditions for a 50-year storm will be the same or lower than under existing conditions. The control capacity of the distributed and regional facilities will be further confirmed in accordance with MM 2-1 (hydromodification controls), MM 2-2 (hydrology and flood controls), and MM 4-1 (LID and water quality controls, see Section 5.4, Water Quality) during the County tract map review and approval process for the Project. With implementation of the Project storm water management BMPs and compliance with MM 2-1, MM 2-2 and MM 4-1, potential impacts related to the creation or contribution of runoff water that exceeds the capacity of existing or planned storm water drainage systems will be less than significant.

### **Off-Site Impacts**

Potential Project off-site hydromodification impacts are discussed in Threshold 2-1, and potential off-site hydrology and flood impacts are discussed in Threshold 2-2 and will be less than significant. None of the Project's off-site facilities will generate storm water in amounts that exceed planned drainage facility capacity. Runoff from off-site locations will be controlled in the proposed regional detention and retention basin system or in distributed or parcel-specific LID facilities as necessary to meet LID requirements (see Exhibit 5.4-2, Low Impact Development [LID] Drainage Areas with Project). Potential off-site water quality impacts related to substantial additional sources of polluted runoff are discussed in Section 5.4, Water Quality, and will be less than significant with mitigation.

***Impact Summary:*** As discussed above, the Project includes distributed and regional runoff-control BMPs that are sufficient to control peak and volumetric flows from a 50-year storm event to meet all applicable County standards. Project development, including off-site facilities, will not generate runoff water in amounts that will exceed the capacity of planned storm water drainage systems, including regional and distributed or parcel-specific controls. Potential impacts related to the creation or contribution of runoff water that exceeds the capacity of existing or planned storm water drainage systems will be less than significant with implementation of MM 2-1, MM 2-2, and MM 4-1. Potential impacts related to the creation or contribution of runoff water that could provide substantial additional sources of polluted runoff are discussed in Section 5.4, Water Quality, and would also be less than significant with mitigation.

**Threshold 2-4**      **Would the project conflict with the Los Angeles County Low Impact Development Ordinance (L.A. County Code, Title 12, Ch. 12.84)?**

### **On-Site Impacts**

As discussed above and in Section 5.4, Water Quality, the Project has been designed to meet LID requirements for hydrology and flood, hydromodification, and water quality control. MM 2-1 requires compliance with the requirements in Section 8 – Hydromodification Impacts of the County LID Standards Manual. MM 2-2 requires compliance with the County hydrology and flood control standards. MM 4-1 requires compliance with the County LID performance standards (see Section 5.4, Water Quality). Compliance with each of these LID requirements will be further confirmed in accordance with MM 2-1, MM 2-2 and MM 4-1 during the County tract map review and approval process for the Project. The Project will not conflict with the County LID standards per Chapter 12.84 of the County Code.

### **Off-Site Impacts**

Proposed off-site Project facilities are described in Section 3.0, Project Description, and include intersections with SR-138, utility connections, water wells, and Aqueduct crossings. Runoff from new impervious surfaces related to intersection improvements along SR-138, utility connections, and Aqueduct crossings would be controlled in the proposed regional detention and retention basin system or in distributed or parcel-specific LID facilities as necessary to meet LID requirements (see Exhibit 5.4-2). Runoff from off-site water well installations will be controlled by implementing all applicable parcel-specific LID BMPs at these locations. All off-site Project facilities will be consistent with the LID requirements.

***Impact Summary:*** The Project's comprehensive system of site-design, source-control, LID, hydrology and flood, hydromodification, and water quality BMPs will be consistent and will not conflict with the County LID requirements. Potential impacts will be less than significant with the implementation of MM 2-1, MM 2-2 and MM 4-1.

**Threshold 2-5**      **Would the project create drainage system capacity problems, or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

### **On-Site and Off-site Impacts**

Threshold 2-3 discusses potential impacts from Project-related runoff that could exceed the capacity of planned or existing storm water drainage systems. The Project will meet or exceed County hydrology and flood performance standards, including the control of peak and total volume runoff from a 50-year storm to levels that are the same or lower than under existing conditions. Runoff from off-site intersection improvements along SR-138, utility connections, Aqueduct crossings, and water wells will be controlled within the proposed regional detention and retention system or in distributed or parcel-specific facilities consistent with the LID requirements in more isolated locations. The effectiveness of the proposed hydrology controls will be confirmed during the County tract map approval process (see MM 2-1, MM 2-2, and MM 4-1). As discussed in Threshold 2-3, the Project will not result in drainage system capacity problems, and potential impacts associated with drainage capacity will be less than significant.

As discussed in Threshold 2-1, Threshold 2-2, and in Section 5.4, Water Quality, the Project will construct distributed or parcel-specific LID and regional hydrology, hydromodification, and water quality controls and storm water drainage facilities that will be sized to meet or exceed County requirements. Potential impacts associated with the construction of these facilities are considered in the analysis of Project impacts in the topical sections of this EIR, including Section 5.7, Biological Resources; Section, 5.11, Air Resources; Section 5.18, Water Resources; and Section 5.21, Climate Change. No additional construction or expansion of storm water drainage facilities other than the proposed and planned facilities considered in the substantive sections of this EIR will be required. No significant environmental effects would be caused by the construction of any such additional storm water drainage facilities.

***Impact Summary:*** The Project will not cause drainage capacity problems and includes the construction of storm water drainage facilities that have been sized to meet and exceed all applicable County requirements. No additional construction of new or expanded storm water drainage facilities will be required for the Project, and impacts will be less than significant.

**Threshold 2-6**      **Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map, or within a floodway or floodplain?**

### **On-Site and Off Site Impacts**

As shown in Exhibit 5.2-5, portions of the Project site in the Oso Creek drainage along the northern boundary and certain drainages along the eastern boundary of the site are within a 100-year floodplain mapped by FEMA. County flood risk maps for the site include the same

locations. The Project requires that a Floodplain Safety Overlay be implemented for the mapped floodplain portions of the site that precludes the placement of housing within a 100-year floodplain (see Exhibit 4-6, Centennial Project – Safety Overlay Districts). This requirement has been incorporated in MM 2-3. No housing will be placed in a 100-year floodplain, or other floodway or floodplain identified on other hazard delineation map. No off-site housing will be constructed with implementation of the Project.

***Impact Summary:*** With implementation of MM 2-3 and the Floodplain Safety Overlay, potential impacts from the placement of housing within a 100-year floodplain or other floodway or floodplain identified on other hazard delineation map will be less than significant.

**Threshold 2-7**      **Would the project place structures, which would impede or redirect flood flows, within a 100-year flood hazard area, floodway, or floodplain?**

### **On-Site Impacts**

As shown in Exhibit 5.2-5, portions of the Project site in the Oso Creek drainage along the northern boundary and certain drainages along the eastern boundary of the site are within a 100-year floodplain mapped by FEMA. County flood risk maps for the site include the same locations. The Project includes a Floodplain Safety Overlay that precludes the placement of habitable residential, commercial, school, and institutional buildings within a 100-year floodplain (see Exhibit 4-6, Centennial Project – Safety Overlay Districts). This requirement has been incorporated in MM 2-3. No habitable residential, commercial, school, or institutional buildings will be placed in a 100-year flood hazard area, floodway, or floodplain.

Certain proposed Project utility infrastructure, including a water treatment facility in the northwest portion of the site and utilities located along the eastern boundary of the site, could be located in a mapped 100-year floodplain. MM 2-3 requires that, prior to the recordation of any tract map that would locate any structure within a mapped 100-year floodplain, the floodplain boundaries must be more precisely determined and an engineering study must be conducted to identify applicable flood-control and floodplain development protection measures. The study must demonstrate that all applicable FEMA and County of Los Angeles floodplain flood flow and development standards will be met after the proposed construction has been completed. MM 2-3 requires that a conditional letter of map revision (CLOMR) be obtained from FEMA indicating that any proposed facility that would modify a mapped floodplain would be recognized by FEMA if built as proposed. The floodplain map would subsequently be revised based on as-built conditions in accordance with FEMA and County floodplain map revision requirements. With the implementation of MM 2-3, potential impacts from on-site structures that could impede or redirect flood flows within a 100-year flood hazard area, floodway, or floodplain would be less than significant.

### **Off-Site Impacts**

Most of the off-site Project facilities, including intersections with SR-138, utility connections, and Aqueduct crossings, would not be located within a 100-year floodplain. Certain off-site

well locations and portions of proposed water pipelines could be located within or near a designated 100-year floodplain. As discussed above, off-site wells would result in minute changes to existing runoff conditions and would not have the potential to significantly impede or redirect flood flows. Proposed pipeline facilities would be located underground and would have no effect on existing flood flows. Potential impacts from off-site structures that could impede or redirect flood flows within a 100-year flood hazard area, floodway, or floodplain would be less than significant and no mitigation is required.

***Impact Summary:*** The Project incorporates a Floodplain Safety Overlay to ensure that habitable residential, commercial, school, and institutional structures will not be developed in mapped 100-year floodplain areas. MM 2-3 requires an engineering analysis and a CLOMR approved by FEMA prior to other potential construction in a mapped 100-year floodplain. The engineering study and CLOMR process must demonstrate that, under post-construction as-built conditions, affected flood flows and the resulting development comply with all applicable FEMA and County requirements. With implementation of MM 2-3, potential impacts related to structures that could impede or redirect flood flows within a 100-year flood hazard area, floodway, or floodplain would be less than significant.

**Threshold 2-8**      **Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?**

### **On-Site and Off-Site Impacts**

As discussed in Threshold 2-6 and Threshold 2-7, the Project incorporates a Floodplain Safety Overlay to ensure that habitable residential, commercial, school, and institutional structures will not be developed in mapped 100-year floodplain areas. MM 2-3 requires an engineering analysis and a CLOMR approved by FEMA prior to potential utility construction in a mapped FEMA 100-year floodplain. The engineering study and CLOMR process must demonstrate that, under post-construction as-built conditions, affected flood flows and the resulting development comply with all applicable FEMA and County requirements.

Most of the Aqueduct (West Branch that flows through Centennial to Quail Lake) is in a cut condition (i.e., below-ground elevation) and therefore poses no risk of inundation to the Project site due to failure. There are two areas that are built on fill materials in existing canyons where culverts convey storm flows from the west side to the east side. If there was a failure of one side of the Aqueduct channel, any water flows would discharge along the existing canyon watercourses where discharging storm flows already occur and would be directed to flood-control basins in the buildout condition. Therefore, these areas would not result in an inundation of developed areas should failure of the Aqueduct channel occur. For the East Branch of the Aqueduct, which runs east/west along the northern boundary of the Project site, there is no risk of inundation because the channel is cut into the existing ground and there is no embankment or levee that could fail. Therefore, the potential for inundation and flooding from a dam or levee failure would be less than significant.

**Impact Summary:** With the implementation of MM 2-3, potential impacts from exposing people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam, would be less than significant.

**Threshold 2-9**      **Would the project place structures in areas subject to inundation by seiche, tsunami, or mudflow?**

### **On-Site and Off-Site Impacts**

The Project site is physically isolated by several miles from large waterbodies, such as the Pacific Ocean, that could be subject to tsunamis. Seiches are waves within smaller waterbodies, such as lakes, and are typically caused when strong winds and rapid changes in atmospheric pressure push water towards one end of a waterbody. When the winds cease or air pressure equalizes, the displaced water rebounds, a process that can cause waves and damage adjacent land and shorelines. There are no waterbodies of sufficient size to pose a significant risk of seiche on the Project site. Quail Lake is located to the south of the Project (outside the site) and is lower in elevation than adjacent proposed development areas, including an access road and a commercial area to the west of the lake. As a result, the Project is not subject to significant tsunami or seiche inundation risks.

Mudflows are rivers of liquid and flowing mud on the surface of normally dry land, often caused by a combination of brush loss and subsequent heavy rains. Mudflows can develop when water saturates the ground, such as from rapid snowmelt or heavy or long periods of rainfall, causing a thick liquid downhill flow of earth (National Flood Insurance Program 2015). As discussed in Threshold 2-1 and Threshold 2-2, the Project will implement a comprehensive system of distributed, parcel-specific, and regional BMPs, including 28 detention and retention basins and storm drainage and conveyance facilities, that will control runoff and its associated sediment flows. Flow and sediment controls will also prevent and contain mudflows on the site and in off-site flow discharge locations. Potential mudflows that could originate from off-site upland slopes would drain into on-site storm drainage infrastructure, including basins and engineered and natural stream channels, which would reduce potential impacts.

As discussed in Section 5.1, Geotechnical, topographic alterations in areas with slopes over 25 percent, which would be most prone to generate mudflows, must comply with applicable geotechnical recommendations; County subdivision and building code requirements; and grading standards adopted for the Project. With the implementation of these requirements, steeper slope alterations would not generate significant development hazards or adversely affect human health and safety, including the generation of significant mudflow risks. In addition, most of the steeper topography on the Project site is located west of the West Branch of the Aqueduct where 18 percent of the proposed Project development would occur. Potential mudflow risks will be further attenuated by siting most of the proposed development in flatter locations and avoiding steeper topography.



**Impact Summary:** The Project site is not subject to tsunami or seiche risks. The Project will avoid steeper topography associated with higher mudflow risks where feasible. MM 2-1, MM 2-2 and MM 4-1, require the implementation of flow and sediment-control facilities that will also capture and control mudflows should it occur on the site. With mitigation, potential impacts from mudflows will be less than significant.

**Threshold 2-10** **Would the project add water features or create conditions in which standing water can accumulate that could increase habitat for mosquitoes and other vectors that transmit diseases such as the West Nile virus and result in increased pesticide use?**

### On-Site Impacts

As shown in Exhibit 5.2-4, the Project would include 28 regional retention and detention basins, modifications to some existing stream channels, storm drain pipes, catch basins, distributed and parcel-specific detention facilities, and other structural BMPs that would temporarily retain wet- or dry-weather runoff. The California Department of Public Health (CDPH) has developed BMPs for mosquito control in storm water management facilities, including the full discharge of captured water in 96 hours (4 days) or less (CDPH 2012), which is the minimum time necessary for mosquito development. All soft-bottom drainage facilities—including regional and distributed basins and stream channels—would be designed to fully drain or infiltrate captured water in less than four days and avoid the creation of mosquito vectors. This drainage or infiltration management requirement is incorporated into MM 4-2 (see Section 5.4, Water Quality).

On-site wastewater and recycled water facilities will include percolation, storage, and treatment ponds in which standing water may accumulate. As discussed in Section 5.19, Wastewater, MM 19-5 requires that CDPH-recommended vector-control measures for wastewater treatment facilities be implemented for these ponds.

The vector-control BMPs developed by the CDPH include the implementation of an Integrated Pest Management (IPM) program appropriate to proposed Project land uses. The IPM program achieves long-term prevention or suppression of pest problems (i.e., insects and diseases) through a combination of techniques, including using pest-resistant plants; biological controls; cultural practices; habitat modification; and the judicious use of pesticides according to treatment thresholds, when monitoring indicates pesticides are needed because pest populations exceed established thresholds. As discussed in Section 4.0, Project Description, and Section 5.4, Water Quality, the Project includes IPM BMPs that are consistent with the integrated pest management and pesticide and fertilizer application guidelines established by the University of California Division of Agriculture and Natural Resources Statewide Integrated Pest Management Program (see PDF 4-2). These requirements are incorporated in MM 4-2, which also requires that the effectiveness of the IPM BMPs be further verified during the County tract map review and approval process. The proposed land uses associated with the Project are typical of a developed urban area, and would not involve the unusual accumulation of standing or otherwise stagnant water that

could increase habitat for mosquitos or other insect vectors. With the implementation of MM 4-2 and MM 19-5, potential impacts related to insect vectors would be less than significant.

## Off-Site Impacts

None of the off-site Project features, including intersections with SR-138, utility connections, water wells, and Aqueduct crossings, would involve the capture or other collection of water that could create habitat for mosquitos or other insect vectors. There would be a less than significant impact and no mitigation is required.

***Impact Summary:*** MM 4-2 requires that all soft-bottom drainage facilities fully drain or infiltrate captured water in less than four days, consistent with BMPs for mosquito control published by the CDPH. MM 4-2 also requires the implementation of IPM BMPs consistent with the integrated pest management and pesticide and fertilizer application guidelines established by the University of California Division of Agriculture and Natural Resources Statewide Integrated Pest Management Program. The IPM BMPs will be further confirmed prior to the issuance of building permits and during the County tract map review process. MM 19-5 requires the implementation of recommended CDPH BMPs for Project wastewater treatment facilities. Proposed Project land uses would not result in unusual standing or otherwise stagnant water accumulation that could increase habitat for mosquitos or other insect vectors. Off-site Project facilities will not result in standing or otherwise stagnant water that could support mosquitos or other vectors. With the implementation of MM 4-2 (from Section 5.4, Water Quality) and MM 19-5 (from Section 5.19, Wastewater) potential Project impacts related to insect vectors would be less than significant.

### 5.2.7 MITIGATION MEASURES

**MM 2-1** The Project shall implement hydromodification-control Best Management Practices (BMPs) that will meet the requirements of Section 8 – Hydromodification Impacts of the County LID Standards Manual, as confirmed by the County based on a Drainage System Engineering and Planning Report to be submitted with each Project tract map application. This Drainage System Engineering and Planning Report shall describe applicable hydromodification-control BMPs and shall utilize approved Los Angeles County methods to demonstrate compliance with the County LID Standards Manual.

**MM 2-2** The Project shall implement hydrology and flood-control BMPs that will achieve the following hydrology and flood performance standards:

All project water conveyance facilities must be designed to provide capital flood protection. BMPs must be implemented to ensure that, for the capital event, there is no increase in peak

discharge rates and no increase in runoff volume offsite compared with peak discharge rates and runoff volumes under existing, pre-development conditions. Compliance with the hydrology and flood performance standard shall be demonstrated by using a methodology approved Los Angeles County Department of Public Works for comparing project site pre- and post-development peak discharge rates and runoff volumes.

Compliance with the hydrology and flood performance standards shall be further confirmed by the County, based on a Drainage System Engineering and Planning Report submitted with each Project tract map application. The Drainage System Engineering and Planning Report shall describe applicable hydrology and flood-control BMPs and utilize approved Los Angeles County methodologies to demonstrate compliance with the hydrology and flood performance standards.

- MM 2-3** Each Project Tentative Map shall depict, the 100-year floodplain mapped by the Federal Emergency Management Agency (FEMA). The placement of habitable residential, commercial, school and institutional buildings shall be precluded within any mapped 100-year floodplain. All applications for Project tract maps that would locate any structures within a mapped 100-year floodplain must include an engineering report that provides a detailed description of the floodplain boundaries and demonstrates that as-built conditions comply with all applicable FEMA requirements. If required, a conditional letter of map revision (CLOMR) shall be obtained from FEMA prior to construction within a mapped 100-year floodplain.

## 5.2.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The Project's impacts would be reduced to levels that are less than significant with incorporation of MM 2-1, MM 2-2, MM 2-3; MM 4-1 and MM 4-2 from Section 5.4, Water Quality; and MM 19-5 from Section 5.19, Wastewater.

## 5.2.9 REFERENCES

California Department of Public Health (CDPH). 2012 (July). *Best Management Practices for Mosquito Control in California; Recommendations of the California Department of Public Health and the Mosquito and Vector Control Association of California*.

Sacramento, CA: CDPH. [http://www.westnile.ca.gov/downloads.php?download\\_id=2376&filename=BMP for Mosquito Control 07-12.pdf](http://www.westnile.ca.gov/downloads.php?download_id=2376&filename=BMP%20for%20Mosquito%20Control07-12.pdf).

California Building Standards Commission (CBSC). 2015. *California Code of Regulations* (Title 24, Part 11, California Green Building Standards Code). Sacramento, CA: CBSC. <http://www.bsc.ca.gov/Codes.aspx>.

- California, State of. 2016. *California Water Code* (Division 7, Water Quality; Sections 13000 et seq., Porter-Cologne Water Quality Control Act). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=WAT&division=7.&title=&part=&chapter=&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=WAT&division=7.&title=&part=&chapter=&article=).
- Geosyntec Consultants. 2016 (March). Draft *Centennial Project Hydromodification Technical Report*. Oakland, CA: Geosyntec (Appendix 5 of Appendix 5.2-A).
- Lahontan Regional Water Quality Control Board (Lahontan RWQCB). 1995 (as amended through 2015). *Water Quality Control Plan for the Lahontan Region, North and South Basins*. South Lake Tahoe, CA and Victorville, CA: Lahontan RWQCB.
- Los Angeles, County of. 2015a (last accessed). *Los Angeles County, California – Code of Ordinances*. Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles. [https://www.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances?nodeId=16274](https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances?nodeId=16274).
- Los Angeles, County of. Department of Public Works (LACDPW). 2014 (February). *Low Impact Development Standards Manual*. Arcadia, CA: LACDPW. <https://dpw.lacounty.gov/ldd/lib/fp/Hydrology/Low%20Impact%20Development%20Standards%20Manual.pdf>.
- . 2006. *Hydrology Manual*. Arcadia, CA: LACDPW. <http://ladpw.org/wrd/publication/index.cfm>.
- . 1987 (June). *Antelope Valley Final Report on the Comprehensive Plan of Flood Control and Water Conservation*. Arcadia, CA: LACDPW. [http://www.ladpw.org/wmd/watershed/av/av\\_comprehensive\\_final.pdf](http://www.ladpw.org/wmd/watershed/av/av_comprehensive_final.pdf).
- Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.
- . 2015b (May 27, last accessed). *Los Angeles County General Plan 2035*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.
- Los Angeles Regional Water Quality Control Board (LARWQCB). 2012. Order No. R4-2012-0175 (NPDES No. CAS004001), Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4.
- . 1995 (as amended). *Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*. Monterey Park, CA: LARWQCB. [http://www.waterboards.ca.gov/losangeles/water\\_issues/programs/basin\\_plan/basin\\_plan\\_documentation.shtml](http://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/basin_plan_documentation.shtml).

National Flood Insurance Program. 2016 (Last updated March 21). *Flooding and Flood Risks: Mudflows*. Washington, D.C.: National Flood Insurance Program. <https://www.fema.gov/national-flood-insurance-program>.

Psomas. 2017 (April). *Centennial Master Plan Hydrology*. Santa Clarita, CA: Psomas (Appendix 5.2-A).

State Water Resources Control Board (SWRCB). 2012a. *National Pollution Elimination System General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2012-0006-DWQ*. Sacramento, CA: SWRCB. [http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2012/wqo2012\\_0006\\_dwq.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2012/wqo2012_0006_dwq.pdf).

———. 2012b. *Construction General Permit Fact Sheet*. Sacramento, CA: SWRCB. [http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/docs/constpermits/wqo\\_2009\\_0009\\_factsheet.pdf](http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo_2009_0009_factsheet.pdf).

U.S. Government Printing Office. 2016 (current through). *Code of Federal Regulations* (Title 40, Protection of Environment; Chapter I, Environmental Protection Agency [Continued]; Subchapter H, Ocean Dumping; Part 230, Section 404[b][1] Guidelines for Specification of Disposal Sites for Dredged or Fill Material). Washington D.C.: U.S. Government Printing Office. [http://www.ecfr.gov/cgi-bin/text-idx?SID=58ee6d6217b11b4d8e5b85b7953aacf6&mc=true&tpl=/ecfrbrowse/Title40/40cfr230\\_main\\_02.tpl](http://www.ecfr.gov/cgi-bin/text-idx?SID=58ee6d6217b11b4d8e5b85b7953aacf6&mc=true&tpl=/ecfrbrowse/Title40/40cfr230_main_02.tpl).

———. 2014. *United States Code* (Title 33, Navigation and Navigable Waters; Chapter 26, Water Pollution Prevention and Control; Sections 1251–1388). Washington D.C.: U.S. Government Printing Office. <https://www.gpo.gov/fdsys/browse/collectionUScode.action?collectionCode=USCODE&searchPath=Title+33&oldPath=&isCollapsed=true&selectedYearFrom=2014&ycord=1000>.

## 5.3 HAZARDS AND FIRE SAFETY

This section addresses potential hazards and hazardous materials from historic uses on and near the Project site (including Valley Fever) and wildfire hazards. The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively.

### 5.3.1 INTRODUCTION

#### **Purpose**

Appendix G of the California Environmental Quality Act (CEQA) Guidelines requires that both hazards and hazardous materials and fire safety issues be evaluated as part of the environmental documentation process. Analyses of geotechnical hazards and provision of fire protection services are discussed in Sections 5.1 (Geotechnical) and 5.16 (Fire and Law Enforcement Services), respectively.

#### **Summary**

##### ***Hazards and Hazardous Materials***

There would be less than significant impacts related to Valley Fever with implementation of mitigation measure (MM) 3-1 related to dust control during construction; MM 3-2 related to aiding the prevention of Valley Fever among construction workers; with project design feature (PDF) 3-1 related to resident notice of temporary Valley Fever risk during construction and other earth-moving activities; and implementation of Rule 403 dust control measures, as described further in Section 5.11, Air Resources.

There would be less than significant impacts related to environmental hazards, including hazardous materials from current or historic land uses with implementation of MM 3-4 related to historic dry well re-abandonment and MM 3-5 related to permanent closure of the abandoned mine/tunnel.

Operations at the Quail Lake Skypark Airport would not have a significant impact for any portion of the Project site. The Project would result in less than significant impacts related to impairment or interference with an emergency response or evacuation plan with implementation of MM 3-7, requiring preparation of an emergency response plan for the Project.

##### ***Fire Safety***

With adherence to requirements for fuel modification zone management (MM 3-9) and emergency access (MM 3-7), the Project's potential impact related to wildfires would be less than significant. MM 3-9 requires property owner notification of their responsibilities for maintaining the fuel modification zone(s) on their property. The Project would not result in significant impacts related to proximity of a land use representing a potential fire hazard.

---

## Section Format

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce significant impacts; and level of significance after mitigation, if any. This information is presented in the following format (please refer to Section 2.0, Introduction, and Section 5.0 for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Hazards and Hazardous Materials
  - Relevant Plans, Policies, and Regulations
  - Environmental Setting
  - Project Design Features
  - Threshold Criteria
  - Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
    - On-Site Impacts
    - Off-Site Impacts
  - Mitigation Measures
  - Level of Significance After Mitigation
- Fire Safety
  - Relevant Plans, Policies, and Regulations
  - Environmental Setting
  - Project Design Features
  - Threshold Criteria
  - Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
    - On-Site Impacts
    - Off-Site Impacts
  - Mitigation Measures
  - Level of Significance After Mitigation
- References

## References

Although all references cited for preparation of this analysis are listed in Section 5.3.4, the primary technical references for this section are listed below.

1. Converse Consultants. 2015a (August 31). *Phase I Environmental Site Assessment Report: Assessor's Parcel Numbers 3275-007-014, 3275-006-006 and 3275-008-001, Los Angeles County, California*. Costa Mesa, CA: Converse Consultants (Appendix 5.3-A).
2. Converse Consultants. 2015b (August 31). *Memorandum of Clarification, Centennial Project Area, Los Angeles County, California*. Costa Mesa, CA: Converse Consultants (Appendix 5.3-B).
3. Converse Consultants. 2015c (August 31). *Mitigation Measures, Centennial Project Area, Los Angeles County, California*. Costa Mesa, CA: Converse Consultants (Appendix 5.3-C).
4. Converse Consultants. 2008 (November). *Limited Phase II Environmental Site Assessment – Drum Sampling: Centennial Park Site, Lot 1760, VTTM 60023, State Highway 138 and Quail Lake, Los Angeles County, California*. Costa Mesa, CA: Converse Consultants (Appendix 5.3-D).

Reference 1 encompasses the portion of the site located east of 300<sup>th</sup> Street West. Between 1999 and 2007, four previous Phase I Environmental Site Assessments (ESAs) and an updated hazardous material database search were performed for the Project site areas located west of the 300<sup>th</sup> Street West. References 2 and 3 above compile and update, where applicable, the findings of these reports. The previously completed environmental site assessment studies prepared for the Project site and referenced in the 2015 Converse Consultants Phase I ESA Report, are listed in the Report's List of References Appendix (see Appendix 5.3-A).

Exhibit 5.3-1, Locations of Phase I Findings, shows the four different areas surveyed as part of preparation of References 1 through 4 listed above. These reports can be found in Appendices 5.3-A through 5.3-D.

In addition to the environmental safety and man-made hazards evaluated in References 1 through 3, this section also discusses potential hazards that could result from aircraft operations in the immediate vicinity; pesticide use during historical and current agricultural activities in the area; exposure to San Joaquin Valley Fever; and the potential for wildfires.

### 5.3.2 HAZARDS AND HAZARDOUS MATERIALS

#### Relevant Plans, Policies, and Regulations

Since hazards and hazardous materials covers many diverse topics, for ease of readability this section is organized by topic rather than by jurisdiction.



## **General Plans**

### **Los Angeles County General Plan and Antelope Valley Area Plan**

The *Los Angeles County General Plan* and the *Antelope Valley Area Plan (AVAP)*, part of the County General Plan, includes goals and policies that address hazards issues, limited to emergency response, in the unincorporated County. The AVAP goal and policies applicable to the analysis of hazards with Project implementation are listed below. Section 5.8, Land Use, Entitlements, and Planning, presents a more in-depth analysis of the Project's consistency with relevant plans, policies and regulations.

**Goal PS 6:** Government officials work with community members to promote community safety.

**Policy PS 6.1:** Ensure safety information is available at local public areas.

**Policy PS 6.2:** Encourage residents and business owners to create an evacuation plan and maintain emergency supplies.

**Policy PS 6.3:** Promote the formation and coordination of Certified Emergency Response Teams.

**Policy PS 6.4:** Provide assistance to local communities that wish to create a local emergency evacuation plan.

**Policy PS 6.5:** Strengthen coordination and collaboration between citizens, public agencies, and non-profit groups to plan for disaster response.

**Policy PS 6.6:** Develop an inclusive master emergency plan that designates evacuation routes, emergency relief centers, emergency animal keeping shelters, and information centers in every Antelope Valley community.

## **Asbestos Regulations**

The United States Environmental Protection Agency (USEPA) has identified asbestos as a hazardous air pollutant pursuant to Section 112 of the Federal Clean Air Act. Further, the California Air Resources Board (CARB) has identified asbestos as a Toxic Air Contaminant (TAC) pursuant to the *California Health and Safety Code* (Sections 39650 et seq.). Asbestos is also regulated as a potential worker safety hazard under the authority of the Occupational Safety and Health Administration (OSHA). These federal and State regulations prohibit emissions from asbestos-related demolition or construction activities; require medical examinations and monitoring of employees engaged in activities that could disturb asbestos; specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers; and require notice to federal and local government agencies prior to beginning renovation or demolition that could disturb asbestos.

In California, asbestos abatement must be performed and monitored by contractors with appropriate certifications from the California Department of Industrial Relations, Division of Occupational Safety and Health (CalOSHA). In addition, CalOSHA has regulations concerning the use and management of hazardous materials and enforces the hazard communication program regulations. All demolition that could result in the release of asbestos must be

conducted according to CalOSHA standards. These standards have been developed to protect construction workers and the general population from hazards associated with exposure to these materials. Young children, the elderly, and people in poor health may be more susceptible to adverse health effects from exposure to asbestos released into the environment.

### ***Pesticide and Chemical Regulations***

Pesticides are regulated by the Federal Government under the 1947 Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). FIFRA establishes registration and labeling requirements for pesticides, herbicides, and other economic poisons. Registration requires documentation stating that the pesticide will not damage human health or the environment if used as intended. FIFRA prohibits the sale of any economic poison that has not been registered by the USEPA. The California Department of Food and Agriculture (CDFA) is the principal agency responsible for regulating pesticide sales and pesticide use in the state. Specifically, it registers and classifies pesticides; licenses professional agricultural pest-control operations and advisors; monitors pesticide residues in food samples; and promulgates pesticide use and worker safety regulations. Section 11501 of the *California Food and Agriculture Code* requires pesticide applications to be confined to their target in order to avoid contamination of non-target properties; violations can result in either civil penalties or a revocation of a pesticide-use permit.

The California Department of Health Services (DHS) has an advisory role with respect to pesticide use and exposure. It conducts studies and investigates cases of pesticide exposure; conducts toxicological evaluations and risk assessments; and provides educational programs for physicians on diagnosing and treating pesticide poisonings. On a local level, if the USEPA determines that a pesticide has the potential to cause human injury or environmental damage, its use is restricted and a permit from the local Agricultural Commissioner is required for its purchase and use. Furthermore, restricted pesticides are only available for sale and for use by Certified Applicators or persons under their direct supervision for those uses covered by the Certified Applicator's certification.

Pesticides may be applied either by broadcast spraying (spraying a fine mist over the target, usually from an aircraft or a land vehicle) or by topical application (placing the pesticide directly on or in the vicinity of the target). Broadcast spraying can result in the dispersion of pesticides into adjacent non-target areas (especially during windy conditions); therefore, some pesticides that are applied in this manner are strictly regulated.

The Proposition 65 initiative (approved by California voters in 1986) addresses exposure to toxic chemicals, including but not limited to pesticides. Also known as the Safe Drinking Water and Toxic Enforcement Act of 1986, Proposition 65 requires the State to publish a list of chemicals known to cause cancer, birth defects, or other reproductive harm. This list, which must be updated at least once a year, has grown to include approximately 750 chemicals since it was first published in 1987. According to Proposition 65, businesses must provide a "clear and reasonable" warning before knowingly and intentionally exposing anyone to a listed chemical (OEHHA 1986).

## Environmental Setting

### *Phase I Environmental Site Assessment Results*

To determine the presence of and potential for hazardous materials and/or waste contamination on the Project site from existing and historic on- and off-site uses and/or from recognized environmental conditions (RECs), Phase I ESAs have been prepared, and updated where applicable, to collectively encompass the entire Project site. The work performed for the Phase I ESAs was completed in conformance with the scope and limitations of the American Society of Testing and Materials (ASTM) Practice E 1527-13 and consisted of interviews with the property owners' representatives; site and vicinity reconnaissance; reviews of regulatory agency records, descriptions of the physical setting, and historical documentation; and interviews with public agency personnel. A complete listing of databases reviewed as part of the Phase I ESAs is provided in Appendices 5.3-A and 5.3-B of this EIR. On-site and surrounding land uses relevant to the site assessment are described below and are illustrated on Exhibit 5.3-1.

#### On-Site Uses

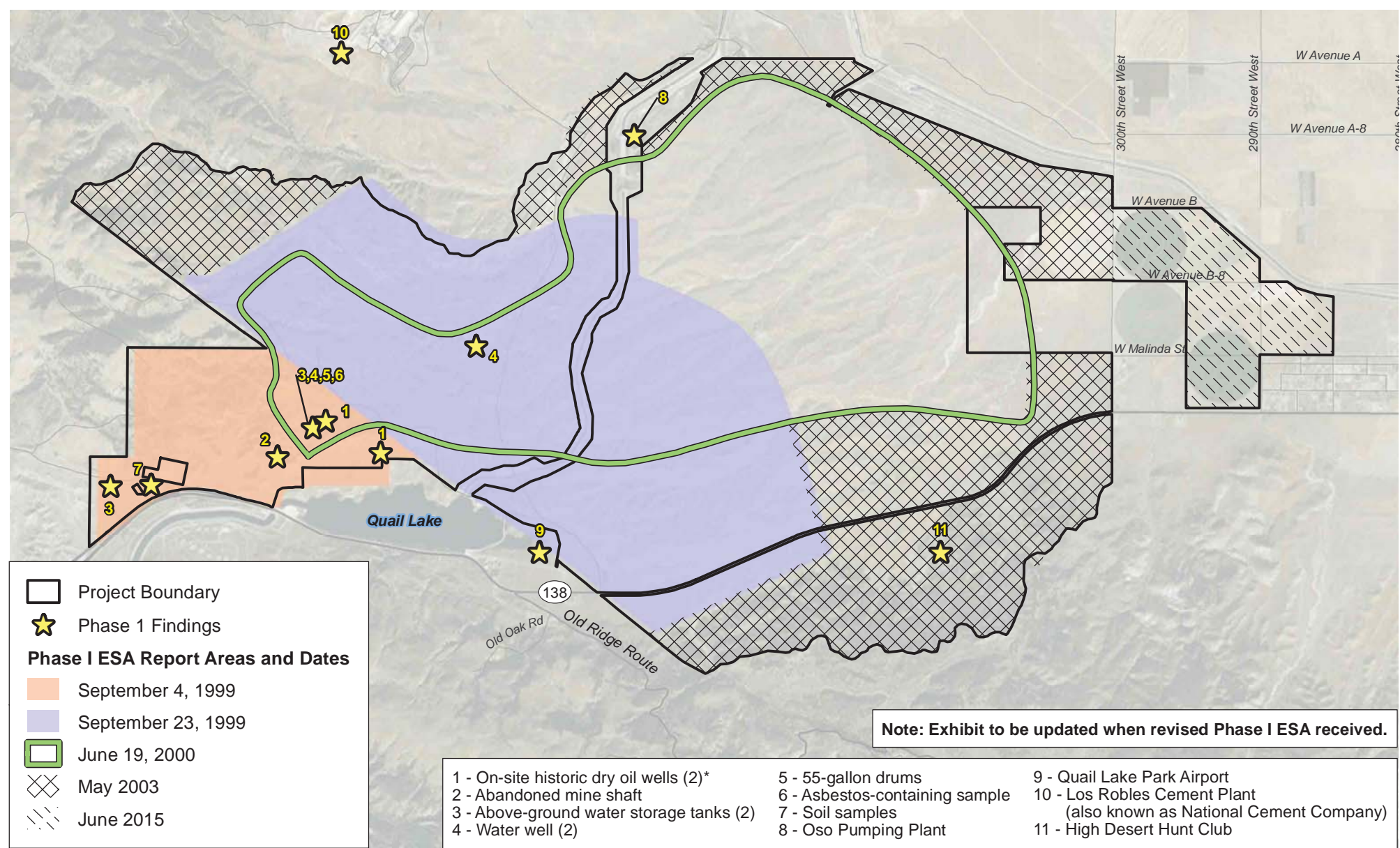
During the site reconnaissance, California Registered Environmental Assessors (REA) assessed current site utilization and examined the Project site for evidence of release(s) of hazardous materials and petroleum products; they also identified RECs present on the site, which are identified on Exhibit 5.3-1. Currently, the Project site is primarily open space and ranchland. The 12,323 acres of land that comprise the Project site have primarily been used for open cattle grazing over the last 150 years. In addition to cattle grazing, the Tejon Ranch Company owns and cultivates approximately 1,000 acres in the eastern portion of the Project site as pivot fields.<sup>1</sup> These 1,000 acres include 5 separate pivot fields that correlate with the approximately 652 acres of Prime Farmland on the site that are currently under cultivation for the production of alfalfa and three-way forage mix (e.g., barley, oats, sudan grass). The Phase I ESAs also documented the following physical features or uses on the Project site at the time each Phase I ESA was completed:

- Dry creeks were noted throughout the property, which sometimes contained debris including barbed wire, wood, and metal.
- Residential dwellings are located near the center of the northern property line (currently one residence is present and is occupied).
- Concrete-lined metal pipes and telephone poles were observed near the northern portion of the site. Also near the northern portion of the site, a pile of asphalt and metal pipes, which appeared to be irrigation pipes, was observed. Stained soil was observed in the area of the asphalt, which Tejon Ranch Company reports is planned to be removed in the future.
- An inactive portion of a hunter's camp is located in the western portion of the Project site. At the time of the survey, the camp consisted of six trailers, a shooting range, and

---

<sup>1</sup> A "pivot field" is a circular agricultural field with a centralized "pivot" irrigation system.

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_p1\_findings\_20150810.mxd



### Locations of Phase 1 Findings

### Exhibit 5.3-1

Centennial Project



two outhouses. Associated with the camp was a generator and two gasoline cans. No leaks, stains, or odors were observed or detected.

- An apparent mine shaft, whose entrance was covered in soil, was observed near the southern access point to the Project site. The non-producing, abandoned mine shaft is now a small drift tunnel (approximately four feet high by five feet wide at the entrance) that extends approximately eight feet into the side of a hill near Quail Lake (Metzger 2007; Grant 2008a).
- An aboveground water storage tank, which has a capacity of 2,000 gallons, was observed in the southwestern portion of the Project site. This tank was rusted, but no odors, stains, or leaks were detected or observed.
- In an area in the southwestern portion of the Project site, discolored soil, gravel, and cleared vegetation were observed, and soil samples were collected. The results of the soil sampling, performed as part of the Phase I ESA, are discussed further below.
- In an area in the central portion of the Project site formerly used as a homestead, a water well and three 55-gallon metal drums were observed. One of the drums had a black tar-like substance leaking from it, and the ground surface beneath the drum was stained. No leaks, stains, or odors were noted for the other two drums. In November 2008, a Phase II ESA, a second level of investigation performed after a Phase I ESA, involving laboratory testing of shallow soil samples taken from the area of the 55-gallon drums, was performed (Converse Consultants 2008). The results of the Phase II ESA are discussed further below.
- A trough-like structure constructed out of cinder blocks and surrounded by chain-link fence was observed in the approximate center of the Project site. Plywood, a five-gallon bucket, and siding were present in the structure. The use of the structure was unknown during reconnaissance but may have been used for storage of hazardous materials. The Phase I ESA does not report evidence of a release, such as stained soil, leaks, or odors.
- An equipment yard was located at the northwest corner of the Project site to the east of 300<sup>th</sup> Street West. Diesel fuel aboveground storage tanks (ASTs), drums, and other containers of hazardous materials (e.g., pesticides, oil), tires, and heavy equipment were observed in the equipment yard. During initial reconnaissance, surface staining was observed in the bermed, concrete-floored (i.e., not ground surface) diesel fuel storage area. During subsequent reconnaissance as part of the Phase I ESA (August 2015), the bermed area was cleaned and no staining was observed.

### Surrounding Uses

The Project site is generally surrounded by undeveloped or agricultural land, with scattered single-family residences located near the southeast portion of the site. In addition, the following physical structures are located adjacent to or within the immediate vicinity of the Project site:

- The West Branch (Quail Lake Canal) of the State Water Project's California Aqueduct generally bisects the Project site in a north-south direction; it empties into Quail Lake,

which is 1 of the State Water Project's (SWP's) 29 storage facilities. The East Branch of the California Aqueduct is located immediately north of the Project site's northern boundary. These features are maintained and operated by the California Department of Water Resources (DWR).

- The Quail Lake Reservoir, an unlined water storage facility, is located immediately to the south along the southwestern border of the Project site.
- The Oso Pumping Plant, part of the SWP's aqueduct system, is located proximate to the West Branch of the Aqueduct near the north-central portion of the Project site.
- The Quail Lake Skypark Airport, a single strip, private airstrip is located east of Quail Lake and south of the Project site. This airport is discussed in detail later in this section under "Aircraft Operations".
- The National Cement Plant (Cement Plant), a limestone mining operation, is located in Kern County adjacent to the Kern/Los Angeles County boundary; it is located approximately 1 mile north of the Project site on a leased area of approximately 2,500 acres, of which approximately 300 to 400 acres are actively utilized for Cement Plant operations. The location is shown on Exhibit 5.3-1.
- A north-south access road to the National Cement Plant bisects the Project site west of the California Aqueduct.
- State Route (SR) 138 bisects the southern portion of the Project site.

#### Sites Included on Agency Lists

A search of federal, State, local, tribal, and other databases was performed by Converse Consultants to identify sites with known or potential environmental issues related to hazardous materials or wastes within a one-mile radius of the Project site. An updated database search for a five-mile radius from the approximate center of the Project site was conducted in 2015. The complete list of databases searched and identified sites can be found in Appendix 5.3-B of this EIR. Listed sites include both permitted facilities whose operations use, produce, or transport hazardous materials and the locations of reported releases and/or cleanup operations (remediation). A single site can be listed in multiple databases. In particular, CEQA requires the Lead Agency to consult the lists compiled by the State of California, pursuant to Section 65962.5 of the *California Government Code*; this is also known as the "Cortese List" (*California Public Resources Code* [PRC], Section 21092.6). The Cortese List is one of the databases included in the database search.

The Project site itself was not identified on any hazardous materials database, including the Cortese List. Off-site locations of potential concern were reviewed, which were determined to include underground storage tank (UST) sites, hazardous waste generators, air emission sites, and case closed (i.e., remediation completed) sites; there is one spill/leak site—the National Cement Company. UST sites, hazardous waste generators, and air emission sites are listed to track permitted facilities, and the case closed listing is, as the name suggests, no longer an active cleanup location. Therefore, these types of listings do not represent an environmental hazard to the Project site. The remediation activities at the National Cement Plant are discussed below.

The National Cement Plant—also known as the Los Robles Cement Plant—is located in Kern County approximately one mile north of the Project site; its location is shown on Exhibit 5.3-1. Raw materials quarried at the site are the primary ingredients in Type II Portland Cement. During the 1990s, several locations were discovered where on-site cement manufacturing operations and waste handling practices had, over the years, impacted the quality of soil and groundwater on the Cement Plant site. The waste discharge sources of the Cement Plant site include solid waste disposal to on-site landfills located to the east of the plant structures; liquid waste storage in a belowground waste oil tank located at the southeastern portion of the plant; chemical storage at a drum storage area in the plant's maintenance area at the southeastern portion of the plant; diesel fuel transfer in an underground pipeline in the plant operating area; and cement kiln dust disposal in large piles located to the west of the plant structures. These source areas are commonly referred to as “the Industrial Landfill Area”, “the Maintenance Shop Area” (combines the Waste Oil Tank Area and the Drum Storage Area), “the Diesel Pipeline Area”, and “the Cement Kiln Dust Piles”, respectively. The Cement Plant is not a State or federal Superfund site.

Each source area has undergone specific site-characterization processes to identify the nature and extent of the unauthorized releases. In each source area, the known cause of the unauthorized release has been removed, as required by the regulatory agency with oversight authority. However, in some source areas, approved levels of contaminants remain in the soil. In addition, groundwater quality beneath all source areas was impacted to varying degrees. As a result, the California Regional Water Quality Control Board, Lahontan Region (Lahontan RWQCB) has issued waste discharge requirements (WDRs) and/or cleanup and abatement orders (CAOs) for each of these source areas that required installation of groundwater treatment systems; that prescribe groundwater monitoring in order to ascertain the rate at which pollutant levels are declining; and that allow for corrective action (where necessary) based on the monitoring results to clean up contaminated groundwater.

The groundwater contamination from the Maintenance Shop Area had migrated at shallow depths off the Cement Plant site and under parts of Tejon Ranch adjacent to the southeastern corner of the Cement Plant site. To address groundwater contamination under Cleanup and Abatement Orders 6-90-59A3 and 6-94-90A3, a long-term groundwater pump and treatment system went into operation in July 2003. Quarterly Groundwater Monitoring Reports are prepared for the Lahontan RWQCB (copies of which are available with the County of Los Angeles Department of Regional Planning) to demonstrate containment of the plume and to track the success level in remediating the contaminants of concern (primarily halogenated volatile organic compounds [HVOCs]). Groundwater that is treated to potable water standards is now intermittently discharged into the incised channel in approximately the same area where the groundwater previously discharged naturally. Since the implementation of this groundwater treatment system, HVOCs have not been detected in the surface waters of the incised channel. It is noted that, prior to implementation of the treatment system, the HVOCs were detected at low concentrations and for a short distance before they volatilized. Therefore, this source area poses no threat to the Project site because the limits of surface and groundwater contamination are distant from the Project site and its water supply sources.

The groundwater contamination from the Industrial Landfill Area, Diesel Pipeline Area, and Cement Kiln Dust Piles is contained in perched groundwater lying entirely within the Cement Plant site and is at a considerable distance from the Project site (approximately one mile). There is no connection between the affected groundwater and the groundwater sources available to the Project site.

The Lahontan RWQCB is also the lead oversight agency for ongoing and future environmental activities at the Cement Plant to monitor groundwater quality and required remediation activities. The Lahontan RWQCB works closely with the responsible parties (with the former and current owners of the Cement Plant that have active responsibilities, and the property owner who has backup liability) to ensure that all environmental concerns are adequately identified and addressed in a timely manner. The CAOs charge the responsible parties with long-term remediation and containment actions to clean up and abate the effects of unauthorized waste discharges. The WDRs establish the discharge limitations for the constituents of concern (COC) and outline the monitoring and reporting requirements.

In addition to the source areas discussed above, the Cement Plant site includes a former hazardous waste resource (energy) recovery facility that is located to the west of the plant structures; it was previously operated by Systech Environmental Corporation. The State of California Department of Toxic Substances Control (DTSC) is the lead regulatory agency, and DTSC issued a “closure certification” letter on March 29, 2007, for the Systech site (DTSC 2007). This certification indicates that DTSC considers the site fully remediated and the facility formally closed.

Additional information regarding the National Cement Plant is provided in Section 5.4, Water Quality; Section 5.11, Air Resources; and Section 5.18, Water Resources, respectively, of this EIR.

#### Historic Non-Producing Oil Wells (Dry Holes)

There are two historic, plugged and abandoned dry holes (non-producing wells), identified as Tejon Ranch Oil Company Well #1 and Kinsey #1, on the Project site. These are located in Section 14, Township 8N, Range 18W according to the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR), and are shown on Exhibit 5.3-1, Locations of Phase I Findings. Based on testing and review of records, these oil wells were abandoned in accordance with applicable regulations. However, according to the DOGGR, the wells would need to be re-abandoned prior to grading in accordance with current DOGGR guidelines. In accordance with Section 3208 of the *California Public Resources Code*,

A well is properly abandoned when it has been shown, to the satisfaction of the supervisor, that all proper steps have been taken to isolate all oil-bearing or gas-bearing strata encountered in the well, and to protect underground or surface water suitable for irrigation or farm or domestic purposes from the infiltration or addition of any detrimental substance and to prevent subsequent damage to life, health, property, and other resources.



### Asbestos-Containing Samples

Asbestos, a naturally occurring fibrous material, was used for years in many building materials for its fire-proofing and insulating properties. Any activity that involves cutting, grinding, or drilling during demolition could release friable (easily crumbled) asbestos fibers unless proper precautions are taken. Inhalation of airborne fibers is the primary mode of asbestos entry into the body, making friable materials the greatest potential health risk. During site reconnaissance conducted in 1999 by Converse Consultants for a previous Phase I ESA, materials potentially containing asbestos were observed on site. Four samples were taken to be analyzed for asbestos content from location number "6" shown on Exhibit 5.3-1. One sample was found on wood siding located in a small debris pile in an area that was formerly used as a homestead; the sample appeared to be cloth. The remaining samples were from a water trough and appeared to be tar or mastic. The cloth sample contained 70 to 80 percent asbestos. The other samples did not contain asbestos.

### Soil Sampling

As noted above, during site reconnaissance in 1999, Converse Consultants observed discolored soil, gravel, and cleared vegetation in an area in the southwestern portion of the Project site, from an unknown origin, and performed limited Phase II testing. Four surface soil samples were collected from the immediate area and are noted as location number "7" on Exhibit 5.3-1. Three of the samples were analyzed using the following USEPA test methods:

- USEPA method 8015M for Total Petroleum Hydrocarbons (TPH) as gasoline.
- USEPA method 8015M for TPH as diesel and heavy oil range organics.
- USEPA method 8260 for Volatile Organic Compounds (VOCs).
- Title 22 Metals.

The background soil sample was not analyzed. No contaminants were detected above the method detection limits for TPH as gasoline, TPH as diesel/heavy oil range organics, or VOCs. Various metals were detected in the soil (e.g., arsenic, barium, lead); however, the concentrations were ten times below the Soluble Threshold Limit Concentrations and the Total Threshold Limit Concentrations, and were therefore determined to not represent a hazard.

As noted above, a former homestead area was observed near the central portion of the Project site and was noted that one of the drums appeared to have leaked a black, tar-like substance, though no odor (such as from petroleum hydrocarbons) emanated from the substance. Therefore, in November 2008, a Phase II ESA was performed in the area near the 55-gallon drums. For the Phase II ESA performed in the drum area, a total of four soil samples were collected at two depths: six inches and two feet below ground surface (bgs), from each of two soil boring locations (D1 and D2) in close proximity to the drums. The two samples collected at a depth of six inches bgs were analyzed for total petroleum hydrocarbons, carbon

chain (TPH-cc), and Title 22 metals;<sup>2</sup> the two samples collected at two feet bgs were analyzed for VOCs. In addition, all soil samples collected were field-screened for VOCs using a photoionization detector (PID).<sup>3</sup> All PID readings were 0.0 parts per million (ppm). All soil samples collected as part of the Phase II ESA in the drum area were laboratory tested using the appropriate USEPA Method for the constituents being analyzed.

TPH-cc and VOCs were not detected in either soil sample submitted for these constituents. A total of eight metals were detected in one or both samples tested for Title 22 metals. Of these, arsenic was the only metal detected above its respective USEPA Region IX Screening Level (i.e., 0.39 milligram per kilogram [mg/kg] for arsenic) or the California Environmental Protection Agency's (CalEPA's) California Human Health Screening Levels (CHHSLs)(0.07 mg/kg for arsenic) for residential property. Specifically, the average arsenic concentration for the two samples collected for Title 22 metals analysis was 3.08 mg/kg (D1=3.75 mg/kg; D2=2.40 mg/kg). However, the USEPA and CalEPA screening levels and the average arsenic concentration measured in the drum area are below both the average background concentration of arsenic naturally occurring in California soil (3.5 mg/kg) and the DTSC's established arsenic cleanup level of 12 mg/kg for proposed school sites. Therefore, the Phase II ESA concludes that the arsenic levels detected in the soil around the drums are natural in origin, rather than anthropogenic (man-made), and do not represent an environmental concern (Converse Consultants 2008).

### ***Pesticide Use***

As detailed in Section 5.5, Land Resources, areas in the northeastern corner of the Project site and surrounding off-site areas have been and are currently used for agricultural purposes. During farming activities, pesticides are commonly used for pest control. A pesticide is any substance used to kill crop pests (such as insects, rodents, weeds, and fungi). Pesticides are inherently toxic and, when used improperly, can have adverse effects on human health and the environment. Pesticides exert adverse effects on living organisms, including non-target organisms such as non-pest plants and animals in or near a treated area. The four variables that determine the degree to which a non-target organism is affected include the chemical and physical properties of pesticides; their mode of application; their route of entry into the non-target organism; and their rate of absorption into the blood stream. The list of pesticides used on the site can be found in Table 5.3-1, Pesticides Used on the Centennial Project site.

The chemical and physical properties of a pesticide determine the potential toxic effects it can have on humans. The USEPA examines the toxicity, intended use, and environmental impact of every pesticide as part of the pesticide registration process. A pesticide listed for general use is considered to present little or no danger to either the applicator or the environment if it is used as directed. Based on the Proposition 65 Chemical List effective June 1, 2007, and as noted in Table 5.3-1, none of the pesticides known to be used on the Project site are regulated by Proposition 65, which regulates toxic chemical exposure for chemicals known to cause cancer, birth defects, or other reproductive harm. Therefore, all of

---

<sup>2</sup> Refers to the 16 metals listed in Title 22 of the *California Code of Regulations* ("Title 22 metals").

<sup>3</sup> A photoionization detector is a portable vapor and gas detector that detects a variety of organic compounds.

these pesticides are listed for general use. Please refer to Section 5.4, Water Quality, for more information on pesticide use as it relates to water quality.

**TABLE 5.3-1  
PESTICIDES USED ON THE CENTENNIAL PROJECT SITE<sup>a</sup>**

Insecticides <sup>b</sup>	Herbicides <sup>c</sup>
Malathion 8 Aquamul	Hasten
Lock-On	Raptor
	Buctril 4EC
<sup>a</sup> None of the pesticides listed in this table are regulated by Proposition 65 (OEHHA 2015). <sup>b</sup> Atkinson 2005. <sup>c</sup> Tejon Ranch Company 2008.	

### ***Quail Lake Skypark Airport***

The Quail Lake Skypark Airport, a single-strip, private airport, is located east of Quail Lake and south of the Project site. The airport is 1 of 68 Special-Use Airports in California (Caltrans Aeronautics 2017), which is defined by the *California Code of Regulations* (CCR, specifically Title 21, Part 3527[w]) as “an airport not open to the general public, access to which is controlled by the owner in support of commercial activities, public service operations and/or personal use”. A total of six aircraft are based out of the Quail Lake Skypark Airport, including five single-engine aircraft and one multi-engine aircraft (GCR and FAA 2015). The Skypark facilities are limited to a single 40-foot-wide airstrip totaling 3,100 feet in length (GCR and FAA 2015). The total number of flights out of the Quail Lake Skypark Airport is not known; however, given the private airport status and a limited number of locally based craft, the total number of flights is expected to be minimal.

### ***Valley Fever***

Valley Fever is the common name (formally known as *Coccidioidomycosis*) for a fungal disease caused by inhalation of *Coccidioides immitis* spores that are carried in dust; it is found in parts of the southwestern United States, Mexico, and South America (LADPH 2017). In California, the highest incidence of Valley Fever occurs in the San Joaquin (Central) Valley, with over 75 percent of reported cases (CDPH 2016a). Valley Fever tends to occur in areas with dry dirt and desert-like weather conditions that can allow the fungus to grow. The fungus is found throughout Los Angeles County, with the highest rates in the San Fernando Valley and Antelope Valley (LADPH 2017).

The fungus can become airborne when soil that contains *C. immitis* spores is disturbed, either by natural or anthropogenic (man-made) means, including wind, farming, and construction. Valley Fever is diagnosed by a blood test, a chest x-ray, and other tests, and it can be treated with anti-fungal medications. Approximately 60 percent of people exposed to Valley Fever spores develop no symptoms. If symptoms develop, those individuals generally develop a mild respiratory illness with flu-like symptoms that can last a month or more. Rarely, individuals develop a severe illness such as pneumonia, meningitis, or dissemination when the fungus spreads to other parts of the body. At highest risk for exposure to Valley Fever

are farmers, construction workers, military personnel, archaeologists, and others who are likely to engage in activities that actively disturb soils in areas where Valley Fever may be present. Persons at the highest risk of developing severe Valley Fever include the very young (under 5 years old); older adults (over 60 years old); immunocompromised individuals and those with diabetes; pregnant women; and certain ethnic groups, including African-Americans, Latinos, and Filipinos (LADPH 2016; CDPH 2016b).

Between 2011 and 2015, the annual incidence of Valley Fever in Los Angeles County has ranged from 3.2 (2011) to 5.5 (2015) cases per 100,000 persons, or 316 cases and 557 cases, respectively. During this period, the Statewide incidence of Valley Fever varied from 5.9 (2014) to 13.9 (2011) cases per 100,000 persons, with the highest rate of cases reported in Kern County (CDPH 2016b). In California, the annual number of Valley Fever cases has been on the rise since 2000. It is believed that contributing factors may include changes in climate and rainfall patterns; construction activities that disturb soil; an increase in susceptible persons moving to endemic areas; and heightened awareness and diagnoses (Sondermeyer et. al. 2013). The Los Angeles County Department of Public Health (DPH) divides the County into Service Planning Areas (SPA) for the purposes of tracking and reporting trends of many diseases in Los Angeles County. The Antelope Valley is included within SPA1, which reported the highest incidence rate of reported cases of Valley Fever in Los Angeles County in 2014, at 26.2 cases per 100,000 people. The Centennial Project site is within the farthest western portion of SPA 1, and is adjacent to SPA 2 (San Fernando Valley), which had a lower incidence rate of 5.7 cases per 100,000 people (LADPH 2016).

## Project Design Features

**PDF 3-1** Prior to sale, lease, or rental of any residential structure or portion thereof on the Centennial Project site, the Project Applicant/Developer shall provide to each prospective purchaser or tenant a notice and statement of acknowledgment that shall be executed (i.e., read and signed) by the prospective purchaser, lessee, or tenant that the property within Centennial may present a temporary risk of exposure to Valley Fever spores during construction or other earth-moving activities. The form shall include strategies to reduce potential exposure to Valley Fever spores. The form and method of distribution of said notice and statement of acknowledgment shall be as approved by the County.

## Threshold Criteria

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact if it would:

**Threshold 3-1** Create a significant hazard to the public or the environment through the routine transport, storage, production, use, or disposal of hazardous materials.

**Threshold 3-2** Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials or waste into the environment.

- Threshold 3-3** Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter-mile of sensitive land uses.
- Threshold 3-4** Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment.
- Threshold 3-5** Result in a safety hazard for people residing or working in the project area for a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport.
- Threshold 3-6** Result in a safety hazard for people residing or working in the project area for a project within the vicinity of a private airstrip.
- Threshold 3-7** Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.

### **Environmental Impacts**

- Threshold 3-1** **Would the project create a significant hazard to the public or the environment through the routine transport, storage, production use, or disposal of hazardous materials?**
- Threshold 3-2** **Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials or waste into the environment?**
- Threshold 3-3** **Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter-mile of sensitive land uses?**

### ***On-Site Impacts***

The following analysis addresses the potential for hazardous materials handling, pesticides, and Valley Fever to affect construction and/or operation of the Project. Section 5.11, Air Resources, includes the analysis of toxic air contaminant emissions from proposed stationary sources on the Project site.

### **Hazardous Materials Handling**

Construction of the Project would involve the limited transport, storage, use, and/or disposal of common construction-related hazardous materials, including oil and grease, solvents, diesel fuel, and other chemicals in vehicles, trucks, and heavy equipment. These materials could be released into the environment in small amounts in the event of an accident. Construction of the Project would not require the use of acutely hazardous materials or substances. To prevent environmental hazards, the handling of hazardous materials used in construction equipment would have to be conducted in accordance with existing regulations.

These regulations include the transport of hazardous materials; on-site storage and use of hazardous materials; and procedures to implement in the event of a spill.

Implementation of the Project would result in the on-site handling of hazardous materials that are common in urban environments. This includes the development of residential land uses, at varying densities, along with commercial/retail, business park, education, utility, and institutional/civic land uses. The Business Park land use designation may include a hospital or other medical-related facilities and light industrial facilities; the Utility, Business Park (conditional), and Institutional/Civic (conditional) land use designations would have the option to construct a Materials Recycling Facility (MRF). These types of facilities are, again, typical of urban development and a myriad of specialized regulations are applicable to medical and industrial land uses, as appropriate. The proposed Business Park land use areas are situated entirely along the south side of SR-138, and the proposed public facilities land use areas where the MRF could be located are situated along the northeast boundary. These are “edge” areas of the Project site, rather than being intermixed with residential and other land uses. The materials that would be expected to be used on the Project site include commercial cleansers, solvents, and other janitorial or industrial-use materials; paints; landscape maintenance materials; pressurized gases; chlorine for pools; petroleum products at gas stations; and others. The handling, storage, and usage of these materials would be subject to applicable local, State, and/or federal regulations. While many such common materials are technically labeled “hazardous”, the presence of such materials is common in a mixed-use urban environment, and their use on the Project site would not pose an unusual or uncommon threat to the health or safety of the future population of the Project site. In addition, any hazardous materials used during construction would also be transported, used, stored, and disposed of according to any applicable local, State, and/or federal regulations.

### Pesticides

Pesticides (insecticides, herbicides, and fungicides) are used for current agricultural operations on the Project site and in the pivot fields located east of 300<sup>th</sup> Street West. As indicated previously in Table 5.3-1, Pesticides Used on the Centennial Project Site, no pesticides are currently used that are subject to Proposition 65 restrictions. It is anticipated that use of pesticides would continue as long as these areas remain under agricultural use. It is also expected that these pesticides would continue to be applied according to federal, State, and local requirements and manufacturer recommendations, such as concentration and method of application. Agricultural production will continue in the eastern portion of the Project site while early phases of Project construction and occupation of the developed land uses occur incrementally over time. As such, the Project will introduce new land uses and residents onto the Project site while current pesticide use continues.

Federal, State, and local requirements and manufacturer recommendations are specific to each pesticide and are intended to ensure that acute overexposure or chronic exposure to these materials by either the farmers or adjacent resident populations does not occur. Therefore, there would be less than significant impacts during construction and operation of the Project.

Regarding future on-site pesticide use, such materials would be used in the maintenance of public and private landscaped areas on the Project site. Please refer to Section 5.4, Water

Quality, for a discussion of pesticide use as it relates to water quality as a result of Project operation. The small volume of on-site pesticide use for landscaped areas would also be applied in accordance with federal, State, and local requirements as well as manufacturer recommendations. Therefore, it is anticipated that future residents of the Project would not be exposed to types or concentrations of pesticides or frequency of application that would result in adverse health effects. Therefore, impacts would be less than significant.

### Valley Fever

As discussed above, Valley Fever spores have the potential to be found in soils of the Antelope Valley. The site is currently a large expanse of undeveloped land, which experiences periodic high winds and supports widespread grazing and some agricultural activity. These conditions would result in (1) disturbance of existing soils on the site; (2) dust formation associated with this disturbance; and (3) a resultant risk of Valley Fever for residents in the Project area. However, grading required for site development would have a more intensive surface disturbance and, as such, would increase the risk of Valley Fever exposure if spores are present on the Project site and become airborne in fugitive dust.

The control of fugitive dust is the key to preventing exposure to Valley Fever spores during ground-disturbing construction activities. Even if Valley Fever spores are present on site and are disturbed during grading, if they do not become airborne they do not have the potential to be inhaled and result in illness. Section 5.11, Air Resources, describes fugitive dust control measures that would be required and implemented on the Project pursuant to the Antelope Valley Air Quality Management District's (AVAQMD's) Rule 403, Fugitive Dust, and South Coast Air Quality Management District's (SCAQMD's) Rule 403, Fugitive Dust. Both these rules require that dust be controlled so as not to be visible beyond the property line and are monitored and enforced by the AVAQMD and SCAQMD, depending on the location of construction activities (CARB 1976). AVAQMD Rule 403 and SCAQMD Rule 403 control measures include watering exposed surfaces and haul roads three times daily; replacing ground cover in disturbed areas quickly; covering stock piles with tarps; and limiting speeds on unpaved roads to 15 miles per hour. The rules include comprehensive sets of best available control measures that reduce fugitive dust generation and are required for all projects within the AVAQMD's and SCAQMD's jurisdictions. The Rule 403 measures would minimize the potential for exposure and inhalation of Valley Fever spores to the maximum extent feasible.

SCAQMD Rule 403 also requires that each large project identify a Dust-Control Supervisor that is employed by or contracted with the Property Owner/Developer and is on the site or within 30 minutes of the site during working hours; has the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule requirements; and has both completed the SCAQMD Fugitive Dust Control Class and been issued a valid Certificate of Completion for the class. Mitigation measure (MM) 3-1 ensures that the requirement for a trained Dust-Control Supervisor is implemented during all phases of Project construction.

The Project's construction workers would be at the highest risk for Valley Fever exposure, and there would be an increased risk to the existing population in the immediate Project area. However, because of the large size of the Project site, the potential generation of dust

from grading and construction would primarily be localized within the site and would not affect neighboring populations due to distance. This is because fugitive dust must be entrained in wind and, just like sediment in water, particles in the wind drop out during transport. Therefore, due to the great distance between the majority of on-site grading areas and the existing residences in the area, any fugitive dust generated after implementation of dust-control measures (MM 3-1) would settle out of the wind transporting the dust before they could reach off-site areas. Rule 403 requirements stipulate that dust be controlled so as not to be visible beyond the property line. Therefore, the majority of dust generated during grading would remain on the Project site itself and, as mentioned above, would be most likely to affect construction workers. To help prevent construction workers from contracting Valley Fever on the Project site, MM 3-2 describes measures such as requiring that respirators or masks be worn; and completing other means of reducing the spread and/or inhalation of Valley Fever spores, if present.

While construction workers would be at highest risk, on-site populations would also be at risk for exposure during interim phases of development, depending on the proximity to on-site construction activities. As described in PDF 3-1 and ensured by MM 3-3, all residents would be provided with a notice disclosing this potential risk and describing strategies to avoid potential exposure to Valley Fever spores during construction or other earth-moving activities prior to sale, lease, or rental of any property.

Therefore, with implementation of PDF 3-1 and MMs 3-1 through MM 3-3, the potential for exposure to Valley Fever spores from construction of the Project would be less than significant.

At the completion of construction activities, risks of exposure to Valley Fever would be reduced for those living on the Project site and adjacent to the Project site due to the replacement of undeveloped land with urban development, irrigated landscaping, and paved areas, that would have reduced risks of fugitive dust generation and the associated risk of Valley Fever. Valley Fever spores have a reduced chance of becoming airborne in areas that are irrigated, vegetated with groundcover, covered with hardscapes or pavement, or urbanized with relatively little undisturbed soil (KCPHSD 2015). Therefore, once the Project is completed and the landscaping is established, residents and visitors on the Project site would not have an increased risk of exposure to Valley Fever when compared to the existing conditions. This would be no different than any other development in the Los Angeles County region adjacent to undeveloped land, and there would be a less than significant impact.

### ***Off-Site Impacts***

Proposed off-site features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, would not involve habitable structures, recreational areas, or other land uses that would introduce a new population into an area that could potentially be exposed to environmental hazards, such as hazardous materials, pesticides and Valley Fever. Grading and other construction activities would disturb soils that could result in exposure to Valley Fever, as discussed above for on-site Project development. As such, implementation of off-site Project features would be subject the same requirements (i.e., MM 3-1 and MM 3-2) as on-site development. With implementation of these measures, there would be less than significant impacts.



**Impact Summary:** There would be less than significant impacts related to environmental hazards including hazardous materials handling, pesticides, and Valley Fever with implementation of PDF 3-1 and MMs 3-1 through 3-3.

In accordance PDF 3-1 and ensured by MM 3-3, all residents would be provided with a notice disclosing this potential risk and describing strategies to avoid potential exposure to Valley Fever spores during construction or other earth-moving activities prior to sale, lease, or rental of any property. With implementation of AVAQMD Rule 403 and SCAQMD Rule 403 fugitive dust control measures and additional measures to minimize Valley Fever exposure during construction (MM 3-1 and MM 3-2), the risk of exposure by construction workers and nearby residents during construction would be reduced to levels less than significant.

**Threshold 3-4** **Would the project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?**

### ***On-Site Impacts***

As discussed previously, Phase I ESAs have been prepared, and updated where applicable, to collectively encompass the entire Project site. Phase I ESAs include a database review of properties having potential environmental concerns in the vicinity of the Project site (i.e., “listed sites”); review of records, aerial photographs, and other documentation that illustrate the history of site use; and site reconnaissance. The Phase I ESAs determine that listed sites and/or current or historic land uses in the Project vicinity would be unlikely to adversely affect site development and the future population on the site. Specific on- and off-site land uses discussed in the Phase I ESAs are described below.

### **Historic Dry Wells**

Two historic dry (non-producing) oil wells are present on the Project site generally north of Quail Lake (Exhibit 5.3-1). Based on testing and review of records from the DOGGR, the oil well and drill sites were abandoned with appropriate notice provided to DOGGR and no seepage or hazardous conditions are present. However, the DOGGR regulates development over abandoned oil wells. As part of the Project, the wells would need to be re-abandoned according to current DOGGR guidelines as required by MM 3-4. There would be less than significant impacts related to the presence of re-abandoned historic dry wells with implementation of mitigation.

### **Abandoned Mine Shaft**

A small (approximately four-foot-high) tunnel was dug in the side of a hill as an attempted gold mine located near the southern access point to the Project site (Exhibit 5.3-1). However, available information indicates that no gold or other mineral resources were discovered and the mine shaft was abandoned (Converse Consultants 2015b). Therefore, the mine does not represent a potential health hazard related to contaminated runoff or other environmentally

adverse conditions that can result from mining operations. However, the mine may be attractive to children and other new residents, and the current stability of the small tunnel is unknown. To eliminate potential risks from the abandoned mine shaft and to prevent any future accessibility into the tunnel, prior to approval of construction permits the tunnel shall be permanently closed in accordance with applicable regulations, as directed by the California Department of Conservation Office of Mine Reclamation, as described in MM 3-5. There would be less than significant impacts with implementation of MM 3-5.

#### Homestead Area

As part of the Project, the drums and the limited areas of identified asbestos and/or other debris in the area of the former homestead site would be removed in accordance with all applicable regulatory standards, which are determined based on the quantity, type, and media (i.e., soil, groundwater) of the identified contamination as encountered at the time of site development. If hazardous materials are encountered in the homestead area or anywhere else on the Project site, activities in the immediate area shall be halted until consultation with the appropriate agencies (e.g., DTSC, State Water Resources Control Board, Los Angeles County Fire Department [LACFD]) is performed and the method of removal is determined (MM 3-6).

In addition, the former water well would be backfilled and compacted during grading operations in accordance with California Department of Water Resources Water Wells Standards regulations, including Chapter II (Standards), Part III (Destruction of Wells), Section 23 (Requirements for Destroying Wells), which prescribe the appropriate steps for destroying inactive water wells, including, but not limited to, preliminary work, filling and sealing conditions, placement of fill or sealing materials, the requirements for sealing and fill materials, additional requirements for wells in urban areas, and temporary cover requirements. Remediation and/or removal of identified hazardous materials and contaminated soils would be completed in compliance with applicable governmental regulations and agency requirements during Project construction. Therefore, there would be no impacts to proposed future land uses on the Project site because the limited and common type of contaminated materials that would likely be encountered on the site would be fully resolved during site development activities and prior to occupancy of future land uses. There would be a less than significant impact.

#### National Cement Plant

As discussed in detail previously, the National Cement Plant is located in Kern County approximately one mile north of the Project site (Exhibit 5.3-1), and groundwater contamination had resulted from historic activities of this facility. Accordingly, there has been agency oversight by DTSC and the Lahanton RWQCB (lead oversight agency) related to continuing remediation efforts. As described fully above in the Environmental Setting section, the contaminant source areas pose no threat to the Project site and its water supply sources due to distance; lack of connectivity between the shallow groundwater impacted by historic releases and Tejon Ranch water supplies; and the results of ongoing groundwater remediation. Finally, as part of the Water Quality Technical Report prepared for the Project, the National Cement Plant was reported to have been in compliance with regulatory permitting and related requirements (Geosyntec 2016). Further, in March 2007, the DTSC

issued a closure letter for the Systech site, which indicated to the Tejon Ranch Company that the Systech site had been fully remediated (DTSC 2007). Therefore, this land use would result in no impacts to the Project site.

The Cement Plant is also engaged in an alternative-fuel source project (the National Cement Plant Tire-Derived Fuel project). Air emissions from operations at the National Cement Plant are discussed in Section 5.11, Air Resources.

In addition to considering Cement Plant operations on the National Cement Plant property site, the vehicular access from SR-138 to the Cement Plant is germane to the Project. The southern half of the existing National Cement Plant Road within the Project site would be realigned to the west of its current location. As in the existing condition, the realigned roadway would be a private-use facility with clearly marked signs prohibiting public access and would not be part of the Project's proposed circulation system. The Project would incorporate the current bridge crossing over the West Branch of the Aqueduct (currently used for cement trucks) as one of the primary connectors between the east and west sides of the Project site. Therefore, potential direct conflicts with existing traffic on the National Cement Plant Road and future vehicular and other traffic (pedestrian, bicyclists) introduced by the Project would be eliminated because the two streams of traffic would be fully separated.

The National Cement Plant Road, as a dedicated drive for the National Cement Plant facility only, would carry less traffic than the Project roadways. Additionally, the operations of the National Cement Plant do not involve the transport of materials classified as hazardous under State and federal regulations (Grant 2008b). Materials routinely transported to and from the National Cement Plant facility are comprised of inert, non-hazardous materials such as quarried limestone and cement. Finally, urban land uses have been developed in proximity to heavily traveled roadways that carry much higher volumes of traffic than would be expected on the National Cement Plant Road. Therefore, for the reasons described above, proposed land uses in varying proximity to the National Cement Plant Road would not be adversely affected by continuing operations on this roadway.

In summary, there is no evidence that either historic or regular operations at the National Cement Plant or on the realigned National Cement Plant Road have or would adversely impact the Project.

### ***Off-Site Impacts***

Off-site Project features (intersections with SR-138, utility connections, water wells, and California Aqueduct crossings) are not, by themselves, population-generating uses and also would not create hazards or use hazardous materials. Only potable and recycled water would cross the Aqueduct at one or more of the three crossings. Wastewater would be collected and treated in two treatment plants; there would be one treatment plant located on each side of the Aqueduct, and wastewater would therefore not cross the Aqueduct. Also, as part of the 2015 Phase I ESA, Converse conducted site reconnaissance of the off-site Project features. The water bank area is a parcel of land measuring approximately 2,640 feet by 2,640 feet (0.5 mile by 0.5 mile). Various dirt/concrete/asphalt berms are located within the boundaries of the water bank, and no surface staining was observed. Converse drove along

the roads that form the Property boundaries: SR-138, 300<sup>th</sup> Street West, and 290<sup>th</sup> Street West. These roads were all asphalt paved and were generally in good condition; easements along the highways/roads were unpaved. During the second reconnaissance conducted for the Phase I ESA, Converse re-inspected the general areas along the California Aqueduct located on Tejon Ranch property through the chain-link fencing that surrounds the structure. No environmental concerns were observed during the reconnaissance of off-site Project features. Therefore, these features would not result in impacts related to a new population's proximity to listed properties and/or historic and current land uses of concern.

As discussed in Section 4.0, Project Description, the California Department of Transportation (Caltrans) is preparing environmental clearance documents in support of improvements to the SR-138 in the Project area that including the area proximate to the Project site shown as "study area" on Exhibit 4-9, Centennial Project – Caltrans Study Area. This documentation would include a Caltrans-compliant Phase I ESA and soil testing, as performed for all Caltrans projects. As such, it is assumed the environmental clearance document prepared under Caltrans' direction will identify, assess, and, if needed, remediate any contaminants found in the Caltrans right-of-way, which includes the off-site portions of the five intersections with SR-138.

**Impact Summary:** The Phase I and Phase II ESAs conducted for the Project conclude that Project implementation would not result in significant impacts related to exposure to hazardous materials from historic and current land uses through compliance with requirements for handling hazardous materials, implementation of MM 3-6 related to encountering unanticipated hazardous materials during construction; MM 3-4 related to documentation of re-abandonment of the historic oil wells on site; and MM 3-5 related to mine closure.

**Threshold 3-5** For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

**Threshold 3-6** For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

### ***On-Site Impacts***

As described above, the Quail Lake Skypark Airport, located east of Quail Lake and south of the Project site, is a small, single-strip, general aviation (i.e., non-jet) private airport. As Quail Lake Skypark has one runway and no Federal Aviation Administration (FAA) control tower, no operational data is recorded. However, because the Quail Lake Skypark is privately owned and only has six locally based aircraft, the number and frequency of flights is expected to be minimal. Any additional flights or activity at the airport would be subject to the approval of the airport owner because the facility is not available to the general public.

Caltrans Division of Aeronautics reports the facility operates under a Special-Use Airport Permit that was issued in November 2002. Airports that are permitted as "Special-Use" are

not open to the general public and access to the airport is at the discretion of the owner. While the permit does not specify a maximum number of daily flights, the Skypark is permitted to operate during daylight hours only (Miles 2016).

Also, the permit requires application for an Amended/Corrected Airport Permit prior to making physical or operational changes at the airport. Caltrans' Aviation Safety Officer for Los Angeles and Riverside Counties was consulted regarding the potential for expansion of activities at the Quail Lake Skypark; based on permit conditions and limited airport infrastructure, it was concluded to be "very unlikely that there would be any significant increase in flight activity in the future" (Miles 2016). Therefore, implementation of the Project would not increase or otherwise affect air traffic at Quail Lake Skypark such that a hazard would result. As discussed in Section 4.0, Project Description, the California Department of Transportation (Caltrans) is preparing environmental clearance documents in support of improvements to the SR-138 in the Project area. The Quail Lake Skypark would be permanently closed in the event the SR-138 improvements are implemented by Caltrans. As such, the potential for exposure of persons to hazards associated with aircraft operations at Quail Lake Skypark Airport would be less than significant.

### ***Off-Site Impacts***

Proposed off-site Project features (intersections with SR-138, utility connections, water wells, and California Aqueduct crossings) are not, by themselves, population-generating uses. Therefore, these features would not result in impacts related to exposure of a new population to hazards from aircraft operations.

***Impact Summary:*** The potential for exposure of persons to hazards associated with aircraft operations at Quail Lake Skypark Airport would be less than significant.

**Threshold 3-7**      **Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?**

### ***On-Site Impacts***

Section 5.10, Traffic, Access and Circulation, includes an analysis of whether traffic generated by the Project and the proposed circulation plan would result in inadequate emergency access for emergency vehicles as well as residents and employees in the area. The traffic analysis determined that the Project would have adequate intersection levels of service (LOS) for all points of access into the Project site and for the internal circulation system.

Additionally, the Project includes locations for up to four new fire stations and a new Sheriff's substation; these amenities would contribute to improved emergency and evacuation response in northern Los Angeles County. Please refer to Section 5.16, Fire and Law Enforcement Services, for a complete discussion of these proposed facilities. In 2012, the *Los Angeles County Operational Area Emergency Response Plan* (OAERP) was adopted by the County Board of Supervisors. The objective of the OAERP is to integrate County resources to be an efficient organization capable of responding to emergencies using the National Incident Management System (NIMS), the California Standardized Emergency Management

System (SEMS), mutual aid, and other appropriate response procedures. The OAERP is an extension of the State of California Emergency Plan (LACOEM 2012).

To ensure that future Centennial residents would be informed regarding evacuation routes and other aspects of an emergency response specific to the Project site, the Project Applicant has had an Emergency Response Plan prepared for the Project, which will be updated with each new tract map in accordance with MM 3-7 and be reviewed and approved by the County of Los Angeles Department of Regional Planning, who would facilitate review by the LACFD and the County of Los Angeles Sheriff's Department. This review would ensure that the Project's Emergency Response Plan does not conflict with or otherwise impair the OAERP, and provides a comprehensive emergency response planning effort. The Emergency Response Plan would be distributed to each property tenant or purchaser in accordance with MM 3-7. Therefore, Project development would not impair implementation of or physically interfere with emergency response or evacuation activities of the LACFD, the County of Los Angeles Sheriff's Department, or any other agency mobilized during an emergency response. There would be a less than significant impact after mitigation.

The Project roadways would be built to County of Los Angeles standards and would be designed to ensure that proper access for emergency ingress and egress would be accomplished for evacuation as well as for emergency vehicle access. The Project includes an extensive backbone vehicular circulation system and would provide four points of access to the site via SR-138 (excluding the re-aligned National Cement Plant Road). The proposed bridge over the West Branch of the Aqueduct would be constructed from reinforced concrete or steel girders with concrete or asphalt road decks and would be constructed in compliance with all applicable seismic and engineering codes and standards. In the unlikely event (either man-made or natural) of the failure of one or both bridges over the California Aqueduct, there would be opportunities for emergency ingress and egress to and from both sides of the Project site (i.e., east and west of the Aqueduct) via the Project's extensive roadway system and via the re-aligned National Cement Plant Road (refer to Exhibit 4-8, Centennial Project – Circulation Plan). Consequently, ingress and egress would be maintained throughout the Project site via multiple access points with many possible routes of travel in the event of an emergency. No significant access-related impacts associated with emergency ingress and egress would be expected to occur as a result of the Project.

As discussed above under Relevant Plans, Policies, and Regulations, the AVAP goal and policies related to hazards are limited to emergency response. The Project would be consistent with those policies that are under the purview of individual, private projects and consistent with the intent of those policies under the purview of the County. As discussed, Project implementation would involve continued preparation of an Emergency Response Plan, which would be distributed to each property tenant or purchaser (Policies PS 6.1 through PS 6.4). The Emergency Response Plan, which would be updated as each new tract map is prepared, would be reviewed by the County Department of Regional Planning, the LACFD, and the County Sheriff's Department. As discussed further in Section 4.0, Project Description, a temporary, storefront, Sheriff's station would be developed and fully operational prior to approval of the first certificate of occupancy and would be closed subsequent to development of the permanent on-site Sheriff's station. Similarly, the Project includes conceptual site locations for up to four new fire stations; one fire station is proposed

in Village 1 and would be operational no later than the time the 1,000<sup>th</sup> dwelling unit is built (MM 16-3). The LACFCD would approve the final fire station site locations, and the Project Applicant/Developer would construct and equip the fire stations. These facilities would provide emergency response and evacuation services to the residents, employees, and visitors on the site (Policy PS 6.5). The Emergency Response Plan also supports the County's intent to development a master emergency plan that encompasses every Antelope Valley community (Policy PS 6.6).

Therefore, with the implementation of MM 3-7, the Project would not impair implementation of or physically interfere with emergency response or evacuation activities of the LACFD, the County of Los Angeles Sheriff's Department, or any other agency mobilized during an emergency response.

### ***Off-Site Impacts***

The off-site Project features (intersections with SR-138, utility connections, water wells, and California Aqueduct crossings) would not adversely affect traffic circulation or otherwise affect emergency response or evacuation. The proposed backbone circulation system, including connections with SR-138, would be constructed prior to occupancy of developed land uses. The five SR-138 intersections would include acceleration/deceleration lanes to ensure safe and efficient ingress and egress from the site on the highway, including during emergencies. During construction of the SR-138 intersections in the public right-of-way, the Project Applicant/Developer would be required to prepare and implement a Traffic Control Plan in compliance with California MUTCD standards, which would be ensured with implementation of MM 3-8. After mitigation, there would be a less than significant impact.

***Impact Summary:*** The anticipated traffic generation was determined not to adversely affect emergency access or evacuation routes. Also, the Project includes conceptual locations for up to four new fire stations that will improve emergency and evacuation response for the Project site and for northern Los Angeles County. Further, the Project Applicant/Developer would continually update the Emergency Response Plan prepared for the Project in accordance with MM 3-7. During construction in the Caltrans right-of-way for new Project intersections, the Project Applicant/Developer would be required to prepare a California MUTCD-compliant Traffic Control Plan for County and Caltrans approval, and ensured with implementation of MM 3-8, reducing the potential for impacts to emergency access and circulation during activities in the roadway. Therefore, after mitigation, the Project would result in less than significant impacts related to impairment or interference with the emergency response or evacuation activities of the LACFD, the County of Los Angeles Sheriff's Department, or any other agency mobilized during an emergency response.

## Mitigation Measures

**MM 3-1** The Project Applicant/Developer shall employ a Dust-Control Supervisor who will be on the site within 30 minutes of the start of work taking place each morning; will have the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Antelope Valley Air Quality Management District (AVAQMD) Rule 403 and South Coast Air Quality Management District (SCAQMD) Rule 403 requirements; and will have completed the SCAQMD Fugitive Dust Control Class and has been issued a valid Certificate of Completion for the class. Contact information for the Project's Dust Control Supervisor shall be posted on-site to ensure that the public has a means of providing complaints regarding fugitive dust. The Dust Control Supervisor shall be responsible for tracking complaints, conducting corrective action, as necessary, and for maintaining an up-to-date log of complaints and responses for periodic County review.

**MM 3-2** To aid in the prevention of Valley Fever among construction crews on the Project site, the following measures shall be implemented by the Construction Contractor during all construction activities:

- Hire crews from Los Angeles and/or Kern County populations, or other areas where Valley Fever is endemic, where possible, since it is more likely that they have been previously exposed to the fungus and are therefore immune.
- Prior to Project construction initiation, and for any personnel additions after initial Project construction initiation, the following California Department of Public Health (CDPH) materials on Valley Fever (or the most updated materials applicable to Los Angeles County) shall be distributed to worksite supervisors:
  - CDPH pamphlet entitled "Preventing Work-Related Coccidioidomycosis (Valley Fever)" available at: <http://www.cdph.ca.gov/programs/hesis/Documents/CocciFact.pdf>. (CDPH 2013a)
- Prior to Project construction initiation, and for any personnel additions after initial Project construction initiation, the following CDPH materials on Valley Fever (or the most updated materials applicable to Los Angeles County) shall be distributed to construction workers:
  - CDPH pamphlet entitled "Valley Fever Fact Sheet" available at: <http://www.cdph.ca.gov/HealthInfo/discond/Documents/VFGeneral.pdf>. (CDPH 2013b)
  - CDPH pamphlet entitled "Hoja de datos de la Fiebre del Valle (Valley Fever Fact Sheet in Spanish)" available at:



<http://www.cdph.ca.gov/HealthInfo/discond/Documents/HojaDeDatosDeLaFiebreDelValle.pdf> (CDPH 2013c).

- CDPH pamphlet entitled “Fact Sheet Valley Fever (Valley Fever Fact Sheet in Tagalog),” available at: <http://www.cdph.ca.gov/HealthInfo/discond/Documents/TagalogGeneralValleyFeverFactSheet.pdf> (CDPH 2013d).
- Require crews to use masks or respirators that are adequate to restrict inhalation of particulates during Project clearing, grading, and excavation operations in accordance with California Division of Occupational Safety and Health regulations.
- During rough grading and construction, the access way into the Project site from adjoining paved roadways shall be paved or treated with environmentally safe dust-control agents.

**MM 3-3** The Project Applicant/Developer shall provide to each prospective property purchaser or tenant a notice and statement of acknowledgment that shall be executed (i.e., read and signed) by the prospective purchaser, lessee, or tenant that the property within Centennial may present a risk of exposure to Valley Fever spores during construction or other earth-moving activities. The form shall include strategies to reduce potential exposure to Valley Fever spores. The form and method of distribution of said notice and statement of acknowledgment shall be as approved by the County.

**MM 3-4** The Project Applicant/Developer shall coordinate with the California Department of Conservation, Division of Oil, Gas and Geological Resources (DOGGR) to facilitate re-abandonment of the two on-site historic dry oil wells in accordance with current DOGGR specifications. The Project Applicant/Developer shall present documentation that it has complied with the DOGGR requirements for re-abandonment of the two on-site wells.

**MM 3-5** The Project Applicant/Developer shall provide documentation to the County that the abandoned mine shaft is permanently closed in accordance with applicable regulations, as directed by the California Department of Conservation Office of Mine Reclamation, to prevent future access and potential ground instability issues.

**MM 3-6** If unanticipated hazardous materials or waste is encountered during construction, all work in the immediate vicinity of the suspect hazardous material shall be halted and the applicable oversight agency(ies) shall be notified. The applicable agency(ies) are determined based on the type and extent of the material encountered, and may include the California Department of Toxic Substances Control (DTSC), the State Water Quality Control Board, and/or local agencies, such as the County of Los Angeles Fire Department. The Project Applicant/Developer shall coordinate with appropriate agency(ies) on the appropriate means to address the suspect hazardous material/waste. All environmental investigation and/or

remediation shall be conducted under a Workplan approved by the primary oversight agency(ies) and construction in the affected area shall not proceed until clearance has been issued by the applicable agency(ies).

**MM 3-7** The Project Applicant/Developer shall prepare an Emergency Response Plan for the Project, which shall be updated as needed for each Tentative Map, and shall be submitted to the County for review and approval. The Project Applicant/Developer shall be responsible for distributing the current Emergency Response Plan to each purchaser or tenant of each property within Centennial, and shall distribute the Plan to all landowners through the Transportation Management Agency (TMA).

**MM 3-8** The Project Applicant/Developer shall prepare a Traffic Control Plan in accordance with the California Manual on Uniform Traffic Control Devices (MUTCD). The Traffic Control Plan shall be reviewed and approved by the California Department of Transportation (Caltrans), and all construction activities in the public right-of-way shall comply with the approved Traffic Control Plan to the satisfaction of Caltrans. Documentation of Caltrans approval shall be provided to the County for any Tentative Map involving construction within State Route 138 right-of-way.

### **Level of Significance after Mitigation**

Impacts related to hazards and hazardous materials would be less than significant with implementation of the MM 3-1 through MM 3-8 described above.

### **5.3.3 FIRE SAFETY**

This section analyzes wildland fire hazards that could occur in the vicinity of the Project site. Analysis of fire protection service can be found in Section 5.16 (Fire and Law Enforcement Services). The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively.

### **Relevant Plans, Policies, and Regulations**

#### ***Federal***

No federal plans or policies have been identified that relate to fire safety.

#### ***State***

##### **California Fire Plan**

In a collaborative effort between the State Board of Forestry and the California Department of Forestry and Fire Protection (CAL FIRE), the *2010 Strategic Fire Plan for California* (Fire Plan), last revised in April 2016, was prepared to address the protection of lives and property from California wildfires while recognizing that wildfires are a natural phenomenon and can

have beneficial effects, particularly on ecosystem health. The Fire Plan is a comprehensive update to the *California Fire Plan* prepared in 1996, the first such collaborative statewide wildfire planning document. The overarching vision of the Fire Plan is to have “A natural environmental that is more resilient and man-made assets which are more resistant to the occurrence and effects of wildland fire through local, state, federal and private partnerships” (CAL FIRE 2016). This vision is supported by seven goals and related objectives, and the application of adaptive management as a fundamental strategy of Fire Plan implementation. The purpose of applying adaptive management is to allow for changing conditions, and to better meet environmental, social and economic goals; increase scientific knowledge regarding wildfires; and foster understanding among stakeholders over time. The following are the Fire Plan’s seven goals to support the vision of “A natural environmental that is more resilient and man-made assets which [sic] are more resistant to the occurrence and effects of wildland fire through local, state, federal and private partnerships” (CAL FIRE 2016). The Fire Plan states that each sequential goal is meant to build upon the accomplishment of the previous goal.

1. Identify and evaluate wildland fire hazards and recognize life, property and natural resources assets at risk, including watershed, habitat, social and other values of functioning ecosystems. Facilitate the sharing of all analyses and data collection across all ownerships for consistency in type and kind.
2. Articulate and promote the concept of land use planning as it relates to fire risk and individual landowner objectives and responsibilities.
3. Support and participate in the collaborative development and implementation of wildland fire protection plans and other local, County, and regional plans that address fire protection and landowner objectives.
4. Increase awareness, knowledge and actions implemented by individuals and communities to reduce human loss and property damage from wildland fires, such as defensible space and other fuel reduction activities, fire prevention, and fire safe building standards.
5. Develop a method to integrate fire and fuels management practices with landowner priorities and multiple jurisdictional efforts within local, State, and federal responsibility areas.
6. Determine the level of fire suppression resources necessary to protect the values and assets and risk identified during planning processes.
7. Address post-fire responsibilities for natural resource recovery, including watershed protection, reforestation and ecosystem restoration (CAL FIRE 2016).

### California Building Code

Chapter 7A, “Materials and Construction Methods for Exterior Wildfire Exposure”, of the 2016 California Building Code (CBC), adopted and amended in Title 26 “Building Code” of the Los Angeles County Code, applies to new and existing buildings located in any Fire Hazard Severity Zone or Wildland-Urban Interface (WUI) Fire Area designated by the LACSD.

These codes establish minimum standards for materials, systems, and/or assemblies that can provide a reasonable level of exterior wildfire exposure protection for buildings through construction with ignition-resistant materials and design to resist the intrusion of flame or burning embers projected by a vegetation fire (i.e., wildfire exposure).

### ***County***

#### Los Angeles County General Plan and Antelope Valley Area Plan

The *Los Angeles County General Plan* and the *Antelope Valley Area Plan (AVAP)*, part of the County General Plan, includes goals and policies that address wildfire issues in the unincorporated County. The AVAP goal and policies applicable to the analysis of fire safety with Project implementation are listed below. Section 5.8, Land Use, Entitlements, and Planning, presents a more in-depth analysis of the Project's consistency with relevant plans, policies, and regulations.

**Goal PS 1:** Protection of the public through fire hazard planning and mitigation.

**Policy PS 1.1:** Limit the amount of potential master-planned development in Very High Fire Hazard Severity Zones through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

**Policy PS 1.2:** Require that all new developments provide sufficient access for emergency vehicles and sufficient evacuation routes for residents and animals.

**Policy PS 1.3:** Promote fire prevention measures, such as brush clearance and the creation of defensible space, to reduce fire protection costs.

**Policy PS 1.4:** Provide strict enforcement of the Fire Code and all Fire Department policies and regulations.

#### Los Angeles County Fire Department

The Los Angeles County Fire Department (LACFD) provides fire services to the Project area. The Regional Fire Prevention Unit Section II serves the areas of Los Angeles County designated as a Fire Hazard Severity Zone in a State Responsibility Area, including the Antelope Valley area. This office inspects and approves all single-family dwelling units located in wildland areas. Because the Project site is located in the area designated as a Fire Hazard Severity Zone, the area is considered to have a high fire potential.

#### *Fuel Modification Planning*

The Fire Hazard Severity Zones in State Responsibility Areas are defined in Appendix M of the County of Los Angeles Code's Title 32 (Fire Code). Title 32 is intended to provide minimum standards to safeguard the public's safety and welfare, and Section 4908.1 describes requirements for fuel modification plans in Fire Hazard Severity Zones. The section states the following:

A fuel modification plan shall be submitted and have preliminary approval prior to any subdivision of land and have final approval prior to the approval

of a permit for any permanent tent, yurt, trailer, or other structure used for habitation, to the approval of a permit for any structure that changes occupancy classification from a non R to R type occupancy, and new construction, remodeling, modification, or reconstruction of: (1) any enclosed structure over 120 square feet; (2) any structure enclosed on three sides or more and greater than or equal to 200 square feet; and (3) any structure greater than or equal to 400 square feet, where such remodeling, modification, or reconstruction increases the square footage of the existing structure or footprint by 50 percent or more within any 12-month period, and where the tent, yurt, trailer, structure, or subdivision is located within areas designated as a Fire Hazard Severity Zone within the State Responsibility Areas or Very High Hazard Severity Zone within the Local Responsibility areas, applicable Hazard Zone maps, and Appendix M of this code at the time of application. Every fuel modification plan shall be reviewed by the forestry division of the fire department for defensible space, reasonable fire safety, and compliance with Sections 325.2.1, 325.2.2, 325.10, and 503.2.1 of this code, the Fire Department's Fuel Modification Guidelines, and California Code of Regulations Title 14, Division 1.5, Chapter 7, subchapter 2. After such final plan has been approved by the forestry division of the fire department, a signed and notarized copy of the provided Covenant and Agreement and or previously reviewed and approved association CC&R's [Covenants, Conditions, and Restrictions] that include the necessary fuel modification information shall be recorded at the registrar-recorder/County clerk's office and a copy given to the Fuel Modification Unit prior to site inspection and release. The fuel modification inspection ensures compliance with applicable requirements of this code, the Building Code, Section 701A.5 (Vegetation management compliance), and the Residential Code, Section R327.1.5 (Vegetation management compliance). An on-site inspection must be conducted by the forestry division of the fire department and a final release issued by the forestry division prior to a certificate of occupancy being granted by the building code official.

The County Fire Department's Forestry Division (Forestry Division) provides several fire prevention services, including vegetation management services and fuel modification planning. The purpose of fuel modification is to provide defensible space between structures and wildlands. The Fuel Modification Plan Guidelines, last revised in 2011, were created by the Forestry Division to help the public understand the process of fuel modification plan review and approval as well as set forth landscape design criteria for applicable properties located in Fire Hazard Severity Zones (LACFD 2015).

A fuel modification plan consists of three sequential zones where combustible native or ornamental vegetation has been modified and/or partially or totally replaced with drought-tolerant, low-fuel-volume plant species. Fuel modification zones are designed to protect homes from wildfire by limiting and reducing the amount of fuel available for a wildfire. The reduction in available fuel affects the flame lengths and amount of heat produced by the fire and eliminates landscape areas where embers can ignite vegetation. Each zone should be designed so that the amount of fuel is reduced and the moisture in the plants is increased the

closer to a structure. The details of fuel modification plans vary in complexity and reflect the fire history; the amount and type of vegetation; the arrangement of the fuels; the topography; the local weather patterns; and the construction, design, and placement of structures (LACFD 2015). The following is a generalized fuel modification plan and associated zones (LACFD 2011):

**Zone A** is a minimum 20-foot setback zone from the edge of any structures; it is adjacent to structures and should offer protection from intense flames through either properly maintained, irrigated plants with high moisture content, or through walkways, gravel, stone, paved surfaces, or water features to create breaks in the fire's path.

**Zone B** is the irrigation zone/transition zone that extends from the edge of Zone A up to 100 feet from structures; a large percentage of existing vegetation may be removed and replaced with irrigated, fire- and drought-resistant plants. It may have detached structures and may contain some native vegetation if spaced according to the planting guidelines that create a transition to the native brush and thinning zone (Zone C).

**Zone C** is the native brush thinning zone and, if applicable, extends from the edge of Zone B up to 200 feet from structures. Vegetation will consist mainly of native plants with appropriate thinning and spacing; adequately spaced ornamental shrubs and trees are allowed (if approved by LACFD) but generally not recommended due to water conservation goals. The objective of this zone is to slow the rate of fire spread, reduce flame lengths, and minimize the intensity of the fires prior to reaching irrigated zones (i.e., Zones A and B) or the structure.

Planting proposed as part of a project along any public or private roadway that may be used for emergency access will also be reviewed to ensure compliance with applicable fire code requirements and safety as part of the Fuel Modification Plan review. Fuel modification distances are site specific, designed for severe fire weather scenarios, and are not intended to be a blanket requirement for all sites. The Zone A and Zone B irrigated zones encompass the minimum 30 to 50 feet of required removal of all highly flammable brush required by the Fire Code. Zone C will typically coincide with the requirement to thin from 30 to 200 feet from any structure. Also, a wide variety of conditions may result in the required fuel modification not being fully achieved within the property boundaries. Property owners are not required to extend their fuel modification on to adjacent property (i.e., off-site). However, they are encouraged to collaborate with adjacent private landowners and public agencies/landowners to find ways to extend fuel modification or brush clearance activities in ways that benefit everyone in the community. Where the desired zones are not capable of being implemented, alternatives to the typical requirements may be substituted. The installation of a wall made of cinderblock or other fire retardant material may be required as part of the Fuel Modification Plan (LACFD 2011).

### *Development Standards*

The County of Los Angeles' standards related to development in areas designated as Fire Hazard Severity Zones in a State Responsibility Area and that would be applied to the Project are specified in the Chapter 7A. "Materials and Construction Methods for Exterior Wildfire Exposure" of the Building Code (Title 26) and in the Fire Code (Title 32); these standards include, but are not limited to the following:

- All roof coverings shall be of fire retardant Class A materials. Wood-shingle and wood-shake roofs are prohibited in Very High Fire Hazard Severity Zones (VHFHSZs) regardless of classification (Section 704A.1.2).
- Where the roof profile allows a space between the roof covering and roof decking, the spaces shall be constructed to prevent the intrusion of flames and embers; shall be firestopped with approved materials; or shall have one layer of No. 72 American Society of Testing and Materials (ASTM) cap sheet installed over the combustible decking (Section 704A.1.2).
- Ventilation openings shall be constructed on the underside of eaves and cornices. The Building Official may accept or approve special eave and cornice vents that resist the intrusion of flame and burning embers (Section 706A.3 et. seq.).
- Exterior windows, window walls, glazed doors, and glazed openings in exterior doors shall be multi-pane glazing units with a minimum of one tempered pane, or glass block units, or have a fire-resistance rating of not less than 20 minutes, when tested according to ASTM E 2010, or they shall conform to the performance requirements of the Office of the State Fire Marshall (SFM) 12-7A-2 (Section 704A.3.2.2).
- Spark arresters constructed with heavy wire mesh or other noncombustible material with openings not to exceed ½ inch shall be provided in chimneys of any fireplace, barbecue, incinerator, or any heating appliance in which solid or liquid fuel is used (Section 326.12.2).
- Clearance of brush and vegetative growth shall be maintained (Section 325.2).

## Environmental Setting

The Project site is generally surrounded by undeveloped or agricultural land, with scattered single-family residences located near the southeast portion of the site. CAL FIRE and the LACFD designate lands within Los Angeles County that are determined to be highly vulnerable to wildfire as being “Fire Hazard Severity Zones” (Los Angeles County Code, Title 32). This designation replaces the previous County wildfire risk rating (i.e., Fire Zones 1 through 4) (Lopez 2006). Adoption of and revisions to Fire Hazard Severity Zone designations are made by the Los Angeles County Board of Supervisors. The Fire Hazard Severity Zone designation is based on evaluation of numerous interrelated criteria including fuels, topography, dwelling density, weather, infrastructure, building materials, brush clearance, and fire history. The County Fire Chief periodically reviews Fire Hazard Severity Zone areas and makes recommendations to the Board of Supervisors to revise the limits of these areas based on changes in any of the evaluation criteria.

Portions of the Project site are designated as a VHFHSZ and portions are designated as a HFHSV (LACDRP 2015). CAL FIRE classifies a zone as having a moderate, high, or very high fire hazard based on a combination of how a fire will behave and the probability of flames and embers threatening buildings. Project site characteristics that contribute to these designations include (a) access, (b) lack of existing adequate fire flows, (c) topography, and (d) vegetative cover. Typically during the spring months, vegetation begins to lose its moisture content. By the fall, when Santa Ana wind conditions begin occurring, wildland fire

conditions become extremely high. CAL FIRE, which also incorporates City and County records, recorded a total of 31 wildfires over 100 acres in size within approximately 5 miles of the Project site from 1964 through 2015. Of these, four fires occurred within Project site boundaries: the Liebre fire, which burned approximately 48,565 acres in 1968 (approximately 0.2 acre on site); Cement Fire No. 1 and Cement Fire No. 2, which burned a combined total of approximately 747 acres in 1994 (approximately 601 acres on site); the Pine fire, which burned approximately 16,272 acres in 2004 (approximately 65 acres on site); and the Hwy 138 and 300 West fire, which burned approximately 193 acres in 2006 (approximately 135 acres on site) (CAL FIRE 2016b). The effect of climate change on wildland fires has been addressed in Section 5.21, Climate Change.

When chaparral and coastal sage growth is young, it is more succulent and has few dead or dying branches and provides less horizontal fuel continuity; as a result, it has higher than average fuel moisture content and is usually more fire retardant. As these plant species reach 20 or more years of maturity, the dead-to-live fuel ratio increases, which creates more available fuel to sustain fires that have very high intensities and energy releases. Generally, fire-prevention tactics for urban development in wildland fire hazard areas focus on (1) restricting the types of building materials used; (2) appropriate building design; and (3) incorporating setbacks, including fuel-modification zones. All developments within a VHFHSZ and HFHSV are required to meet the building construction requirements specified in the County Code for these areas, as discussed above. Refer to Section 5.16, Fire and Law Enforcement Services, for a discussion of fire-protection service levels for the Project site.

### **Project Design Features**

No project design features are identified for Fire Safety.

### **Threshold Criteria**

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact if it would:

**Threshold 3-8** Expose people or structures to a significant risk of loss, injury, or death involving fires, because the project is located:

- i. within a Very High Fire Hazard Severity Zone (Fire Zone 4).
- ii. within a high fire hazard area with inadequate access.
- iii. within an area with inadequate water and pressure to meet fire flow standards.
- iv. within proximity to land uses that have the potential for dangerous fire hazard.

**Threshold 3-9** Constitute a potentially dangerous fire hazard.



## Environmental Impacts

**Threshold 3-8**      **Would the project expose people or structures to a significant risk of loss, injury, or death involving fires, because the project is located:**

- i.    **within a Very High Fire Hazard Severity Zone (Fire Zone 4)?**
- ii.   **within a high fire hazard area with inadequate access?**
- iii.   **within an area with inadequate water and pressure to meet fire flow standards?**
- iv.   **within proximity to land uses that have the potential for dangerous fire hazard?**

**Threshold 3-9**      **Does the proposed use constitute a potentially dangerous fire hazard?**

### *On-Site Impacts*

The Project would introduce urban development in an undeveloped area subject to wildfire hazards. The Project area is within a VHFHSZ and an HFHSV, which are subject to high fire hazards due to the presence of high brush, woodlands, and steep slopes.

### Fire Hazard Assessment

Project implementation would result in the construction of residential areas, commercial and office uses, mixed-uses, business parks, institutional uses, and utilities in areas that have been designated as VHFHSZ or HFHSV. Current characteristics of the Project site that contribute to this designation include (1) limited access, (2) lack of existing adequate fire flows, (3) topography, and (4) types of vegetative cover. These characteristics would be addressed as the Project site is developed. An analysis of the Project site's fire hazard potential relative to these four factors is presented below.

1. **Access.** The Project includes an extensive backbone vehicular circulation system that would provide five points of access to the site via SR-138. The design of the Project's internal circulation system would implement the County standards, as applicable, regarding access (i.e., roadway widths, length of single access streets, cul-de-sac dimensions, street parking restrictions) (see Section 5.10, Traffic, Access and Circulation, for additional discussion of roadway design). Additionally, the Project will incorporate up to four new fire stations within the Project site. Consequently, access would be improved from the existing condition and impacts associated with emergency fire response would be less than significant with incorporation of emergency response requirements (MM 3-7).
2. **Fire Flows.** Exhibit 4-13, Centennial Project – Conceptual Domestic Water System, shows the Project's water system that would provide water supplies to support proposed land uses and provide adequate fire flows and pressure to support any fire-suppression activity in the event of wildland or structural fires (refer to Section 5.18, Water Resources, for further discussion of the water system). The proposed

water system includes water mains, water tanks, pump stations (where necessary), and fire hydrants to ensure sufficient fire flows and water pressure to meet County of Los Angeles Department of Public Works' and LACFD's fire-suppression standards for improved property and development. These standard requirements must be met prior to the approval of building permits; therefore, the Project would implement a water system that would meet all County requirements in support of fire-suppression activities so that less than significant water-related fire hazards would occur.

- 3. Topography.** Topography is connected to wildland fire hazards because steep slopes are not only inaccessible to fire fighting vehicles, but steep canyons can create updraft conditions (much like a chimney) and a fire in a steep canyon can spread rapidly into adjacent areas. Steep canyons that are densely covered with combustible vegetation are especially hazardous. The Project's land uses would be developed in accordance with fuel modification requirements to ensure appropriate buffer zones for protection from wildfire events (MM 3-9). Areas of the Project site that are undeveloped and contain steep slopes would restrict human access to the use of trails. Despite limited access to the general population, and the portions of the site with the greatest topographic relief would be accessible to fire-fighting equipment via helicopter, other air transport access, and existing unpaved fire roads. As required by the LACFD, upon their Project-level review (e.g., tract map review), clearance for fire access roads and gates would be incorporated into developed areas. Implementation of the Fuel Modification Plan (MM 3-9) for the Project would ensure that potential impacts would be less than significant.
- 4. Vegetative Cover.** The majority of residential development is proposed for the flatter portions of the Project site. Some residential development, however, is proposed in areas that would be adjacent to large open space areas with moderate vegetative cover. The plant communities that make up this cover are highly combustible and would therefore present a high fire hazard and pose a potentially significant impact to development in these areas. With MM 3-9 for fuel modification requirements, impacts related to fire hazards would be less than significant.

As development of the Project site proceeds, fire hazards associated with the natural vegetative cover would be eliminated through its replacement with urban landscape vegetation, which is irrigated and less combustible than the existing vegetation. However, the potential for wildland fire hazards would still exist at the wildland/urban interface due to (a) the presence of brush; (b) increased human activity; and (c) the increased potential for fires due to accidental and arson-related causes. The boundaries of this interface would change over time as the Project reaches buildout. With the implementation of the Fuel Modification Plan as mandated by the LACFD's requirements for fuel modification and construction in Fire Hazard Severity Zones, ensured with implementation of MM 3-9, the fire hazard potential in this interface zone would be less than significant.

#### Fuel Modification and Fire Codes

The Project would comply with State law and with all County requirements related to development in a designated VHFHSZ or HFHSV. Specifically, as required by Section 4908.1 of the County of Los Angeles Code (Title 32, Fire Code), a Fuel Modification Plan would be

submitted with any subdivision of land located in an area designated as a Fire Hazard Severity Zone in a State Responsibility Area, which includes the entirety of Project site. Under current LACFD regulations, the Fuel Modification Zone for the Project should extend 200 feet from structures; the three fuel modification zones (A, B, and C) are detailed above.

Preliminary discussions with the LACFD indicate that, due to a variety of variables such as topography and nearby vegetation, it may be appropriate to utilize a fuel-modification buffer that is less than 200 feet (Condon and Pontes 2007). The extent and location of the fuel zone clearance area, along with conditions under which the setback may be reduced would be finalized with LACFD review and approval of the Fuel Modification Plan. Based on conversations between the Applicant and the LACFD, the buffer from structures for the majority of the Project site would be 100 feet because the Project site is predominantly characterized by annual grassland. Because this is low combustible vegetation, an alternative compliance of a 100-foot setback from structures is likely more appropriate for the majority of the property. However, in some instances, an alternative compliance of a 150-foot setback from the structure may be appropriate, especially in cases where a number of trees are in the immediate vicinity of lots but are at a grade uphill from the lots.

In order to reduce potential impacts associated with wildfire hazards, MM 3-9 requires that new property owners are informed of their individual responsibilities for maintaining fuel modification zones on their property, either via the Covenants, Conditions, and Restrictions (CC&Rs) or disclosure statements. In accordance with the Landscape Plan for the Project (see MM 7-13 in Section 5.7, Biological Resources), the Fuel Modification Plan (see MM 3-9) will utilize a plant palette that is tailored to the unique environmental conditions of the Project site and that borrows extensively from the existing landscape, allowing for both native and adopted species of oaks, willows, cottonwoods, and grasses. The design of this plan would take the Project site's topographical features into consideration. Transitional slopes and some greenways would be enhanced with regionally appropriate species that relate to the historic background of this region such as stone fruits (i.e., peaches, plums, avocados) and orchards (i.e., citrus and nuts). Furthermore, species selected for modification would be adapted to the conditions found on the Project site by surviving hot, dry summers without high irrigation demands. A partial species list includes evergreens and deciduous trees that may be modified by the Community Forester in consultation with County Biologists.

As indicated previously, all projects must adhere to State and County Fire Codes, standards, and guidelines, including the CAL FIRE's Fire Plan. While the Fire Plan does not include requirements for individual projects, it does describe collaborative wildfire-related planning efforts with local agencies (such as the LACFD) and establishes the levels of statewide fire protection services for State Responsibility Area lands. These service levels recognize other fire protection resources at the federal and local level that collectively provide a regional and statewide emergency response capability. In addition, California's integrated mutual aid fire protection system provides fire protection services through automatic and mutual aid agreements for fire incidents across all ownerships (CAL FIRE 2016). It is the expectation that, as the Project is built out over 20 years, the Fire Codes, standards, and guidelines would be continually updated by the State and County agencies as the knowledge gained from past fires is increased; these updated code requirements, as finalized through discussions with the LACFD, would be applied to subsequent development phases of the Project.

As discussed above under Relevant Plans, Policies, and Regulations, the AVAP includes a goal and several related policies related to fire hazard planning. The Project is consistent with the AVAP land use designations, and therefore is consistent with Policy PS 1.1. As discussed in detail above, the Project would provide appropriate emergency access and evacuation routes; would implement all appropriate wildland fire-prevention measures; and would implement all Fire Code requirements and other regulations. The Project, therefore, is consistent with Policies PS 1.2 through 1.4. With adherence to the required and best-accepted practices for fuel-modification zone management, emergency access, building materials and methods, as well as the changes in land use, the potential impact of the Project related to wildfires is considered to be less than significant.

#### Proximity to Potentially Dangerous Fire Hazard Land Uses

As described above under Section 5.3.2, Hazards and Hazardous Materials, Phase I ESAs were prepared to address potentially hazardous current and historic land uses that could adversely affect Project site development. Based on these reports, there are no adjacent land uses that represent fire hazards. The National Cement Company is an industrial land use, but it does not utilize flammable materials or otherwise have a risk of explosion. The sole risk of reasonably foreseeable explosion on or near the Project is related to flammable materials transport on SR-138.

The increased potential for an accident involving a hazardous material transporter on SR-138 and Interstate (I) 5 due to increased traffic from the Project would also be less than significant. Such materials are transported daily on arterial roadways and railways that traverse through populated areas throughout Southern California. Additionally, the traffic analysis prepared for the Project determines that, with implementation of mitigation, all mainline freeways in the Project area, including SR-138 and I-5, would continue to flow in an acceptable manner with the Project. Therefore, the traffic analysis quantitatively determines that increased traffic would not create a greater hazard. There would be no impact related to proximity to a dangerous fire hazard condition and no mitigation is required.

#### ***Off-Site Impacts***

The off-site Project features (intersections with SR-138, utility connections, water wells, and California Aqueduct crossings) would not include land uses that would, by themselves, increase the risk of fire hazards. With Project implementation, adequate access, adequate water pressures and flows, and fuel modification would be provided on the site and would either include the locations of off-site features or support the adequate water pressures and flows (i.e., water wells and infrastructure in 300<sup>th</sup> Street West). These features do not represent dangerous fire hazards, nor would they be located proximate to a fire hazard. There would be no impact and no mitigation is required.

***Impact Summary:*** With adherence to State and County requirements for fuel modification zone management, emergency access, building materials and methods, as well as change in land use, to be ensured with implementation of MM 3-9, the impact of the Project related to wildfires is considered to be less than significant.

The Project would not result in significant impacts related to proximity of a land use representing a potential fire hazard, and no mitigation would be required.

## Mitigation Measures

**MM 3-9** The Project Applicant/Developer shall prepare a Fuel Modification Plan demonstrating compliance with the County Fire Code Title 32 and shall provide all new residents and business owners with recorded Covenants, Conditions, and Restrictions (CC&Rs) or disclosure statements that identify the responsibilities for maintaining the fuel modification zone(s) on their property, as defined in the approved Fuel Modification Plan. The CC&Rs or disclosure statements prepared by the Project Applicant/Developer shall be submitted to the County of Los Angeles to confirm that new property owners will be informed of their responsibilities for maintaining the fuel modification zone(s) on their property.

## Level of Significance after Mitigation

Impacts related to fire hazards would be less than significant with implementation of MM 3-9.

## 5.3.4 REFERENCES

Atkinson, D. 2005 (June). Personal communication. Telephone conversation between D. Atkinson (Tejon Ranch Company, Agricultural Operations) and W.T. Turley (Centennial Founders, LLC).

California Air Resources Board (CARB). 1976 (as amended through 2010). Rule 403, Fugitive Dust. Sacramento, CA: CARB.  
<https://www.arb.ca.gov/DRDB/AV/CURHTML/R403.PDF>.

California, State of. 2015 (access date). *California Code of Regulations* (Title 21, Public Works, and Title 22, Social Security). Sacramento, CA: the State.  
[https://govt.westlaw.com/calregs/index?\\_lrTS=20151104175158049&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/calregs/index?_lrTS=20151104175158049&transitionType=Default&contextData=(sc.Default)).

———. 2013 (January, effective date). *California Public Resources Code* (Division 13, Environmental Quality; Chapter 2.6, General; Section 21092.6). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=13.&title=&part=&chapter=2.6.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=13.&title=&part=&chapter=2.6.&article=).

———. 2012 (June, effective date). *California Government Code* (Title 7, Planning and Land Use; Division 1, Planning and Zoning; Chapter 4.5, Review and Approval of Development Projects; Article 6, Development Permits for Classes of Projects; Section 65962.5). Sacramento, CA: the State.  
[http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=4.5.&article=6](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=4.5.&article=6).

- 
- . 1997 (January, effective date). *California Food and Agriculture Code* (Division 6, Pest Control Operations; Chapter 2, General Provisions; Section 11501). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=FAC&division=6.&title=&part=&chapter=2.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=FAC&division=6.&title=&part=&chapter=2.&article=).
- . 1988. *California Public Resources Code* (Division 3, Oil and Gas; Chapter 1, Oil and Gas Conservation; Article 4, Regulation of Operations; Section 3208). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=3.&title=&part=&chapter=1.&article=4](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=3.&title=&part=&chapter=1.&article=4).
- . 1983 (last amended). *California Health and Safety Code* (Division 26, Air Resources; Part 2, State Air Resources Board; Chapter 3.5, Toxic Air Contaminants). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=HSC&division=26.&title=&part=2.&chapter=3.5.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=HSC&division=26.&title=&part=2.&chapter=3.5.&article=).
- California Department of Forestry and Fire Protection (CAL FIRE). 2016a (Revised April). *2010 Strategic Fire Plan for California*. Sacramento, CA: CAL FIRE. [http://bof.fire.ca.gov/hot\\_topics\\_resources/fireplanrevison\\_final\\_04\\_06\\_16.pdf](http://bof.fire.ca.gov/hot_topics_resources/fireplanrevison_final_04_06_16.pdf).
- . 2016b (Release date). Fire and Resource Assessment Program: Fire Perimeters (version 15\_1). Sacramento, CA: CAL FIRE. <http://frap.fire.ca.gov/data/frapgisdata-sw-fireperimeters-download>.
- . 2012 (Copyright). Wildland Hazard & Building Codes: Frequently Asked Questions. Sacramento, CA: CAL FIRE. [http://www.fire.ca.gov/fire\\_prevention/fire\\_prevention\\_wildland\\_faqs#header](http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_faqs#header).
- California Department of Public Health (CDPH). 2016a (January). *Valley Fever Fact Sheet*. Sacramento, CA: CDPH. <https://archive.cdph.ca.gov/HealthInfo/discond/Documents/VFGeneral.pdf>.
- . 2016b (Last updated June 17). *Yearly Summaries of Selected General Communicable Diseases in California, 2011-2015*. Sacramento, CA: CDPH. <https://archive.cdph.ca.gov/data/statistics/Documents/YearlySummaryReportsofSelectedGeneralCommDiseasesinCA2011-2015.pdf#>.
- California Department of Toxic Substances Control (DTSC). 2007 (March 29). Closure Certification Acknowledgement for the Systech Environmental Corporation, Los Robles Resource Recovery Facility, Lebec, California, EPA ID No. CAT 080031628 (an official Closure Letter from J.M. Pappas, P.E., Chief, Northern California Permits at the DTSC to C.G. Lewis, Regulatory Manager at the Systech Environmental Corporation).
- California Department of Transportation, Aeronautics Division (Caltrans Aeronautics). 2017 (February). Aviation in California: Fact Sheet. Sacramento, CA: Caltrans Aeronautics. <http://www.dot.ca.gov/hq/planning/aeronaut/documents/AeroFactSheet.pdf>.

California Department of Water Resources (DWR). 2015 (November, access date). Water Well Standards (Chapter II, Standards; Section 23, Requirements for Destroying Wells). Sacramento, CA: DWR. [http://www.water.ca.gov/groundwater/well\\_info\\_and\\_other/california\\_well\\_standards/wws/wws\\_combined\\_sec23.html](http://www.water.ca.gov/groundwater/well_info_and_other/california_well_standards/wws/wws_combined_sec23.html).

California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA). 2015 (August). Chemicals Known to the State to Cause Cancer or Reproductive Toxicity. Sacramento, CA: Cal/EPA OEHHA. [http://www.oehha.ca.gov/prop65/prop65\\_list/Newlist.html](http://www.oehha.ca.gov/prop65/prop65_list/Newlist.html)

———. 1986 (as amended through 2003). Safe Drinking Water and Toxic Enforcement Act of 1986. Sacramento, CA: OEHHA.

Condon, K. and L. Pontes. 2007 (September 19). Personal communication. Meeting between K. Condon, Deputy Forester (Fuel Modification Unit, Prevention Bureau, Forestry Division, County of Los Angeles Fire Department), L. Pontes, Forestry Assistant (Fuel Modification Unit, Prevention Bureau, Forestry Division, County of Los Angeles Fire Department), R. Barker, Senior Project Manager (Psomas), and T. Turley, Community Development Manager (Centennial Founders, LLC).

Converse Consultants. 2015a (August 31). *Phase I Environmental Site Assessment Report: Assessor's Parcel Numbers 3275-007-014, 3275-006-006, and 3275-008-001, Los Angeles County, California*. Costa Mesa, CA: Converse Consultants (Appendix 5.3-A).

———. 2015b (August 31). *Memorandum of Clarification, Centennial Project Area, Los Angeles County, California*. Costa Mesa, CA: Converse Consultants (Appendix 5.3-B).

———. 2015c (August 31). *Mitigation Measures, Centennial Project Area, Los Angeles County, California*. Costa Mesa, CA: Converse Consultants (Appendix 5.3-C).

———. 2008 (November). *Limited Phase II Environmental Site Assessment – Drum Sampling: Centennial Park Site, Lot 1760, VTTM 60023, State Highway 138 and Quail Lake, Los Angeles County, California*. Costa Mesa, CA: Converse Consultants (Appendix 5.3-D).

GCR and Associates and Federal Aviation Administration, Airport Safety Collection Program (GCR and FAA). 2015 (October 15, effective date). Airport IQ 5010: Airport Master Records and Reports: Quail Lake Sky Park. New Orleans, LA: GCR & Associates. <http://www.gcr1.com/5010web/airport.cfm?Site=CL46&AptSecNum=0>.

Geosyntec Consultants. 2016. *Centennial Project Hydromodification Technical Report*. Oakland, CA: Geosyntec (Appendix 5 of Appendix 5.2-A).

Grant, B. 2008a (October 27). Personal communication. Email correspondence between B. Grant, Senior Project Manager, Community Development (Tejon Ranch Company) and J. Kelly, Principal-in-Charge (BonTerra) regarding the size of the abandoned mine tunnel.

- . 2008b (October 30). Personal communication. Email correspondence between B. Grant, Senior Project Manager, Community Development (Tejon Ranch Company) and J. Kelly, Principal-in-Charge (BonTerra) regarding the nature of materials transported on the National Cement Plant Road.
- Lopez, J. 2006 (November 6). Personal communication. Email from J. Lopez, Deputy Forester (Los Angeles County Fire Department, Fire Plan Unit) and J. Neary, Environmental Planner (BonTerra).
- Los Angeles, County of. 2015 (last accessed). Los Angeles County, California – Code of Ordinances. Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles.  
[https://www.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances](https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances).
- Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.
- . 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.
- Los Angeles, County of, Department of Public Health (LADPH). 2017 (Last accessed June 22). Acute Communicable Disease Control: Coccidioidomycosis Los Angeles, CA: LADPH. <http://www.lapublichealth.org/acd/Diseases/Cocci.htm>.
- . 2016 (February 18). *2014 Annual Morbidity Report and Special Studies Report*. Sacramento, CA: LADPH.  
<http://www.publichealth.lacounty.gov/acd/reports/annual/2014Annual.pdf>
- Los Angeles, County of, Fire Department (LACFD). 2015 (Last accessed June 23). Fuel Modification. Los Angeles, CA: LACFD. <http://www.fire.lacounty.gov/forestry-division/forestry-fuel-modification/>.
- . 2011 (Revision date). *Fuel Modification Plan Guidelines, A Firewise Landscape Guide for Creating and Maintaining Defensible Space*. Los Angeles, CA: LACFD.  
<http://www.fire.lacounty.gov/wp-content/uploads/2014/02/Fuel-Modification-Plan-Guidelines-8-10-11.pdf>.
- Los Angeles, County of, Office of Emergency Management (LACOEM). 2012 (July 10, Approval date). *Los Angeles County Operational Area Emergency Response Plan*. Los Angeles, CA: LACOEM. <http://lacoa.org/oaerp.htm>.
- Metzger, L. 2007 (April 3). Personal communication. Email correspondence from L. Metzger, GIS Director (Tejon Ranch Company) to T. Smith, Principal-in-Charge (BonTerra).



Miles, P. 2016 (March 22). Personal communication. Telephone and email correspondence from P. Miles, Aviation Safety Officer (California Department of Transportation, Division of Aeronautics) to J. Neary (BonTerra Psomas).

Sondermeyer, G., L. Lee, D. Gilliss, and D.J. Vugia. 2013 (Spring). Increases in Valley Fever in California. *Medical Board of California Newsletter*. 126: 13–14. Sacramento, CA: Medical Board of California. [http://www.mbc.ca.gov/publications/newsletters/newsletter\\_2013\\_04.pdf#page=13](http://www.mbc.ca.gov/publications/newsletters/newsletter_2013_04.pdf#page=13).

South Coast Air Quality Management District (SCAQMD). 1976 (May, as amended through 2005). Rule 403: Fugitive Dust. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf>.

Tejon Ranch Company. 2008 (February 26). Personal communication. Facsimile from Tejon Ranch Company c/o C. Matchniff Vice President (Community Development, Pardee Homes) to J. Kelly, Principal-in-Charge (BonTerra).

U.S. Congress. 2015 (November, last revised). *Code of Federal Regulations* (Title 40, Protection of Environment, and Title 49, Transportation). Washington, D.C.: U.S. Government Printing Office via GPO Access. <http://www.ecfr.gov/cgi-bin/ECFR?SID=5d1210811483219f9b11733e16f8f23e&mc=true&page=simple>.

U.S. Environmental Protection Agency (USEPA). 2017 (January 3, last updated). Clean Air Act Text. Washington, D.C.: USEPA. <https://www.epa.gov/clean-air-act-overview/clean-air-act-text#toc>.

*This page is intentionally left blank.*

---

## 5.4 WATER QUALITY

### 5.4.1 INTRODUCTION

#### Purpose

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that water quality issues be evaluated as part of the environmental documentation process. The effects of the Project on the quality of both surface waters and groundwater are addressed. The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts related to water quality are described in Sections 6.0 and 7.0, respectively. Drainage and flood-control issues are analyzed in Section 5.2, Hydrology and Flood; water supply is analyzed in Section 5.18, Water Resources (Supply and Services); and recycled water use is analyzed in Section 5.19, Wastewater.

#### Summary

In 2014, the County of Los Angeles (County) prepared its *Low Impact Development Standards Manual* (LID Standards Manual) to implement the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit for storm water and non-storm water discharges issued to the County by the California Regional Water Quality Control Board, Los Angeles Region (CAS004001, Order No. R4- 2012-0175) (MS4 Permit). The LID Standards Manual also implements the County's Low Impact Development (LID) Ordinance (County Code Section 12.84). The objectives and goals of the LID Standards Manual, the County MS4 permit and the County LID Ordinance are to (1) lessen the adverse impacts of storm water runoff from development and urban runoff on natural drainage systems, receiving waters, and other water bodies; (2) minimize pollutant loadings from impervious surfaces by requiring development projects to incorporate properly designed, technically appropriate Best Management Practices (BMPs) and other LID strategies; and (3) minimize erosion and other hydrologic impacts on natural drainage systems by requiring development projects to incorporate properly designed, technically appropriate hydromodification control development principles and technologies (LACDPW 2014).

The proposed Project has been designed to meet or exceed County MS4 Permit, LID Standards Manual, and LID Ordinance water quality requirements for new development and to avoid impacts to applicable surface and groundwater beneficial uses designated in the basin plans adopted by the Lahontan and Los Angeles Regional Water Quality Control Boards (RWQCBs). The Project will include site-design, source-control, LID, and hydromodification-control BMP requirements. Most Project runoff will be subject to control and treatment in a regional system that consists of 28 detention and retention basins located throughout the Project site (see Exhibit 5.2-4, Proposed Infiltration Basin Locations, in Section 5.2, Hydrology and Flood). Other developed areas will treat and control runoff by utilizing distributed, smaller, or parcel-specific LID measures (see Exhibit 5.4-2, Low Impact

Development [LID] Drainage Areas with Project). These regional and distributed measures will also meet County LID standards for new development and will provide sufficient treatment capacity to reduce potential surface and groundwater quality impacts to less than significant levels.

The Project's water quality performance standard is consistent with County requirements for new development and is incorporated in Mitigation Measure (MM) 4-1. The Project will also implement integrated pest management (IPM) and landscaping BMPs consistent with IPM and pesticide and fertilizer application guidelines established by the University of California Division of Agriculture and Natural Resources Statewide Integrated Pest Management Program. The IPM and landscaping BMPs are incorporated in MM 4-2 and will be further confirmed prior to the issuance of building permits and during the County tract map review process. These measures will control potential pesticide, nitrogen, and other pest and landscaping-related water quality impacts to less than significant levels.

During construction, the Project will comply with and implement the requirements of the General Construction Permit issued by the State Water Resources Control Board (CAR000002, Order 2009-0009-DWQ as amended by Order 2010-0014-DWQ and Order 2012-0006-DWQ)(Construction General Permit). The Construction General Permit requires that potential risks to water quality be evaluated for construction activity and that a Stormwater Pollution Prevention Plan (SWPPP), including specific BMPs that will avoid potentially significant construction period storm water impacts based on the Project risk assessment, be implemented.

With mitigation, the Project would not have a significant impact on surface water or groundwater quality. Developed area runoff constituent concentrations would be below all water quality objectives and criteria. Qualitatively assessed constituents in post-development runoff would not occur at levels that would exceed water quality standards or adversely affect beneficial uses of receiving surface or ground waters. Implementation of the planned BMPs in compliance with the Los Angeles County MS4 Permit, LID Ordinance, and LID Standards Manual would meet or exceed the requirements of the federal, State, and County standards for water quality. As discussed in Section 5.19, Wastewater, the two proposed Wastewater Reclamation Facilities (WRFs) will produce recycled water treated to unrestricted reuse standards under Title 22 of the *California Code of Regulations*. The WRFs will be issued Waste Discharge Requirements (WDRs) by the Lahontan RWQCB and will be operated in accordance with the WDRs to protect surface and groundwater quality and designated beneficial uses. MM 19-5 in Section 5.19, Wastewater, requires that WRF compliance with Title 22 and WDR requirements be confirmed in documentation submitted to the County prior to the issuance of building permits for Project development.

## **Section Format**

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to

reduce significant impacts; and level of significance after mitigation, if any. This information is presented in the following format (please refer to Section 2.0, Introduction, and Section 5.0 for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Relevant Plans, Policies, and Regulations
- Environmental Setting
- Project Design Features
- Water Quality Assessment Methodology
- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- References

## References

All references cited for preparation of this analysis are listed in Section 5.4.10. The primary technical references for this section are listed below.

1. Psomas. 2017 (April). *Centennial Master Plan Hydrology*. Santa Clarita, CA: Psomas (Appendix 5.2-A).
2. Geosyntec Consultants. 2016 (February). *Centennial Project Water Quality Technical Report*. Oakland, CA: Geosyntec Consultants (Appendix 5.4-A).

### 5.2.1 RELEVANT PLANS, POLICIES, AND REGULATIONS

#### Federal

##### *Federal Clean Water Act*

The federal Clean Water Act (CWA, *United States Code*, Title 33, Sections 1251 et seq.) requires National Pollutant Discharge Elimination System (NPDES) permits for the discharge of pollutants into “waters of the U.S.” from any point source. Point sources are discrete conveyances such as pipes or man-made ditches. Examples of pollutants include, but are not limited to, rock, sand, dirt, and agricultural, industrial, and municipal waste discharged into “waters of the U.S.”. Point sources that discharge into municipal sewer systems (e.g., such as

residential wastewater conveyance pipes) do not require individual permits, but the sewer systems do require an NPDES permit.

In California, responsibility for implementing the NPDES program has been delegated to the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs) acting under the auspices of the state board. The SWRCB and the RWQCBs typically issue NPDES permits that also include waste discharge requirements (WDRs) under State law. The Los Angeles County MS4 permit and the state General Construction Permit have been issued as NPDES permits and as WDRs and are discussed in more detail below.

The CWA requires that States adopt water quality standards for receiving water bodies, including designated beneficial uses (e.g., wildlife habitat, agricultural supply, fishing) and the water quality criteria necessary to support those uses. Water quality criteria are prescribed concentrations or levels of constituents—such as lead, suspended sediment, or fecal coliform bacteria—or narrative statements that represent the quality of water that support a particular use. Water quality standards applicable to the Project site are established in the Basin Plans adopted by the Lahontan and Los Angeles Regional Water Quality Control Boards and also in the California Toxics Rule (CTR) (40 *Code of Federal Regulations* [CFR] 131.38) adopted by the U.S. Environmental Protection Agency (see the discussion of state regulations below) under the CWA.

#### Section 303(d) of the Clean Water Act

Section 303(d) of the CWA requires that water bodies for which beneficial uses are not being achieved be listed as “impaired” and that Total Maximum Daily Loads (TMDLs) must be developed for each impairing constituent to reduce discharge levels and meet applicable water quality standards. The list of impaired water bodies is commonly referred to as the “303d list”. A TMDL is an estimate of the total load of a constituent, including a margin of safety, from point, non-point, and natural sources that a water body may receive without exceeding applicable water quality standards. Once established, a TMDL allocates the total constituent load to current and future sources that discharge to the affected water body.

Approximately 96 percent of the Project site, including locations that will be preserved in open space and remain undeveloped, are located within the Antelope Valley Watershed (93 percent of the site) and the much smaller Quail Lake Watershed to the south (3 percent of the site), both of which are within the jurisdiction of the Lahontan RWQCB. Exhibit 5.2-1, Regional Water Quality Control Board Boundaries, in Section 5.2, Hydrology and Flood, shows the jurisdictional boundaries of the Lahontan RWQCB relative to the Project site. Water bodies in the Antelope Valley Watershed that could receive flows from the Project site are not listed as impaired on the currently applicable 2010 303(d) list or the proposed 2012 303(d) list (SWRCB 2015a, 2015b).

Approximately 4 percent of the site drains to Gorman Creek, which is located about 4.5 miles downstream from the southwestern edge of the Project site. Gorman Creek is within the Santa Clara River Watershed and the Santa Clara-Calleguas Hydrologic Unit, Piru Hydrologic Area as defined in the *Water Quality Control Plan for the Los Angeles Region* (Los Angeles Basin Plan). The Santa Clara River Watershed is under the jurisdiction of the Los Angeles

RWQCB. Exhibit 5.2-1, in Section 5.2, Hydrology and Flood, shows the jurisdictional boundaries of the Los Angeles RWQCB relative to the Project site.

Gorman Creek flows to Cañada de los Alamos in the Lower Hungry Valley before discharging to Pyramid Lake about six miles downstream from the Project boundary. Downstream of Pyramid Lake, Piru Creek flows south approximately 19 miles to Piru Lake, which is formed by the Santa Felicia Dam and then for approximately 6 miles south from Piru Lake to Reach 4 of the Santa Clara River. The point of confluence with the Santa Clara River is located approximately 40 miles south of the Project site.

Stream segments listed as impaired in the approved 2010 303(d) list for the Los Angeles RWQCB within Piru Creek and Santa Clara River downstream of the Project include Reach 3 and Reach 1 (downstream of Reach 4) of the Santa Clara River; the Santa Clara River Estuary; and Piru Creek (from the confluence with the Santa Clara River to the headwaters). Reach 3 of the Santa Clara River is listed for ammonia, chloride, total dissolved solids (TDS), and toxicity. Reach 1 of the Santa Clara River, located approximately 68 miles downstream of the Project site, is listed for toxicity. The Santa Clara River Estuary (located approximately 72 miles downstream of the Project site) is listed for coliform, historical pesticides, Toxaphene, nitrate-nitrogen, and toxicity. Piru Creek is listed for boron, specific conductance, sulfates, and total dissolved solids in Santa Clara River Reach 11 (included on the list as Piru Creek from the confluence with Santa Clara River Reach 4 to the gauging station below the Santa Felicia Dam), and for chloride and hydrogen ion activity (pH) from the gauging station below the Santa Felicia Dam upstream to the creek headwaters (Los Angeles RWQCB 2006).

#### Section 401 and 404 of the Clean Water Act

Section 401 of the CWA (33 USC 1251 et seq.) requires that any person applying for a federal permit or license that may result in a discharge of pollutants into “waters of the U.S.” must obtain a State water quality certification that concludes that the activity complies with all applicable water quality standards, limitations, and restrictions. Subject to certain limitations, no license or permit may be issued by a federal agency until a Section 401-required certification has been granted. Further, no license or permit may be issued if certification has been denied. The CWA Section 404 permits and authorizations (described in the next paragraph) are subject to Section 401 certification by the local RWQCB.

Section 404 of the Clean Water Act (CWA) is a program that regulates the discharge of dredged and fill material into “waters of the U.S.”, including wetlands. Activities in “waters of the U.S.” that are regulated under this program include fills for development (including physical alterations to drainages to accommodate storm drainage, stabilization, and flood-control improvements); water resource projects (such as dams and levees); infrastructure development (such as highways and airports); and conversion of wetlands to uplands for farming and forestry. The U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE) have issued Section 404(b)(1) Guidelines (40 CFR 230) that regulate dredge and fill activities, including water quality aspects of such activities. Subpart C of Sections 230.20–230.25 contains water quality regulations applicable to dredge and fill activities. Among other topics, these guidelines address discharges that alter substrate elevation or contours; suspended particulates and water clarity; nutrients and chemical

content; current patterns and water circulation; water fluctuations (including those that alter erosion or sediment rates); and salinity gradients. As discussed in Section 5.7, Biological Resources, approximately 1 percent of all on-site and immediately adjacent water features (1.8 acres of a total of 165.5 acres) have been delineated as federally jurisdictional waters by the USACE (see Table 5.7-9, Jurisdictional Wetlands and Waters Summary, from Section 5.7, Biological Resources).

### ***Federal Antidegradation Policy***

The Federal Antidegradation Policy (40 CFR 131.12) requires that, subject to specific exceptions, existing beneficial uses and water quality levels in unimpaired waters must be maintained and that new discharges may not degrade these uses and levels. The policy implements three tiers of antidegradation requirements. Tier 1 is the most broadly applicable and requires that existing uses and the water quality levels that support existing uses must be maintained. Tier 2 applies to high quality water bodies in which existing water quality exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreational uses. Tier 3 provides special protection for “Outstanding National Resources Waters” that have been designated as unique or ecologically sensitive. Activities that would degrade existing beneficial uses and water quality can be permitted by a State under the Federal Antidegradation Policy only after completion of applicable intergovernmental coordination and public participation requirements and findings that (a) allow that lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located; (b) the State assures that, although degradation or lower water quality will occur, water quality adequate to protect existing uses will be maintained; and (c) all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control achieve the highest statutory and regulatory requirements.

## **State**

### ***California Porter-Cologne Act***

The Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act)(*California Water Code*, Sections 13000 et seq.) is California’s primary statute governing water quality and water pollution issues, including sediment transport and protection of surface waters and groundwater. The Porter-Cologne Act provides the SWRCB and nine RWQCBs with the authority to protect water quality and is the primary vehicle for implementing California’s responsibilities under the federal CWA. Each RWQCB must formulate and adopt a water quality control plan (commonly referred to as a “basin plan”) for the region within its jurisdiction. The basin plan must conform to the policies set forth in the Porter-Cologne Act and the state water policy established by the SWRCB. The basin plan establishes beneficial uses for surface and groundwaters in the region, and includes narrative and numeric water quality standards to protect those beneficial uses. Each RWQCB is also authorized to include water discharge prohibitions applicable to particular conditions, areas, or types of waste within its jurisdiction. The Act requires that, unless otherwise authorized by a general or other permit, Reports of Waste Discharge to regulated “waters of the State” must be provided to each RWQCB. The RWQCB may issue discharge permits under State law in response to a Report of Waste Discharge. These permits are commonly referred to as “waste discharge



requirements” (WDRs) and are issued by the RWQCBs for activities within each regional board’s jurisdiction.

### ***State Antidegradation Policy***

The State Antidegradation Policy (SWRCB Resolution No. 68-16), was adopted to prevent degradation of surface water and groundwater in California. The Antidegradation Policy requires that, whenever the existing quality of water is higher than the quality established in policies as of the date on which such policies become effective, the existing higher quality will be maintained until it has been demonstrated that any change (a) will be consistent with maximum benefit to the people of the state; (b) will not unreasonably affect present and anticipated beneficial use of the affected water; and (c) will not result in water quality that is lower than prescribed in the policies. The policy also provides that any activity that produces or may produce a waste or increased volume or concentration of waste and would discharge to existing high quality waters must meet waste discharge requirements that achieve the best practicable discharge treatment or control to ensure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the state will be maintained.

### ***Construction General Permit***

The NPDES program allows for the issuance of general permits that cover specific actions by multiple parties, such as construction activities. Dischargers covered under a general permit must comply with the permit terms and conditions. In 2009, the SWRCB issued the statewide Construction General Permit to regulate discharges or pollutants in storm water associated with construction activities (NPDES No. CAR000002, Water Quality Order 2009-0009-DWQ as amended by 2010-0014-DWQ and 2012-006-DWQ). Dischargers are required to obtain coverage under the Construction General Permit if a project disturbs one or more acres of soil or disturbs less than one acre, but is part of a larger common plan of development that, in total, disturbs one or more acres.

The Construction General Permit requires that projects implement an SWPPP that includes specific BMPs and establishes numeric effluent limitations to meet water quality and technology-based standards. Major components of the adopted Construction General Permit include the following:

**Risk-Based Permitting Approach.** The Construction General Permit includes a three-tiered system for discharges (identified as Risk Levels 1, 2, and 3) that is based on the relative risk a project poses to causing water quality impacts. Risk levels are established by calculating two factors: (1) the project’s sediment risk and (2) receiving water risk during periods of soil exposure (i.e., grading and site stabilization) (SWRCB 2015b). Sediment risk is determined by the relative amount of sediment that can be discharged from the construction site given the duration of construction, project location, and other project site details. Receiving water risk is based on whether a project drains to a sediment-sensitive waterbody. A high-risk waterbody has one of the following conditions:

- It is listed as impaired for sediment on the most recent List of Impaired Water bodies maintained in compliance with CWA Section 303(d).

- It has a USEPA-approved Total Maximum Daily Load implementation plan for sediment.
- Has been designated in an applicable basin plan for COLD (cold freshwater habitat), SPWN (spawning, reproducing and/or early development), and MIGR (migration of aquatic organisms) beneficial uses.

Depending on the level of risk identified for a project, the Construction General Permit requirements progressively increase. Certain short-duration projects of less than five acres and constructed during one dry season may qualify for a rainfall erosivity waiver under the permit.

**Numeric Action Levels and Numeric Effluent Limitations.** To be covered by the Construction General Permit, dischargers must meet specific Numeric Action Levels (NALs) for pH and turbidity. Exceedance of an NAL does not constitute a permit violation, but does trigger mandatory implementation of additional BMPs and/or corrective actions. In addition, the Construction General Permit requires that Risk Level 3 dischargers with direct discharges to surface waters monitor the receiving water body if an effluent sampling result exceeds receiving water monitoring triggers (effluent pH outside the range of 6.0 and 9.0 pH units or turbidity exceeding 500 Nephelometric Turbidity Units [NTU]). Where active treatment systems are used, dischargers must meet Numeric Effluent Levels (NELs) for turbidity. Exceedances of the Active Treatment System turbidity NEL are considered to be violations of the Construction General Permit.

**Post-Construction Standards.** The Construction General Permit requires that the pre-project water balance (i.e., the volume of rainfall that ends up as runoff) be replicated under post-construction conditions for the smallest storms up to the 85<sup>th</sup> percentile storm event (or the smallest storm event that generates runoff, whichever is larger). In addition, for projects that disturb more than two acres, the post-project time of runoff concentration must be equal to or greater than pre-project time of concentration. Finally, BMPs to reduce pollutants in storm water discharges that are reasonably foreseeable after all construction phases have been completed must be implemented under the permit.

**Best Management Practices.** The Construction General Permit specifies mandatory, minimum BMPs to prevent storm water pollution and post-construction impacts. The required level of BMPs increases with a project's risk level. The minimum BMPs for all projects include site run-on control, perimeter controls, and good housekeeping practices, among numerous other requirements. BMPs must be implemented to meet the Best Available Technology Economically Achievable (BAT)/Best Conventional Pollutant Control Technology (BCT) standard.

**Rain Event Action Plan.** During the rainy season, the permit requires that adequate sediment-control materials be available to control sediment discharges in the event of a predicted storm. Risk Level 2 and 3 sites must also develop and implement a Rain Event Action Plan (REAP) designed to protect all exposed portions of the site within 48 hours prior to any likely precipitation event. A written REAP specific for each rain event is required whenever there is a 50 percent or greater chance of receiving precipitation in the project area.

---

**Monitoring and Reporting Requirements.** In addition to visual monitoring at all sites, the Construction General Permit requires the following:

- Sampling, analysis, and monitoring requirements for non-visible pollutants at all sites;
- Effluent and receiving water monitoring for pH and turbidity for all Risk Level 3 sites;
- Receiving water bioassessment sampling before and after project completion for larger Risk Level 3 sites; and
- Submission of an Annual Report no later than September 1 of each year must be electronically submitted via the SMARTS website. Each Annual Report must include sampling data, a summary of all exceedances and violations, corrective actions, names of all responsible parties, and training documentation.

### ***Title 22 (California Water Code)***

The requirements of Title 22—as revised in 1978, 1990, 2001, and 2014—establish the quality and/or treatment processes required for recycled water to be used for a non-potable application. In addition to recycled water uses and treatment requirements, Title 22 addresses (1) sampling and analysis requirements at a treatment plant; (2) preparing an engineering report prior to production or use of recycled water; and (3) ensuring there are general treatment design requirements, reliability requirements, and alternative methods of treatment. Permits are issued to each water recycling project by one of the nine RWQCBs. These permits include water quality and public health protections, as detailed in Title 22.

### ***California Green Building Standards (CALGreen) Code***

In January 2013, the State of California enacted the third revision of the California Green Building Standards (CALGreen Code) Code as part 11 of the California Building Standards Code (Title 24). CALGreen measures are designed to improve public health, safety, and general welfare by utilizing design and construction methods that reduce the negative environmental impact of development and encourage sustainable construction practices.

CALGreen provides mandatory direction to developers of all new construction and renovations of residential and non-residential structures with regard to all aspects of design and construction, including but not limited to site drainage design, storm water management, and water use efficiency. Required measures are accompanied by a set of voluntary standards that are designed to encourage developers and cities to aim for a higher standard of development.

Under CALGreen, all residential and non-residential sites are required to be planned and developed to keep surface water from entering buildings and to incorporate efficient outdoor water use measures. Construction plans are required to show appropriate grading and surface water management methods such as swales, water collection and disposal systems, French drains, water retention gardens, and other water measures that keep surface water away from buildings and aid in groundwater recharge. Plans should also include outdoor water use plans that utilize weather- or soil-moisture-controlled irrigation systems. Non-residential structures are also required to develop an irrigation water budget

for landscapes greater than 2,500 square feet that conforms to a local water efficient landscape ordinance or to the State's Model Water Efficient Landscape Ordinance (MWELo) where no local ordinance is applicable. The MWELo was recently updated by the California Governor's Drought Executive Order (B-19-25) on July 15, 2015. The MWELo requirements for the project are discussed in Section 5.18, Water Resources.

### ***California Toxics Rule (CTR)***

The California Toxics Rule (CTR, 40 CFR 131.38) is a federal regulation issued by the USEPA that provides water quality criteria for potentially toxic constituents in California surface waters with human-health or aquatic-life designated uses. The USEPA adopted the CTR in 2000 to create legally applicable water quality criteria for priority toxic pollutants for inland surface waters, enclosed bays, and estuaries to protect human health and the environment for all purposes and programs under the CWA. The CTR aquatic life criterion was derived using a CWA Section 304(a) method that produces an estimate of the highest concentration of a substance in water which does not present a significant risk to the aquatic organisms in the water and their uses. The CTR water quality criteria provide a reasonable and adequate amount of protection with only a small possibility of substantial overprotection or under protection.

The CTR's numerical aquatic life criteria are expressed as short-term (acute) and long-term (chronic) averages, rather than one number, in order that the criterion more accurately reflect toxicological and practical realities. Acute criteria represent the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time (one hour) without deleterious effects. Chronic criteria represent the highest concentration to which aquatic life can be exposed for an extended period of time (four days) without deleterious effects. Due to the intermittent nature of storm water runoff in Southern California, the acute criteria are considered to be more applicable to storm water conditions than chronic criteria and therefore are used in assessing Project impacts.

CTR criteria are applicable to the receiving water body. The metals criteria, which are expressed as a function of receiving water hardness, must be calculated based on the probable hardness values of the Project's receiving waters for evaluation of acute and chronic toxicity criteria. At higher hardness values, copper, lead, and zinc are more likely to be complexed or bound with other components in the water column, which reduces the bioavailability and resulting potential toxicity of the affected metals. Available hardness data for runoff in the Project vicinity (i.e., data from Piru Creek, see Table 5.4-1 in Section 5.4.3 below) averages approximately 589 milligrams per liter (mg/L) as calcium carbonate (CaCO<sub>3</sub>) and the maximum hardness value used to calculate metals criteria in the CTR (CFR 131.38[c][4][b][2]) is 400 mg/L. As a result, a hardness value of 400 mg/L as CaCO<sub>3</sub> was used to approximate CTR criteria for metals in the project's water quality analysis.

### ***Title 3 (California Code of Regulations)***

To address concerns that pyrethroid (i.e. chemicals contained in some pesticides) concentrations found in California surface waters are negatively affecting water quality, the California Department of Pesticide Regulation (CDPR) adopted Section 6970 in Title 3 of the *California Code of Regulations* (CCR), titled "Surface Water Protection in Outdoor

Nonagricultural Settings”. The aim of these regulations is to reduce the amount of runoff from 17 pyrethroids commonly applied outdoors by any person performing pest control for hire (i.e., pest control businesses). Primarily, the regulations restrict applications made to and around impervious horizontal surfaces (e.g., building exteriors, foundations, walkways, and driveways), which are believed to be the primary transport conduit of pesticides from urban landscapes. The statewide regulations became effective on July 19, 2012.

## **Regional**

### ***Basin Plans***

Portions of the Project site are subject to basin plans adopted by the Lahontan RWQCB and the Los Angeles RWQCB (Lahontan RWQCB 1994; Los Angeles RWQCB 2006, both as amended). The basin plans provide quantitative and narrative criteria for water quality constituents applicable to receiving surface and ground water within the Lahontan and Los Angeles RWQCB jurisdictions. Specific criteria are provided for larger water bodies within the two regions, and general criteria or guidelines are established for ocean waters, bays and estuaries, inland surface waters, and groundwater. In general, the narrative criteria preclude water quality degradation that would adversely impact a water body’s designated beneficial uses. For example, the Lahontan Basin Plan states that surface waters shall not contain suspended or settleable solids in amounts which “cause nuisance or adversely affect the water for beneficial uses” (Lahontan RWQCB 1994). Water quality criteria apply to receiving waters and do not apply directly to runoff prior to contact with applicable receiving waters.

The Basin Plans contain narrative and numerical water quality criteria for groundwater. For example, the Lahontan Basin Plan requires that “Ground waters shall not contain taste or odor producing substances in concentrations that cause nuisance or adversely affect beneficial uses” (Lahontan RWQCB 1994). For groundwaters designated for municipal beneficial uses, the Basin Plan requires that constituent concentrations not exceed maximum contaminant levels (MCLs) or adopted Secondary Maximum Contaminant Levels (SMCLs) specified in Title 22 of the *California Code of Regulations* (CCR). Maximum contaminant levels are the primary drinking water standards established for public water systems to prevent adverse health effects. Secondary maximum contaminant levels apply to contaminants that will not cause adverse health effects such as water color, taste, and odor.

### ***Regional Water Quality Control Board Construction General Waste Discharge Requirements***

#### Lahontan Regional Water Quality Control Board

The Lahontan RWQCB has issued General WDRs and NPDES Permit requirements (under Order No. R6T-2014-0049, NPDES No. CAG996001) for limited threat discharges to surface waters (Limited Threat Discharge Permit). The permit covers construction dewatering in addition to the following discharge categories:

- Diverted stream flows
- Dredge spoils dewatering

- Subterranean seepage dewatering
- Well construction and pump testing of aquifer supplies
- Geothermal well testing
- Hydrostatic testing, maintenance, repair, and disinfection of potable water supply pipelines, tanks, reservoirs, and other similar facilities
- Water treatment plant backflushing, residuals, and wasting
- Fire hydrant testing or flushing
- Hydrostatic testing of newly constructed pipelines, tanks, reservoirs, and other facilities used for purposes other than potable water supply (e.g., gas, oil, reclaimed water)

The Limited Threat Discharge Permit contains discharge prohibitions, receiving water limitations, and monitoring and reporting requirements.

#### Los Angeles Regional Water Quality Control Board

The Los Angeles RWQCB has issued a General NPDES Permit and General WDRs (Los Angeles RWQCB Order No. R4-2013-0095; NPDES No. CAG994004 [RWQCB 2013]) governing construction-related dewatering discharges. This permit, known as the General Dewatering Permit, addresses discharges from temporary dewatering operations associated with construction and permanent dewatering operations associated with development. The discharge requirements include provisions mandating notification, sampling and analysis, and reporting of dewatering and testing-related discharges. The General Dewatering Permit authorizes applicable construction-related dewatering activities so long as all conditions of the permit are fulfilled.

### **County of Los Angeles**

#### ***Storm Water Permitting (Municipal Separate Storm Sewer System Permit)***

In 2012, the Los Angeles RWQCB issued an MS4 permit covering Los Angeles County and several municipalities within the County in accordance with the federal NPDES permit program and WDRs under State law (CAS004001, Order No. R4-2012-0175) (MS4 Permit). In 2013, the County amended Chapter 12.84 of the Los Angeles County Code to require that new development utilize LID BMPs in conformance with the MS4 Permit. In 2014, the County prepared the LID Standards Manual to provide guidance for new development in meeting the storm water runoff standards in Chapter 12.84 of the County Code and in the MS4 Permit.

#### County Low Impact Development Ordinance

As amended in 2013, Chapter 12.84 requires that new development do the following:

- Mimic undeveloped storm water runoff rates and volumes in any storm event up to and including the “Capital Flood” event (a 50-year storm).

- Prevent pollutants of concern from leaving the development site in storm water as the result of storms, up to and including a water quality design storm event.
- Minimize hydromodification impacts to natural drainage systems.

To achieve these objectives, Chapter 12.84 requires compliance with one or more of the following standards:

- 1) The project shall retain 100 percent of the Storm Water Quality Design Volume (SWQDv) on site, through infiltration, evapotranspiration, rainfall harvest and use, or a combination thereof, unless the Director of Public Works determines that it would be technically infeasible to do so;
- 2) If the Director determines that it would be technically infeasible to retain 100 percent of the SWQDv on site, the project shall comply with one of the following alternative compliance measures:
  - a. The project shall provide for on-site biofiltration of 1.5 times the portion of the SWQDv that is not retained on-site;
  - b. The project shall include infiltration or bioretention BMPs to intercept the portion of the SWQDv that is not retained on site at an off-site location, as approved by the Director of Public Works. The project shall also provide for treatment of the portion of the SWQDv discharged from the project site, as approved by the Director of Public Works;
  - c. The project shall provide for the replenishment of groundwater supplies that have a designated beneficial use in the Basin Plan.
    - i. Groundwater replenishment projects shall include infiltration or bioretention BMPs to intercept the portion of the SWQDv that is not retained on site at an off-site location, as approved by the Director of Public Works.
    - ii. Groundwater replenishment projects shall also provide for treatment of the portion of the SWQDv discharged from the project site, as approved by the Director of Public Works.
  - d. The project shall include infiltration, bioretention, or rainfall harvest and use BMPs to retrofit an existing development with similar land uses as the project to intercept the portion of the SWQDv that is not retained on-site
  - e. The County, independently or in conjunction with one or more cities, may apply to the RWQCB for approval of a regional or subregional storm water mitigation program to substitute in part or wholly for the provisions of Chapter 12.84 for the area covered by the regional or sub-regional storm water mitigation program. If the RWQCB approves the program, provisions of the program shall apply in lieu of any conflicting provisions of Chapter 12.84.

Development projects that consist of five or more residential units, or nonresidential development projects, must further comply with the following standards:

The excess storm water runoff volume ( $\Delta V$ , defined by the LACDPW as the post-developed runoff volume minus the pre-developed runoff volume for the 85<sup>th</sup> percentile storm event) from each lot upon which such development is occurring shall be infiltrated at the lot level or in the alternative, the excess storm water runoff volume from the entire development site (including streets and public rights-of-way) shall be infiltrated in sub-regional infiltration facilities built for this specific purpose. The tributary area of a sub-regional infiltration facility shall be limited to five acres, but may be exceeded with approval of the Director of the LACDPW. When infiltration of all excess storm water runoff volume is not technically feasible, on-site storage, reuse, or other water conservation uses of the excess runoff volume is required and shall be implemented as authorized by the Director of the LACDPW in accordance with the requirements and provisions of the LID Standards Manual.

#### County Low Impact Development Standards Manual

The 2014 LID Standards Manual was prepared by the LACDPW and updates and provides a compilation of the following documents:

- Development Planning for Storm Water Management: A Manual for the Standard Urban Storm Water Mitigation Plan (SUSMP Manual, September 2002).
- Technical Manual for Stormwater Best Management Practices in the County of Los Angeles (2004 Design Manual, February 2004).
- Stormwater Best Management Practice Design and Maintenance Manual (2010 Design Manual, August 2010).
- Low Impact Development Standards Manual (2009 LID Manual, January 2009).

The LID Standards Manual also supersedes the water quality portions of the following ordinances and policies:

- Water Quality section of the Los Angeles County Hydrology Manual;
- Interim Drainage Policy for Quartz Hill;
- Acton Interim Drainage Policy and Guidelines;
- Antelope Valley Interim Drainage Policy;
- Financing the Cost to Maintain Standard Urban Stormwater Mitigation Plan Devices/Systems;
- Permanent Standard Urban Storm Mitigation Plan Devices for No Fee Miscellaneous Transfer Drains, Small Drainage Systems, and Storm Drain Connection Permits;
- Interim Peak Flow Runoff Criteria for New Development;
- Policy for New Percolation Basin Testing, Design, and Maintenance; and



- Clarification on the Policy for Financing the Cost to Maintain Standard Urban Stormwater Mitigation Plan (SUSMP) Devices/Systems Constructed by New Development or Other Agencies (LACDPW 2014).

The LID Standards Manual requires that “Designated Projects”, which include large scale residential and nonresidential development projects, prioritize the selection of BMPs to retain 100 percent of the SWQDv on site through infiltration, evapotranspiration, storm water runoff harvest and use, or a combination thereof, unless it is demonstrated that it is technically infeasible to do so. BMPs should be implemented in the following order of preference: (1) infiltration and/or bioretention and (2) storm water runoff harvest and use.

Designated Projects that are unable to fully retain the SWQDv on site through retention-based storm water quality control measures must implement alternative compliance measures (e.g., on-site biofiltration, off-site groundwater replenishment, off-site infiltration and/or bioretention, and off-site retrofit). Prior to off-site mitigation, the portion of the SWQDv that cannot be reliably retained on site must be treated to meet effluent quality standards.

The LID Standards Manual indicates site conditions where infiltration may not be possible, including the following:

- Locations where the corrected in-situ infiltration rate is less than 0.3 inch per hour and it is not technically feasible to amend the in-situ soils to attain an infiltration rate necessary to achieve reliable performance of retention-based storm water quality control measures for the SWQDv on site;
- Locations where seasonal high groundwater is within 10 feet of the surface;
- Locations within 100 feet of a groundwater well used for drinking water;
- Brownfield development sites or other locations where pollutant mobilization is a documented concern;
- Locations with potential geotechnical hazards;
- Smart growth and infill or redevelopment locations where the density and/or nature of the project would create significant difficulty for compliance with the on-site retention requirement;
- Locations where infiltration could cause adverse impacts to biological resources; and
- Locations where infiltration would cause health and safety concerns.

The LID Standards Manual also states where runoff harvest and use may not be possible:

- Projects that would not provide sufficient irrigation or (where permitted) domestic greywater demand for use of stored runoff due to limited landscaping or extensive use of low-water-use plant palettes in landscaped areas.
- Projects that are required to use recycled water for irrigation of landscaping.

- Development projects in which the storage and reuse of storm water runoff would conflict with local, State, or federal ordinances or building codes.
- Locations where storage facilities would cause potential geotechnical hazards, as outlined in a report prepared by a licensed geotechnical engineer.
- Locations where storage facilities would cause health and safety concerns.

Chapter 12.84 and the LID Standards Manual establish requirements for hydromodification, hydrology (flood) and water quality control and require projects to fully mitigate for off-site drainage impacts caused by hydromodification and changes in water quality, flow velocity, flow volume, and the depth/width of flow, as determined by the Director of Public Works, in accordance with the requirements and provisions specified in the LID Standards Manual. If the Director of Public Works determines that it is infeasible for a project to comply with applicable mitigation standards, then the project must obtain written consent to the unmitigated impacts from the owner of every impacted downstream property. In addition, the project must comply with one of the following alternative requirements:

1. The project shall infiltrate on site at least the runoff from a 2-year, 24-hour rainfall event;
2. The runoff flow rate, volume, velocity, and duration for the project's post-development condition shall not exceed the pre-development condition for the 2-year, 24-hour rainfall events; or
3. The erosion potential (Ep) as defined in the LID Standards Manual in the receiving water channel shall approximate 1, as demonstrated by a hydromodification analysis study approved by the Director of Public Works.

### ***Los Angeles County Green Building Standards Code***

In 2008, the County adopted the Green Building Program, which included the Drought-Tolerant Landscaping, Green Building, and Low Impact Development Ordinances (the Ordinances), and created an Implementation Task Force and Technical Manual. In November 2013, in response to the mandates set forth in the 2010 CALGreen Code, the Board of Supervisors adopted the Los Angeles County Green Building Standards Code (Title 31). The CALGreen Code and the Ordinances adopted in 2008 comprise the County's primary green building and low impact development standards. The County Green Building Standards Code requires that post-construction landscape designs comply with all of the following:

1. Turf areas shall not exceed 25 percent of the total landscaped area.
2. Non-invasive, drought-tolerant plant and tree species appropriate for the climate zone region shall be utilized in at least 75 percent of the total landscaped area.
3. Hydrozoning irrigation techniques shall be incorporated into the landscape design.

In addition, a water budget must be developed for landscape irrigation use that conforms to the state MWELo, which was recently updated by the California Governor's Drought Executive Order (B-19-25) on July 15, 2015. The MWELo requirements for the project are discussed in Section 5.18, Water Resources.

---

***Los Angeles County General Plan and Antelope Valley Area Plan***

The *Los Angeles County General Plan* and the *Antelope Valley Area Plan (AVAP)*, part of the County General Plan, were updated in 2015 and include goals and policies that address water quality issues in the unincorporated County. The AVAP goals and policies applicable to the analysis of water quality with Project implementation are listed below. Section 5.8, Land Use, Entitlements, and Planning, presents a more in-depth analysis of the Project's consistency with relevant plans, policies and regulations.

**Goal LU 2:** A land use pattern that protects environmental resources.

**Policy LU 2.5:** Except within economic opportunity areas, limit the amount of potential development in riparian areas and groundwater recharge basins, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

**Goal COS 1:** Growth and development are guided by water supply constraints.

**Policy COS 1.3:** Limit the amount of potential development in groundwater recharge areas through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

**Goal COS 2:** Effective conservation measures provide an adequate supply of clean water to meet the present and future needs of humans and natural ecosystems.

**Policy COS 2.3:** Require onsite stormwater infiltration in all new developments through the use of appropriate measures, such as permeable surface coverage, permeable paving of parking and pedestrian areas, catch basins, and other low impact development strategies.

**Goal COS 3:** A clean water supply untainted by natural and man-made pollutants and contaminants.

**Policy COS 3.1:** Discourage the use of chemical fertilizers, herbicides and pesticides in landscaping to reduce water pollution.

**Policy COS 3.4:** Support preservation, restoration and strategic acquisition of open space to preserve natural streams, drainage channels, wetlands, and rivers, which are necessary for the healthy functioning of ecosystems.

**Policy COS 3.5:** Protect underground water supplies by enforcing controls on sources of pollutants.

**Policy COS 3.6:** Support and encourage water banking facilities throughout the Antelope Valley, including within Significant Ecological Areas.

**Goal COS 17:** Buildings are sustainable, conserving energy, water, and other resources, and limiting greenhouse gas emissions.

**Policy COS 17.8:** Require onsite stormwater infiltration in all new developments through use of appropriate measures, such as permeable surface coverage, permeable paving of parking and pedestrian areas, catch basins, and other low impact development strategies.

**Goal PS 3:** Protection of the public through flood hazard planning and mitigation.

**Policy PS 3.2:** Require onsite stormwater filtration in all new developments through use of appropriate measures, such as permeable surface coverage, permeable paving of parking and pedestrian areas, catch basins, and other low impact development strategies.

**Policy PS 3.3:** Review the potential local and regional drainage impacts of all development proposals to minimize the need for new drainage structures.

## 5.2.2 ENVIRONMENTAL SETTING

### Regional Watershed

Approximately 96 percent of the Project site, including locations that will be preserved in open space and remain undeveloped, is located within the Antelope Valley Watershed (93 percent of the site) and the much smaller Quail Lake Watershed to the south (3 percent of the site), both of which are within the jurisdiction of the Lahontan RWQCB. Approximately 4 percent of the site drains to Gorman Creek, which is located about 1.5 miles downstream from the southwestern edge of the Project site. Gorman Creek is within the Santa Clara River Watershed and the Santa Clara-Calleguas Hydrologic Unit, Piru Hydrologic Area as defined in the *Water Quality Control Plan for the Los Angeles Region* (Los Angeles Basin Plan). The Santa Clara River Watershed is under the jurisdiction of the Los Angeles RWQCB. Exhibit 5.2-1, Regional Water Quality Control Board Boundaries, in Section 5.2, Hydrology and Flood, shows the jurisdictional boundaries of the Los Angeles and Lahontan RWQCBs relative to the Project site.

As shown on Exhibit 5.2-2, Drainage Areas on the Project Site, in Section 5.2, four drainage systems extend into portions of the Project site. The two largest systems are the East Drainage Area and the Oso Creek Drainage Area. Portions of the Gorman Creek Drainage Area and the Quail Lake Drainage Area also extend into the west and southwest portions of the site. Larger canyons that convey channel flows in the Project area include Oso Canyon and Tentrock Canyon. Little Sycamore Creek and Los Alamos Creek are tributary to Oso Creek and traverse through a small portion of the site from the north.

As discussed in Section 5.2, Hydrology and Flood, and in Section 5.7, Biological Resources , the Project will avoid most of the watercourses and watershed area in the Gorman Creek, Quail Lake, and Oso Creek Drainage Areas (see Exhibit 5.2-2, Drainage Areas on the Project Site, in Section 5.2). Approximately 10 percent of the proposed development would occur

west of the West Branch of the Aqueduct, and drainage impacts in this area would primarily affect Oso Creek tributaries flowing north from the southern side (i.e., the northerly face) of Oso Canyon. Drainage impacts in the Gorman Creek Drainage Area would largely be avoided. No watercourse impacts would occur in the Quail Lake Drainage Area.

Approximately 90 percent of the proposed development would occur east of the West Branch of the Aqueduct. As discussed in Section 5.2, Hydrology and Flood, and in Section 5.7 Biological Resources, most of the Project impacts to existing watercourses would occur in the East Drainage Area (see Exhibit 5.2-2 in Section 5.2). Smaller drainages in this location would generally be integrated with the Project's storm drain system. Flow patterns associated with several existing larger tributary systems, including East Tributary systems and the Cow Spring Canyon, Horse Camp Canyon, the 300<sup>th</sup> Street Tributary systems, will largely be maintained by avoiding or constructing flow controls within existing channels or by recreating existing channels after site grading. Flow, LID, and hydromodification management facilities (e.g., detention and retention basins) will be constructed adjacent to channels, primarily in downstream reach locations. Approximately 17 basins would be at the elevation of the development pads, 3 would be adjacent to a channel, and 8 would be within a channel.

The following sections provide additional information about existing conditions in the four drainage areas that extend into the Project site, as shown on Exhibit 5.2-2.

### ***East Drainage Area***

The East Drainage Area includes approximately 18,910 acres, of which 41 percent is within the Project site. Flows in the drainage that are conveyed through the East Tributary systems originate just west of the West Branch of the Aqueduct where flows are conveyed under the Aqueduct via existing culverts. All watersheds contributing runoff to the East Tributaries are located within the Project site and within areas of proposed development. Flows from the north-facing slopes of La Liebre Mountain are conveyed to the north and east under State Route (SR) 138 through Cow Spring Canyon, Horse Camp Canyon, the 300<sup>th</sup> Street Tributary, Tentrock Canyon, and lower-lying tributaries. Ground elevations within the East Drainage Area range from 2,960 feet above mean sea level (msl) to 5,800 feet above msl. Flows from the East Drainage Area reach the East Branch of the Aqueduct to the east of the Project boundary and are conveyed by crossings at 292<sup>nd</sup> Street and 286<sup>th</sup> Street. In low-flow conditions, East Drainage Area flows are infiltrated in the valley floor prior to reaching the Aqueduct crossings.

### ***Oso Canyon Drainage Area***

The Oso Canyon Drainage Area drains a total of approximately 20,040 acres, of which approximately 18 percent is located within the Project site. Ground elevations within the drainage range from 3,000 feet above msl to 4,500 feet above msl. The primary watercourse in the Oso Canyon Drainage Area is Oso Canyon Creek (Oso Creek), which originates in the Tehachapi Mountains to the northwest of the site. Oso Creek drains northwest to east through the northern part of the site and merges with Los Alamos Creek at the eastern site boundary. The flows are conveyed across the West Branch of the California Aqueduct; reenter the extreme eastern portion of the site; and then merge with flows from Little

Sycamore Canyon off site after crossing the East Branch of the Aqueduct. Flows in the main stem of Oso Creek are typically ephemeral in the Project area and generally infiltrate when they reach the valley floor under low-flow conditions.

### ***Quail Lake Drainage Area***

The Quail Lake Drainage Area encompasses approximately 2,030 acres, of which approximately 17 percent is within the Project site. Ground elevations in the drainage range from 3,320 feet above msl at Quail Lake to approximately 3,600 feet above msl. Quail Lake is one of 29 storage facilities used to convey water in the State Water Project (SWP) and is managed by the California Department of Water Resources (DWR). The SWP conveyance system, including Quail Lake, is used to provide imported water for urban and agricultural uses throughout California, including Southern California. The lake was historically a sag pond along the San Andreas Fault and was expanded to store approximately 7,500 acre-feet of imported water from the West Branch of the Aqueduct. The SWP system conveys water from Quail Lake south to Pyramid Lake and further downstream to Castaic Lake, which is the southern terminus of the West Branch of the California Aqueduct. Pyramid Lake stores SWP water for delivery to Southern California, provides regulated storage for the Castaic power plant, and provides flood protection along Piru Creek. Downstream of Pyramid Lake, Piru Creek flows south approximately 20 miles to Piru Lake, which is formed by the Santa Felicia Dam and then for approximately 6 miles south to Reach 4 of the Santa Clara River. The point of confluence with the Santa Clara River is located approximately 35 miles south of the Project site.

### ***Gorman Drainage Area***

The Gorman Drainage Area encompasses approximately 960 acres, of which approximately 52 percent is within the Project site boundaries. The primary direction of surface water flow is westerly along SR-138. Ground elevations range from 3,100 feet above msl at the outlet to Gorman Creek to 3,600 feet above msl in the drainage. As shown in Exhibit 5.2-2, the Gorman Tributary flows into Gorman Creek about 1.5 miles downstream from the Project boundary. Gorman Creek flows to Cañada de los Alamos in the Lower Hungry Valley before discharging to Pyramid Lake about six miles downstream from the Project boundary.

### ***Existing On-Site Channels***

The Project site is predominately undeveloped with localized changes related to ongoing livestock grazing and agriculture. Most of the Project site is currently used for cattle grazing, which has occurred for over 150 years. Portions of the eastern site are used for agriculture. A few residential dwellings are located near the center of the northern property line, including single-family units and several trailers used in support of grazing and property caretaking activities. An inactive hunters' camp, located in the western portion of the site, consists of six trailers, a shooting range, and two outhouses. The site contains two aboveground water storage tanks and a water well (Geosyntec 2016a).

Several unpaved roads exist on the Project site. Paved roadways also traverse portions of the site that provide access to the National Cement Plant located to the north, facilities associated with the Aqueduct, and agricultural operations. SR-138 traverses through the southern

portion of the Project site, and 300<sup>th</sup> Street West runs north from SR- 138. Several siphons and culverts have been installed in conjunction with the Aqueduct to convey flows from existing drainages over or under the Aqueduct. Minor agricultural drainage ditches have also been constructed in certain locations (Geosyntec 2016a).

The existing site channel network is generally a dynamic (i.e., changing) system originating locally in the foothills of the Tehachapi Mountains to the west and north of the site and the La Liebre Mountains to the south. Uplift along the San Andreas Fault has tipped the valley floor down toward the north causing drainage channels to trend along south facing hill slopes. In the downstream and eastern portions of the Oso Canyon and East Drainage Areas, the alluvial valley floor is broader, the longitudinal slope is flatter, and the bed and banks consist of unconsolidated sands and fine gravel that promotes infiltration. East of the Aqueduct, and outside the Project's northeastern boundary, the channels become less defined and Oso Creek and the Eastern Drainage Area channels disappear into flat agricultural areas associated with the western portion of Antelope Valley (Geosyntec 2016a).

### Surface Water Designated Beneficial Uses

Receiving waters for the Project site include drainages within the Antelope Valley Watershed, which is regulated by the Lahontan RWQCB, and within the Gorman Drainage Area, which is regulated by the Los Angeles RWQCB (see Exhibit 5.2-1, Regional Water Quality Control Board Boundaries, in Section 5.2, Hydrology and Flood).

The Lahontan Basin Plan lists existing or potential beneficial uses of major water bodies in the Antelope Valley. Waters that could receive flows from the Project site in the Antelope Valley Watershed are subject to the beneficial uses designated in the Basin Plan for "Minor Surface Waters", which include the following (Lahontan RWQCB 1994):

- **MUN:** Community, military, or individual water supply systems including, but not limited to, drinking water supply (existing or potential).
- **AGR:** Agricultural supply waters used for farming, horticulture, or ranching (existing or potential).
- **GWR:** Natural or artificial groundwater recharge (existing or potential).
- **FRSH:** Natural or artificial maintenance of surface water quantity or quality (e.g., salinity) (existing or potential).
- **REC-1:** Recreational bodily contact with water, where ingestion is reasonably possible (existing or potential).
- **REC-2:** Recreational activities involving contact in proximity to water, but not involving body contact (existing or potential).
- **COMM:** Commercial or recreational collection of fish or other organisms (existing or potential).
- **COLD:** Cold freshwater habitat to support cold water ecosystems (existing or potential).
- **WILD:** Waters that support wildlife habitats (existing or potential).

- **RARE:** Waters that support rare, threatened, or endangered species and their associated habitats (existing or potential).
- **SPWN:** High quality aquatic habitats suitable for reproduction and early development of fish (existing or potential).

The Los Angeles Basin Plan designates beneficial uses for water bodies in the Los Angeles RWQCB region. Beneficial uses for the Gorman Creek Tributary that could receive flows from the Project site are not specifically identified. The following beneficial uses are designated in the Los Angeles Basin Plan for Gorman Creek, which located downstream from the tributary (Los Angeles RWQCB 2006):

- **MUN:** Community, military, or individual water supply systems including, but not limited to, drinking water supply (intermittent and conditional [i.e., may be considered for exemptions at a later date]).
- **AGR:** Agricultural supply waters used for farming, horticulture, or ranching (intermittent).
- **GWR:** Natural and artificial groundwater recharge (intermittent).
- **REC-1:** Recreational bodily contact with water where ingestion is reasonably possible (intermittent).
- **REC-2:** Recreational activities involving contact in proximity to water (intermittent).
- **WARM:** Warm freshwater habitat to support warm water ecosystems (intermittent).
- **COLD:** Cold freshwater habitat to support cold water ecosystems (intermittent).
- **WILD:** Wildlife habitat waters that support wildlife habitats (existing).
- **RARE:** Waters that support rare, threatened, or endangered species and their associated habitats (potential).

## Groundwater Designated Beneficial Uses

Approximately 96 percent of the Project site, including locations that will be preserved in open space and remain undeveloped, is located within the Antelope Valley and Quail Lake Watersheds and is subject to the jurisdiction of the Lahontan RWQCB. As discussed in Section 5.18, Water Resources, in December 2015 the Superior Court of California entered an adjudication Judgment and Physical Solution in the consolidated Antelope Valley Groundwater Cases litigation. A copy of the Judgment and Physical Solution is attached as Appendix 5.18-E of this Draft EIR. The adjudication regulates groundwater use in the Antelope Valley Basin and its surrounding watershed to avoid overdraft conditions and to ensure that future groundwater production is consistent with a total sustainable yield of approximately 110,000 acre-feet per year. As shown on Exhibit 5.4-1, Groundwater Basins in the Project Area, most of the Project site is located within the adjudication area boundary, including the Antelope Valley Groundwater Basin and its contributing watershed (also see Exhibit 5.18-3 in Section 5.18, Water Resources, for a map of the Antelope Valley Adjudication Area, as defined in the litigation).



The groundwater basin and watershed includes low lying alluvial portions of the Antelope Valley in Los Angeles County and Kern County, which receive flows from drainages that originate in the surrounding mountains and foothills. Most of the surrounding drainages flow only during storm events and are dry during other periods. In general, the valley floor lacks defined natural channels outside the foothills and is subject to unpredictable sheet-flow patterns. For more information concerning the Antelope Valley Watershed, please see Section 5.18.3, Environmental Setting, Antelope Valley Groundwater Basin. For more information regarding site geology, topography and drainage characteristics, please see Section 5.7.3, Biological Resources, Environmental Setting, Characteristics of the Site.

The Lahontan Basin Plan designates the following beneficial uses for the Antelope Valley Groundwater Basin (Lahontan RWQCB 1994):

- **MUN:** Community, military, or individual water supply systems including, but not limited to, drinking water supply (existing or potential).
- **AGR:** Agricultural supply waters used for farming, horticulture, or ranching (existing or potential).
- **IND:** Industrial activities that do not depend primarily on water quality (existing or potential).
- **FRSH:** Natural or artificial maintenance of surface water quantity or quality (e.g., salinity) (existing or potential).

A small portion (approximately four percent) of the southwestern corner of the Project site is connected to the Hungry Valley and Peace Valley Groundwater Basins included in the Los Angeles Basin Plan. The Basin Plan designates the following beneficial uses for these basins (Los Angeles RWQCB 2006):

- **MUN:** Community, military, or individual water supply systems including, but not limited to, drinking water supply (existing).
- **IND:** Industrial activities that do not depend primarily on water quality (potential).
- **PROC:** Industrial activities that depend primarily on water quality (existing).
- **AGR:** Agricultural supply waters used for farming, horticulture, or ranching (existing).

### **Existing Receiving Water Quality (Surface and Groundwater)**

Water quality data for the Project site's receiving waters are limited. The USGS and the DWR regularly monitor water quality in the California Aqueduct, but existing water quality data for Oso Creek, the East Drainage Area drainages, Gorman Creek, and Quail Lake are not available. Groundwater monitoring has been conducted in the Project vicinity (Geosyntec 2016b). The following sections qualitatively discuss the existing water quality of the Project site's receiving surface waters with quantitative data provided where available.

***Oso Creek and the East Drainage Area***

As described above, Oso Creek is an ephemeral drainage that terminates in the Antelope Valley floor to the northeast of the Project boundary. Similarly, the East Drainage Area consists of several drainages originating in the mountains and foothills that flow across the valley floor and eventually pond in the dry lakes adjacent to the Kern County line. During large rainfall events, these drainages are likely to carry a high sediment load, indicated by elevated total suspended solids (TSS) and turbidity, due to the dirt roads, steep slopes, gullied land, and exposed silty and sandy soils in the watershed.

***Cañada de los Alamos (downstream of Gorman Creek)***

A small portion of the Project site drains through an unnamed tributary to Gorman Creek about 4.5 miles downstream from the site boundary. Gorman Creek flows through Cañada de los Alamos in the Lower Hungry Valley to the Warne Power Plant at Pyramid Lake, about six miles downstream from the site boundary. Hungry Valley is one of the largest Off-Highway Motor Vehicle (OHV) recreational areas in California with over 130 miles of trails across 19,000 acres. The impact of off-road vehicles on soil compaction and erosion rates has been documented by a number of researchers. Therefore, it is likely that, during storm events large enough to produce runoff, TSS and turbidity are high in Cañada de los Alamos.

***Piru Creek (Downstream of Quail Lake)***

The closest surface water sampling data available near the Project site is for Piru Creek and one of its tributaries, Lockwood Creek, which are located about ten miles to the southwest of the Project area and drain to Pyramid Lake. The drainage area is undeveloped. Data were available on the California Environmental Data Exchange Network (CEDEN) for 17 locations on Piru Creek and Lockwood Creek, with most locations only having one sample event. Data are summarized in Table 5.4-1 below as well as associated water quality standards from the Los Angeles Basin Plan for Piru Creek from the gauging station below the Santa Felicia Dam upstream to the headwaters. The only constituent with results greater than applicable water quality objectives is total dissolved solids (TDS), which had an average value of over 1,000 mg/L from 14 sampling events. As discussed above, this reach of Piru Creek is listed as impaired for chloride and pH on the 2010 CWA 303(d) List. The sources for the TDS concentrations are unknown.

**TABLE 5.4-1  
SUMMARY OF MONITORING DATA IN PIRU CREEK**

Constituent	Water Quality Standard	Number of Samples	Number of Detections	Average <sup>a</sup>
pH	b	22	22	7.97
TSS (mg/L)	c	10	10	4.44
TDS (mg/L)	500 <sup>d</sup>	14	14	1,023
Hardness (mg/L as CaCO <sub>3</sub> )	N/A	7	7	589
Chloride (mg/L)	500 <sup>d</sup>	20	20	10.3
Total Phosphorus (mg/L)	e	11	11	0.012
Ammonia-N (mg/L)	1.24 <sup>f</sup>	9	5	0.034
Nitrate-N (mg/L)	10 <sup>g</sup>	18	12	0.295
Nitrite-N (mg/L)	1 <sup>g</sup>	14	1	0.003
Total Nitrogen (mg/L)	10 <sup>g</sup>	10	10	0.785
Dissolved Aluminum (µg/L)	N/A	4	4	5.53
Total Aluminum (µg/L)	1000 <sup>h</sup>	4	4	37.7
Dissolved Copper (µg/L)	50 <sup>i</sup>	4	4	0.61
Total Copper (µg/L)	52 <sup>i</sup>	4	4	0.60
Dissolved Lead (µg/L)	281 <sup>i</sup>	4	1	0.011
Total Lead (µg/L)	477 <sup>i</sup>	4	2	0.013
Dissolved Zinc (µg/L)	379 <sup>i</sup>	8	3	8.32 <sup>j</sup>
Total Zinc (µg/L)	388 <sup>i</sup>	4	3	1.73
Dissolved Iron (µg/L)	N/A	3	3	24.3
Total Iron (µg/L)	N/A	3	3	93
Dissolved Arsenic (µg/L)	N/A	4	4	3.84
Total Arsenic (µg/L)	10 <sup>h</sup>	4	4	3.8
Dissolved Chromium (µg/L)	N/A	4	4	0.453
Total Chromium (µg/L)	50 <sup>h</sup>	4	3	0.445
Dissolved Nickel (µg/L)	N/A	4	4	4.95
Total Nickel (µg/L)	100 <sup>h</sup>	4	4	5.23
Dissolved Selenium (µg/L)	N/A	7	3	0.854
Total Selenium (µg/L)	50 <sup>h</sup>	4	3	0.868
Dissolved Silver (µg/L)	37 <sup>i</sup>	4	1	0.018
Total Silver (µg/L)	44 <sup>i</sup>	4	0	<0.02
Dissolved Cadmium (µg/L)	N/A	4	3	0.036

pH: hydrogen potential; TSS: total suspended solids; mg/L = milligrams per liter; TDS: total dissolved solids; nitrate-N, nitrite-N and ammonia-N are inorganic forms of nitrogen; CaCO<sub>3</sub>: calcium carbonate; N/A: not applicable; µg/L = micrograms per liter; CEDEN: California Environmental Data Exchange Network; USEPA: U.S. Environmental Protection Agency; MCL: maximum contaminant level; ELS: early life stage; °C: degrees Celsius; CTR: California Toxics rule

<sup>a</sup> Data averaged from 17 locations on Piru Creek and Lockwood Creek (small tributary to Piru Creek), upstream of Pyramid Lake. Data accessed October 12, 2015, on CEDEN. Sample dates from 6/21/00–5/30/13. Averages were calculated assuming non-detects were equivalent to half of the associated sample detection limit.

**TABLE 5.4-1  
SUMMARY OF MONITORING DATA IN PIRU CREEK**

Constituent	Water Quality Standard	Number of Samples	Number of Detections	Average <sup>a</sup>
b	The pH of inland surface waters shall not be depressed below 6.5 or raised above 8.5 as a result of waste discharges. Ambient pH levels shall not be changed more than 0.5 unit from natural conditions as a result of waste discharge.			
c	Water shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.			
d	USEPA secondary Maximum Contaminant Level (MCL) for MUN beneficial use.			
e	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses			
f	30-day average, ELS present, based on average pH (7.97) and average temperature of 25°C.			
g	Waters shall not exceed 10 mg/L nitrogen as nitrate-nitrogen plus nitrite-nitrogen (NO <sub>3</sub> -N + NO <sub>2</sub> -N), 45 mg/L as nitrate (NO <sub>3</sub> ), 10 mg/L as nitrate-nitrogen (NO <sub>3</sub> -N), or 1 mg/L as nitrite-nitrogen (NO <sub>2</sub> -N).			
h	California primary MCL for MUN beneficial use.			
i	Water quality standards for metals are acute (maximum one hour average concentration) CTR criteria for the maximum hardness value (400 mg/L) for waters with hardness of over 400 mg/L.			
j	High detection limits for some samples resulted in a high dissolved concentration when calculating the average using half of the detection limit.			
Source: Geosyntec Consultants 2016b (see Appendix 5.4-A).				

### ***Antelope Valley Groundwater Basin***

Groundwater in closed basins, such as the Antelope Valley, is generally high in dissolved salts because evapotranspiration concentrates minerals in the water. Consequently, drinking water standards are often exceeded in local wells for TDS and fluoride. TDS concentrations remained relatively constant in the Antelope Valley between 1908 and 1955. The groundwater chemistry in the Antelope Valley is typically characterized as calcium bicarbonate near the surrounding mountains and as sodium bicarbonate or sodium sulfate in the central part of the basin.

Groundwater monitoring near the Project site was conducted in 2007 by Geosyntec Consultants (see Appendix 5.4-A) for two Tejon Ranch Company (TRC) wells and one DWR well in the Project area. The sampled wells are located in the Antelope Valley Groundwater Basin. The area is underlain by the three separate aquifers (i.e., western, southern, and deep), and one sample was collected from each separate aquifer. The monitoring results are summarized in Table 5.4-2, 2007 Groundwater Monitoring Data for the Project Area, below. The Maximum Contaminant Level (MCL) is provided in the table for each sampled water quality parameter. Additional water quality tests were conducted in 2010 by GEI, Inc. at well TRC-98 (located at the existing TRC water bank in the Project vicinity) and at well TRC-106 (located within the Project site at the approximate location of the proposed on-site water bank) were consistent with the 2007 sampling results (for a discussion of the existing TRC water bank and the proposed on-site water bank, please see Section 5.18, Water Resources). The results of the 2010 GEI groundwater testing are presented in Table 5.4-3, 2010 Groundwater Monitoring Data for the Project Area, below.

**TABLE 5.4-2  
2007 GROUNDWATER MONITORING DATA FOR THE PROJECT AREA**

Parameter	Units	MCL or Other Threshold	DWR-32	TRC-98	Harris Well (MW-5D)	TRC-98 (DUP 1)
<b>Metals</b>						
Arsenic	mg/L	0.010 <sup>a</sup>	ND	0.0119	0.0157	0.0116
Barium	mg/L	1.0 <sup>a</sup>	0.0394	0.0548	0.0532	0.0532
Molybdenum	mg/L	0.04 <sup>b</sup>	0.00618	0.00806	ND	0.00722
Vanadium	mg/L	0.036 <sup>c</sup>	ND	0.00558	ND	0.0054
Iron	mg/L	0.3 <sup>d</sup>	ND	ND	0.317	ND
Manganese	mg/L	0.05 <sup>d</sup>	ND	ND	0.00785	ND
Boron	mg/L	1 <sup>c</sup>	0.148	0.255	0.546	0.247
Zinc	mg/L	5 <sup>c</sup>	0.13	0.0309	0.455	0.0205
Chromium VI	mg/L	0.01 <sup>a</sup>	ND	ND	ND	ND
<b>General Chemistry</b>						
Chloride	mg/L	250 <sup>d</sup>	22	16	14	16
Sulfate	mg/L	250 <sup>d</sup>	83	55	88	56
Perchlorate	µg/L	6 <sup>a</sup>	ND	ND	ND	ND
Color	Color unit	15 <sup>d</sup>	5	5	5	5
Turbidity	NTU	5 <sup>d</sup>	1.2	0.090	3.1	0.070
Odor	TON	3 <sup>d</sup>	ND	ND	ND	ND
Specific Conductance	µS/cm	900 <sup>d</sup>	600	470	570	470
TDS	mg/L	500 <sup>d</sup>	394	318	402	322
pH	pH units	6.5–8.5 <sup>e</sup>	7.33	7.49	7.42	7.47
Cyanide	mg/L	0.15 <sup>a</sup>	ND	ND	ND	ND
Fluoride	mg/L	2 <sup>a</sup>	0.74	0.62	0.38	0.62
Nitrite	mg/L	1	ND	ND	ND	ND
Nitrate	mg/L	10 <sup>f</sup>	2.9	2.8	1.6	3
MBAS	mg/L	0.5 <sup>d</sup>	ND	ND	ND	ND
MCL: Maximum Contaminant Level; mg/L: milligrams per liter; ND: Not Detected; µg/L: micrograms per liter; NTU: Nephelometric Turbidity Units, a measurement of turbidity; TON: Threshold Odor Numbers, a measurement dilutions needed to achieve odor free water; µS/cm: microSiemens per centimeter, or a measurement of the rate of electrical flow through a solution; pH: hydrogen potential; CCR: California Code of Regulations; USEPA: U.S. Environmental Protection Agency						
<sup>a</sup> California Department of Public Health Primary Drinking Water MCL (22 CCR, Table 64431-A and Table 64444-A). <sup>b</sup> USEPA Health Advisory <sup>c</sup> California Department of Public Health Notification Level 1 <sup>d</sup> California Department of Public Health Secondary Drinking Water MCL (22 CCR, Table 64449-A and Table 64449-B). <sup>e</sup> USEPA Secondary MCL <sup>f</sup> USEPA Primary MCL						
Source: Geosyntec Consultants 2016b.						

**TABLE 5.4-3  
2010 GROUNDWATER MONITORING DATA FOR THE PROJECT AREA**

Constituent	MCL	Units	Well	
			TRC-98	TRC-106
TDS	500	mg/L	310	320
pH - Lab	6.5-8.5 <sup>a</sup>	units	8	8.1
Specific Conductance - Lab	1,600 <sup>b</sup>	µmhos/cm	500	540
Total Hardness (as CaCO <sub>3</sub> )		mg/L	160	190
Total Alkalinity (as CaCO <sub>3</sub> )		mg/L	150	170
Calcium		mg/L	48	55
Magnesium		mg/L	11	13
Potassium		mg/L	1.3	1.5
Sodium		mg/L	43	41
Copper	1,000 <sup>b</sup>	µg/L	ND	ND
Iron	300 <sup>b</sup>	µg/L	ND	ND
Manganese	50 <sup>b</sup>	µg/L	ND	ND
Zinc	5,000 <sup>b</sup>	µg/L	ND	ND
Bicarbonate		mg/L	180	210
Sulfate	250 <sup>b</sup>	mg/L	49	51
Chloride	250 <sup>b</sup>	mg/L	15	13
Nitrate (as NO <sub>3</sub> )	45	mg/L	20	13
Nitrite (as N)	1	mg/L	4.5	3
Fluoride	4	mg/L	0.5	0.4
Aggressiveness Index		mg/L	12	13
Langelier Index - 25 degree		mg/L	0.47	0.76
Aluminum	1,000 <sup>b</sup>	µg/L	ND	ND
Antimony	6	µg/L	ND	ND
Arsenic	10	µg/L	8.9	<b><u>13</u></b>
Barium	1,000	µg/L	51	47
Beryllium	4	µg/L	ND	ND
Cadmium	5	µg/L	ND	ND
Chromium	50	µg/L	ND	1.1
Lead	50	µg/L	ND	ND
Mercury	2	µg/L	ND	ND
Thallium	2	µg/L	ND	ND
Chromium VI	0.2 <sup>c</sup>		ND	ND
Color	15 <sup>b</sup>	units	ND	ND
Odor	3 <sup>b</sup>	TON	3	3
Turbidity	5 <sup>b</sup>	NTU	0.15	0.1
DBCP	0.2	µg/L	ND	ND
EDB	0.05	µg/L	ND	ND

**TABLE 5.4-3  
2010 GROUNDWATER MONITORING DATA FOR THE PROJECT AREA**

Constituent	MCL	Units	Well	
			TRC-98	TRC-106
MCL: Maximum Contaminant Level; TDS: total dissolved solids; mg/L: milligrams per liter; pH: hydrogen potential; $\mu\text{mhos/cm}$ : microm; $\text{CaCO}_3$ : calcium carbonate; $\mu\text{g/L}$ : micrograms per liter; ND: Not Detected; TON: Threshold Odor Numbers, a measurement dilutions needed to achieve odor free water; NTU: Nephelometric Turbidity Units; DBCP: 1,2-Dibromo-3-chloropropane; EDB: 1,2-Dibromoethane; USEPA: U.S. Environmental Protection Agency; PHG: California Public Health Goal				
Notes: Numbers in <b><i>bold italic underlined</i></b> are >MCL				
a	California Department of Health Services Secondary Drinking Water MCL			
b	USEPA Secondary Drinking Water MCL			
c	PHG rescinded, MCL not yet established			
Source: GEI Consultants 2010 (see Appendix A of EIR Appendix 5.18-A)				

With the exception of arsenic, none of the groundwater samples analyzed in 2007 contained concentrations that exceeded the listed MCLs. As shown in Table 5.4-3, the arsenic concentrations in the TRC-98 and TRC-106 wells were 8.9 micrograms per liter ( $\mu\text{g/L}$ ) and 13  $\mu\text{g/L}$ , respectively. The sample from the TRC-106 well is slightly above the MCL of 10  $\mu\text{g/L}$ , as set by the USEPA. The arsenic levels appear to be from natural conditions in the geologic structure of the aquifer; MCL standards can be met for this small exceedance through blending with higher quality water or through other methods discussed in Section 5.18, Water Resources. Therefore, arsenic is not considered a pollutant of concern for analysis. No other metals were detected above their respective MCL.

### ***Hungry Valley Groundwater Basin***

According to California's Groundwater Bulletin 118, bicarbonate is the major anion (i.e., negatively charged ion) in the Hungry Valley Groundwater Basin, and calcium, sodium, and potassium occur in almost equal amounts. The average TDS concentration is less than 350 mg/L. The groundwater has an average pH of 8.1, which is slightly alkaline (Geosyntec Consultants 2016b). There are no data in the vicinity of the Project site for this groundwater basin.

## **5.2.3 PROJECT DESIGN FEATURES**

### **Project Design Features**

**PDF 4-1** The Project will implement a comprehensive system of site design, source control, low impact development, and hydromodification Best Management Practices (BMPs) that meet or exceed the water quality and hydrology (stormwater runoff) and hydromodification standards for new development in the County Low Impact Development (LID) Ordinance (Los Angeles County Code Section 12.84) and the County LID Standards Manual. Both these documents were adopted and prepared by the County of Los Angeles Department of Public Works to comply with the revised Los Angeles County

Municipal Separate Storm Sewer System (MS4) Permit (Order No. R4-2012-0175). All controls are designed to meet or exceed the following LID performance standards, which are consistent with the requirements of the MS4 Permit, the LID Ordinance, and the LID Standards Manual:

LID BMPs shall be selected and sized to retain the volume of stormwater runoff produced from the 85<sup>th</sup> percentile, 24-hour storm depth as determined from the Los Angeles County 85<sup>th</sup> Percentile 24-hr Rainfall Isohyetal Map (February 2004) (LID design volume). When it has been demonstrated that 100 percent of the LID design volume cannot be feasibly infiltrated within the Project, then biofiltration shall be provided for 1.5 times the portion of the LID design volume that is not retained. Runoff from roadways shall be retained or biofiltered in retention or biofiltration BMPs sized to capture the design storm volume or flow, per the guidance in USEPA's *Managing Wet Weather with Green Infrastructure: Green Streets*. LID BMPs may be parcel-based or regional facilities.

During construction, the Project will comply with the State Construction General Permit, the Lahontan Regional Water Quality Control Board (RWQCB) Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit.

**PDF 4-2** The Project will implement integrated pest management (IPM) and landscaping BMPs consistent with the integrated pest management and pesticide and fertilizer application guidelines established by the University of California Division of Agriculture and Natural Resources Statewide Integrated Pest Management Program. The IPM and landscaping BMPs will be confirmed in a landscaping plan submitted to the County during the review and approval process for each tract map application. The BMPs will include a planting plan that is consistent with the plant water use requirements of Section 3.3 of the *Centennial Specific Plan*, with procedures for removing non-native vegetation and planting native vegetation, fertilizer guidelines, and the IPM approach for preventing or suppressing pest problems (i.e., insects and diseases) through a combination of techniques including using pest-resistant plants; biological controls; cultural practices; habitat modification; and the judicious use of pesticides. The IPM and landscaping BMPs will address:

- Pest identification.
- Practices to prevent pest incidence and reduce pest buildup.
- Monitoring requirements to examine vegetation and surrounding areas for pests; to evaluate trends; and to identify when controls are needed.
- Establishment of action thresholds that trigger control actions.
- Pest-control methods (cultural, mechanical, environmental, biological) and appropriate pesticides.



- Pesticide management controls including those that comply with safety requirements (e.g., Material Safety Data Sheets, precautionary statements, protective equipment); regulatory requirements; spill mitigation measures; groundwater and surface water protection measures associated with pesticide use; and pesticide applicator certifications, licenses, and training (i.e., all pesticide applicators must be certified by the California Department of Pesticide Regulation).
- Fertilizer management tasks including those for soil assessment, fertilizer types, application methods, and storage and handling.

## 5.2.4 WATER QUALITY ASSESSMENT METHODOLOGY

### Surface Water Pollutants of Concern

Pollutants of concern exhibit one or more of the following deleterious characteristics: current loadings or historic deposits of the pollutant are impacting the beneficial uses of a receiving water; elevated levels of the pollutant are found in sediments of a receiving water and/or have the potential to bioaccumulate in organisms therein; or the detectable inputs of the pollutant are at concentrations or loads considered potentially toxic to humans and/or flora and fauna.

The pollutants of concern for the water quality analysis are those that are anticipated to be or could potentially be generated by the Project at concentrations, that exhibit these characteristics (i.e., based on water quality data collected in Los Angeles County from land uses that are the same as those proposed by the Project). Consideration of each Basin Plan's beneficial uses and water quality objectives, CTR criteria, and current 303(d) listings are also factored into the identification of the pollutants of concern for the Project. The Water Quality Technical Report (see Section 4 of Appendix 5.4-A) lists the pollutants of concern for both surface water and groundwater (discussed further below); the basis for their selection; and the significance criteria that will be applied for each (Geosyntec Consultants 2016b). The report also explains why other Basin Plan constituents are not considered to be pollutants of concern for the Project.

Based upon the above considerations, the following pollutants were chosen as pollutants of concern for purposes of evaluating water quality:

- Sediments (Total Suspended Solids [TSS] and turbidity)
- Nutrients (phosphorus and nitrogen [Nitrate-N, Nitrite-N, Ammonia-N, and Total Nitrogen])
- Trace metals (copper, lead, and zinc)
- Chloride
- Pesticides (including herbicides, insecticides, and fungicides)
- Pathogens (bacteria, viruses, and protozoa)

- Petroleum hydrocarbons (oil and grease and polynuclear aromatic hydrocarbons [PAHs])
- Trash and debris
- Methylene blue activated substances (MBAS)

Brief descriptions of the characteristics of each of the above pollutants of concern are provided below.

***Sediments (Total Suspended Solids [TSS] and Turbidity)***

Excessive erosion, transport, and deposition of sediment in surface waters comprise a significant form of pollution that can result in major water quality problems. Sediment imbalances can impair the beneficial uses of receiving waters. Excessive sediment can impair aquatic life by filling interstitial spaces of spawning gravel; by impairing fish food sources; by filling rearing pools; and by reducing beneficial habitat structure in stream channels. In addition, excessive sediment can create taste and odor problems in drinking water supplies and block water intake structures.

***Nutrients (Phosphorous and Nitrogen [Nitrate-N, Nitrite-N, Ammonia-N, and Total Nitrogen])***

Nutrients are inorganic forms of phosphorous and nitrogen (nitrate, nitrite, and ammonia). Phosphorous can be measured as total phosphorous (TP) or as dissolved phosphorous. Dissolved phosphorous is the more bioavailable form of phosphorous. TP is often composed mostly of soil-related particulate phosphorous. Organic forms of nitrogen are associated with vegetative matter such as particulates from sticks and leaves. Inorganic forms of nitrogen include nitrate, nitrite, and ammonia. Total Nitrogen (TN) is a measure of all nitrogen present, including inorganic and particulate forms. There are several sources of nutrients in urban areas, mainly fertilizers in runoff from lawns; pet wastes; failing septic systems; atmospheric deposition from industry and automobile emissions; and soil erosion. Nutrient over-enrichment is especially prevalent in agricultural areas where manure and fertilizer inputs to crops significantly contribute to nitrogen and phosphorous levels in streams and other receiving waters. Eutrophication in surface water from excessive nutrient input can lead to changes in algae, benthic, and fish communities; extreme eutrophication can cause hypoxia or anoxia (too much or too little oxygen, respectively), resulting in fish kills. Eutrophication is characterized by an abundant accumulation of nutrients that support a dense growth of algae and other organisms, the decay of which depletes the shallow waters of oxygen in summer. Surface algal scum, water discoloration, and the release of potentially toxic metals from sediment can also occur.

---

***Trace Metals (Copper, Lead, and Zinc)***

The primary sources of trace metals in storm water are typically commercially available metals used in vehicles (e.g., automobiles), buildings, and infrastructure. Metals are also found in fuels, adhesives, paints, and other coatings. Copper, lead, and zinc are the most prevalent metals typically found in urban runoff. Other trace metals (such as cadmium, chromium, and mercury) are typically not detected in urban runoff or are detected at very low levels. Metals are of concern because of the potential for toxic effects on aquatic life and the potential for ground water contamination. High metal concentrations can lead to bioaccumulation in fish and shellfish and can affect beneficial uses of receiving waters. Bioaccumulation takes place within an organism when the rate of intake of a substance is greater than the rate of excretion or metabolic transformation of that substance.

***Chloride***

Irrigation of salt-sensitive crops (e.g., avocados and strawberries with water-containing elevated levels of chloride) can potentially result in reduced crop yields. Chloride levels in some areas exceed water quality standards. Chloride TMDLs have been developed and adopted into the Los Angeles Basin Plan for the Santa Clara River Reaches 3, 5 and 6. The major source of elevated chloride levels in the Santa Clara River are discharges from a wastewater treatment plant. Minor point sources are dewatering operations and uncontrolled swimming pool and water ride discharges. High levels of chloride in Piru Creek above the Santa Felicia Dam have caused listings for impairment, although these chloride sources are unknown.

***Pesticides***

Pesticides (including herbicides, insecticides, and fungicides) are chemical compounds commonly used to control insects, rodents, plant diseases, and weeds. Excessive application of a pesticide in connection with landscaping or cultivating agriculture may result in runoff that contains toxic levels of the pesticide's active ingredient. Pesticides may be classified as organochlorine pesticides or organophosphorous pesticides, the former being associated with persistent bioaccumulative pesticides (e.g., dichlorodiphenyltrichloroethane [DDT] and other legacy pesticides) which have been banned. The Santa Clara River estuary is listed as impaired for legacy pesticides, including chlorinated pesticides. Santa Clara River Reaches 6, 3, and 1 and the estuary are also included on the state CWA Section 303(d) list for toxicity, which can be a byproduct of pesticides. As discussed above, Reaches 3 and 1 and the estuary are located 48, 68, and 72 miles south and southwest of the Project site, respectively (Reach 6 is upgradient of where Piru Creek flows into the Santa Clara River). Toxic organophosphorous pesticides include diazinon and chlorpyrifos whose uses also are being banned or restricted by the USEPA. The current pesticides of concern for water quality are pyrethrums; parathyroids (bifenthrin, cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, and permethrin); carbaryl; Malathion; and imidacloprid.

***Pathogens (Bacteria, Viruses, and Protozoa)***

Elevated pathogens are typically caused by the transport of domestic animal, wildlife, or human fecal wastes from a watershed. Even runoff from natural areas can contain pathogens (e.g., from wildlife). Other sources of pathogens in urban areas include pets, septic systems, and leaky sanitary sewer pipes. The presence of pathogens in runoff can impair receiving waters and contaminate drinking water sources. Historically, fecal indicator bacteria (FIB) such as fecal coliform have been used to indicate the presence of pathogens due to the difficulty of monitoring for pathogens directly. More recently, the scientific community has questioned the use of certain indicator organisms, as there are various confounding factors that affect the reliability of some FIB as pathogen indicators in storm water runoff. The Basin Plan objective is now based on the use of *E. Coli* as a pathogen indicator in fresh waters designated for water contract recreation (REC-1) beneficial use, including the Santa Clara River. Santa Clara River Reaches 5, 6, and 7 and the estuary are identified on the state CWA Section 303(d) list as impaired by high fecal coliform counts from point and non-point sources. An Indicator Bacteria TMDL was approved by the Regional Water Board for the estuary and Reaches 3, 5, 6, and 7 on July 8, 2010. As discussed above, Reach 3 and the estuary are, respectively, 48 to 72 miles south and southwest of the Project site. Santa Clara River Reaches 5, 6, and 7 are upgradient of where Piru Creek flows into the Santa Clara River.

***Petroleum Hydrocarbons (Oil, Grease, and polynuclear aromatic hydrocarbons [PAHs])***

The sources of oil, grease, and other petroleum hydrocarbons in urban areas include spills of fuels and lubricants, discharge of domestic and industrial wastes, atmospheric deposition, and runoff. Runoff can be contaminated by leachate from asphalt roads, wearing of tires, and deposition from automobile exhaust. A leachate is a product or solution formed by the removal of soluble material from a substance, such as soil or rock, through the percolation of water, especially a solution containing contaminants picked up through the leaching of soil. Deliberate dumping of used oil and other automobile-related fluids directly into storm drains can also contribute to pollution. Petroleum hydrocarbons, such as polycyclic aromatic hydrocarbons (PAHs), can bioaccumulate in aquatic organisms from contaminated water, sediments, and food and are toxic to aquatic life at low concentrations. Hydrocarbons can persist in sediments for long periods of time, resulting in adverse impacts on the diversity and abundance of benthic communities. Hydrocarbons can be measured as total petroleum hydrocarbons (TPH), oil and grease, or as individual groups of hydrocarbons, such as PAHs.

***Trash and Debris***

Trash (such as paper, plastic, polystyrene packing foam, and aluminum materials) and biodegradable organic debris (such as leaves, grass cuttings, and food waste) are general waste products on the landscape that can be entrained in urban runoff. The presence of trash and debris may have a significant impact on the recreational value of a water body and aquatic habitat. Excess organic matter can create a high biochemical oxygen demand in a water body and thereby lower its water quality. Also, in areas where stagnant water exists, the presence of excess organic matter can promote low-oxygen (anoxic) conditions resulting in the growth of undesirable organisms and the release of odorous and hazardous compounds such as hydrogen sulfide.

### ***Methylene Blue Activated Substances (MBAS)***

MBAS are related to the presence of detergents in water. Positive results may indicate the presence of wastewater or be associated with urban runoff due to commercial and/or residential vehicle washing or other outdoor washing activities. These substances disturb the surface tension affecting insects and gill function in aquatic life.

### **Groundwater Pollutants of Concern**

Groundwater will be a source of drinking water for the Project, and recycled water treated to unrestricted reuse standards under Title 22 of the *California Code of Regulations* will be used for outdoor irrigation and for cooling and wastewater in the commercial portions of the proposed business park as permitted by applicable laws and regulations (see Section 5.18, Water Resources). As discussed in Section 5.2, Hydrology and Flood, and in more detail below, 28 on-site retention and detention basins will provide regional hydrology, hydromodification, and water quality controls for the Project (see Exhibit 5.2-4, Proposed Infiltration Basin Locations). LID measures serving two or more parcels (e.g., facilities that could require maintenance through a “Project Water Purveyor”) or parcel-specific LID measures (e.g., facilities maintained by property owner) will also be used to meet hydrology, hydromodification, and water quality control requirements (see Exhibit 5.4-2, Low Impact Development [LID] Drainage Area with Projects). These storm water management BMPs would infiltrate a portion of the Project’s urban runoff to groundwater after receiving treatment (see PDFs 4-1 and 4-2 and MMs 4-1 and 4-2). Infiltration of recycled water could also occur. Research conducted on the effects on groundwater from storm water infiltration indicates that the potential for contamination is dependent upon a number of factors, including the local hydrogeology and the chemical characteristics of the pollutants of concern. The Water Augmentation Study conducted by the Los Angeles and San Gabriel Rivers Watershed Council, in partnership with several agencies including water districts, municipalities, and the U.S. Bureau of Reclamation, indicates that the infiltration of storm water, with appropriate pretreatment, does not adversely impact groundwater quality (Geosyntec 2016b).

Chemical characteristics that influence the potential for groundwater impacts include high mobility (low adsorption potential), high solubility fractions, and concentrations in runoff, including dry weather flows. As a class of constituents, trace metals tend to adsorb onto soil particles or be taken up by plants and are thereby effectively filtered out by the soils. This has been confirmed by extensive data collected beneath storm water infiltration/detention ponds in Fresno (conducted as part of the Nationwide Urban Runoff Program) that showed that trace metals tended to be adsorbed in the upper few feet in the bottom sediments (Geosyntec 2016b). Bacteria are also filtered out by soils. More mobile constituents such as chloride and nitrate would have a greater potential for infiltration.

Based on water quality data collected in Los Angeles County from land uses that are the same as those included in the Project, the pollutants of concern for the groundwater quality analysis are those that are anticipated or that could potentially be generated by the Project. Identification of the pollutants of concern for the Project considered the land uses and the

pollutants that have the potential to impair beneficial uses of the groundwater beneath the Project site.

The Los Angeles and Lahontan Basin Plans contain groundwater numerical objectives for bacteria, mineral quality (Los Angeles Basin only), nitrogen (Los Angeles Basin Plan only), and various toxic chemical compounds; they also contain qualitative objectives for taste and odor. Water quality objectives from the Basin Plans for pollutants of concern are included in Section 4.2 of EIR.

### ***Nitrate and Chloride***

Nitrate-N and chloride were identified as pollutants of concern for purposes of evaluating groundwater quality impacts because their chemical characteristics make them potentially mobile. High nitrate levels in drinking water can cause health problems in humans. Infants can develop methemoglobinemia (blue-baby syndrome) caused by the decreased oxygen carrying capacity in hemoglobin from consumption of water with high nitrate levels. High chloride concentrations in groundwater can impact its use for drinking water or agricultural irrigation uses. Human activities and land use practices can influence nitrogen (of which nitrate is a component) and chloride concentrations in groundwater. For example, irrigation water containing fertilizers or high chloride can increase levels of nitrogen and chloride in groundwater.

## **Construction-Related Pollutants of Concern**

The potential impact of construction activities, construction materials, and non-storm water runoff on surface water and groundwater quality during the construction phase focuses primarily on sediment (TSS and turbidity) and on certain non-sediment-related pollutants. Construction-related activities that are primarily responsible for sediment releases are related to exposing soils to erosion by rainfall or runoff, truck traffic, and/or wind (i.e., fugitive dust). Such activities include removing vegetation, grading, and trenching for infrastructure improvements. Environmental factors that affect erosion include topography, soil, and rainfall characteristics.

Non-sediment-related pollutants that are also of concern during construction include construction materials (e.g., paint, stucco); chemicals, liquid products, and petroleum products used in building construction or the maintenance of heavy equipment; and concrete-related pollutants.

## **Water Quality Model Description**

A water quality model was used to estimate pollutant loads and concentrations in storm water runoff from the Project for certain pollutants of concern; estimations were made for pre-development conditions and post-development conditions. Modeling runs were conducted to represent the entire Project site plus 15 acres of associated off-site roadway improvements. The water quality model used was selected because it is one of the few models that accounts for the observed variability in storm water hydrology and water quality. This is accomplished by characterizing the probability distribution of observed rainfall storm event depths, the probability distribution of event mean storm water runoff

concentrations, and the probability distribution of the number of storm events per year. These distributions are then sampled randomly using a Monte Carlo approach to develop estimates of mean annual loads and concentrations.

A detailed description of the water quality model and model assumptions is presented in Appendix B of the Water Quality Technical Report (Appendix 5.4-A to this EIR). The major features of the water quality model are listed below:

- **Rainfall Data.** The water quality model estimates the volume of runoff from storm events. The storm events were determined from 30 years (1949–1979) of hourly rainfall data measured at the nearest gage to the Project site (the National Climatic Data Center [NCDC] Sandberg rain gage). Also, this rain gage was selected because the rainfall measurements are at one-hour intervals and has been in operation for many years. Such data is essential in applying the water quality model. Although global climate change is expected to affect rainfall patterns in the future, this 40-year period of record has been used in the Water Quality Technical Report to represent the distribution of rainfall expected for the Project because the current suite of climate models is not designed to accurately predict the quantitative effects of global climate change on rainfall patterns at the local scale. Analysis of precipitation records throughout California show large year-to-year variability in the amount of annual precipitation with periods of consecutive dry or wet years and no apparent trend over the past century. Current climate projections imply an increase in the uncertainty of future precipitation conditions and that extreme events are expected to become more frequent. While precipitation projections do not show a clear trend in the future, an ensemble of 12 climate models shows a trend of decreasing runoff for Southern California between the end of the 20<sup>th</sup> and 21<sup>st</sup> centuries.
- **Land Use Runoff Water Quality.** The water quality model estimates the concentration of pollutants in runoff from storm events based on existing and all land uses on the Project site. The pollutant concentrations for various land uses, in the form of Event Mean Concentrations (EMCs), were estimated from data collected in Los Angeles County. The Los Angeles County database was chosen for use in the model because (1) it is an extensive, comprehensive database; (2) it contains monitoring data from land-use-specific drainage areas; and (3) the data is representative of the semi-arid conditions in Southern California.
- **Pollutant Load.** The pollutant load associated with each storm is estimated as the product of the storm event runoff times the EMC. For each year in the simulation, the individual storm event loads are added to estimate the annual load. The mean annual load is then the average of all the annual loads.
- **BMPs Modeled.** The modeling considers the LID, hydrology, and hydromodification BMPs planned for the Project, including 28 retention and detention basins (see Exhibit 5.2-4, Proposed Infiltration Basin Locations) and distributed or parcel-specific LID measures (see Exhibit 5.4-2, Low Impact Development [LID] Drainage Areas with Project). The modeling does not take into account source-control BMPs (e.g., street sweeping) that would also improve water quality. As a result, the modeling results are conservative and tend to overestimate pollutant loads and concentrations.

- **Treatment Effectiveness.** The water quality model estimates mean pollutant concentrations and loads in storm water following treatment. The amount of storm water runoff that is captured by the LID, hydrology, and hydromodification BMPs was calculated for each storm event, taking into consideration the intensity of rainfall, duration of the storm, and duration between storm events. The mean effluent water quality for the LID BMPs was based on the International Storm Water BMP Database. The International Storm Water BMP Database was used because it is a peer-reviewed database that contains a wide range of BMP-effectiveness studies that reflect diverse land uses.
- **Accounting for Bypass Flows.** The water quality model takes into account both the conditions when a treatment facility is full and when flows bypass the facility.
- **Volume Reduction.** The water quality model accounts for volume reductions from the BMPs due to infiltration and evaporation.
- **Use of Representative Data for Local Conditions.** The model utilizes runoff water quality data obtained from tributary areas that have a predominant land use and are measured prior to discharge into a receiving water body. Currently, such data are available from storm water programs in Los Angeles County, San Diego County, and Ventura County. Such data is often referred to as “end-of-pipe” data to distinguish it from data obtained in urban streams.
- **Infiltration.** Existing conditions infiltration parameters were based on soil hydrologic group, soil texture class, and the federal Natural Resource Conservation Service (NRCS) Soil Survey of the Project area (see Section 5.2, Hydrology and Flood, for a discussion of on-site channels and soils). As discussed in Section 5.2, and shown on Exhibit 5.2-2, Drainage Areas on the Project Site, about 90 percent of the proposed Project development will occur to the east of the West Branch of the California Aqueduct, and 10 percent of the development will occur west of the Aqueduct. These development areas will be subject to grading, including cut and fill operations, to construct infrastructure and the proposed Project’s residential, commercial, institutional and other structures. To conservatively reflect post-development conditions, soil compaction impacts were modeled for post-development open and landscaped areas assuming a 25 percent reduction in saturated hydraulic conductivity, or infiltration rate, from the pre-developed to post-developed condition. Impervious surfaces were modeled assuming no infiltration.

### ***Modeled Pollutants***

The appropriate form of data used to address water quality are flow composite storm event samples, which measure the average water quality during the event. Obtaining such data usually requires automatic samplers that collect data at a frequency that is proportionate to flow rate. The pollutants of concern for which there are sufficient flow composite sampling data in the Los Angeles County database are the following:

- TSS (sediment)
- Total Phosphorus
- Nitrate + Nitrite-Nitrogen, Ammonia, and Total Nitrogen



- Total and Dissolved Copper
- Total Lead
- Total and Dissolved Zinc
- Chloride

### ***Qualitatively Evaluated Pollutants***

Post-development storm water runoff water quality impacts associated with the following pollutants of concern were qualitatively addressed due to the unavailability of flow composite sampling data based on literature information and professional judgment:

- Turbidity
- Pesticides
- Pathogens (bacteria, viruses, and protozoa)
- Petroleum hydrocarbons (oil and grease, PAHs)
- Trash and debris
- MBAS
- Toxicity
- Emerging Contaminants

Human pathogens are usually not directly measured in storm water monitoring programs due to technical difficulty and expense and, in most cases, indicator bacteria such as fecal coliform or certain strains of *E. Coli* are measured. Because maximum allowable holding times for bacterial samples are necessarily short, most storm water programs do not collect flow-weighted composite samples that could potentially produce more reliable statistical estimates of concentrations. Fecal coliform and *E. Coli* are typically measured with grab samples, making it difficult to develop reliable event mean concentrations (EMCs). Total coliform and fecal bacteria (fecal coliform, fecal streptococcus, and fecal enterococci) were detected in storm water samples tested in Los Angeles County at highly variable densities (measured by “most probable number” of colony forming units, or MPN) ranging between several hundred to several million colony forming units per 100 milliliters (mL).

Petroleum hydrocarbons are difficult to measure because of laboratory interference effects and sample collection issues (hydrocarbons tend to coat sample bottles). Hydrocarbons are typically measured with single grab samples, making it difficult to develop reliable EMCs for the reasons explained above for pathogens.

Pesticides in urban runoff are often present at concentrations that are below detection limits for most commercial laboratories, thereby limiting the availability of statistically reliable data on pesticides in urban runoff. Pesticides were not detected in Los Angeles County monitoring data for land-use-based samples, except for diazinon and glyphosate, which were detected in less than 15 percent and 7 percent of samples, respectively.

Trash and debris, MBAS, toxicity, and emerging contaminants are not typically included in routine urban storm water monitoring programs. Several studies conducted in the Los Angeles River Basin have attempted to quantify trash generated from discrete areas, but the data represent relatively small areas, relatively short time periods, or both. MBAS was included in the land-use-based monitoring data, but not enough data is available for modeling purposes. Toxicity and emerging contaminants were not included in the Los Angeles County land use-based monitoring program.

Potential construction-phase water quality impacts caused by runoff and dewatering discharges are also qualitatively analyzed because the highly variable nature of construction conditions do not lend themselves to water quality modeling.

### **Best Management Practice Implementation for the Project**

Effective management of wet and dry weather runoff water quality begins with limiting increases in runoff pollutants and flows at the source. Site-design and source-control BMPs minimize runoff and the introduction of pollutants into runoff. LID, hydrology, and hydromodification control BMPs are designed to control increases in post-development runoff flows, volumes, and/or durations as well as pollutant loads. PDF 4-1 and MM 4-1 incorporate LID performance standards that meet the County MS4 Permit, LID Ordinance, and LID Standards Manual requirements. The following discussion provides a description of the planned BMPs that will be implemented to meet the LID performance standards. As discussed in Section 5.2, Hydrology and Flood, these measures will also provide hydrology (flood) and hydromodification controls that meet or exceed County requirements in MM 2-1 (hydromodification) and MM 2-2 (peak and volume flows from a 50-year storm). Exhibit 5.4-2, Low Impact Development (LID) Drainage Areas with Project, shows the portions of the Project site that require treatment with regional or distributed and parcel-specific LID BMPs, and those areas that do not require treatment.

#### ***Source Control Best Management Practices***

Table 5.4-4 summarizes the source-control requirements of the Los Angeles County LID Standards Manual and the corresponding BMPs that would be incorporated into the Project.

**TABLE 5.4-4  
LOW IMPACT DEVELOPMENT STANDARDS MANUAL  
SOURCE CONTROL REQUIREMENTS AND PROJECT  
BEST MANAGEMENT PRACTICES**

Source-Control Requirement	Criteria/Description	Corresponding Centennial Project Source-Control BMPs
S-1: Storm Drain Message and Signage	<ul style="list-style-type: none"> <li>• All storm drain inlets and catch basins in the Project area must be marked with prohibitive language and/or graphical icons to discourage illegal dumping.</li> <li>• Signs and prohibitive language and/or graphical icons, which prohibit illegal dumping, must be posted at public access points along channels and creeks in the Project area.</li> <li>• Legibility of stencils and signs must be maintained.</li> </ul>	<ul style="list-style-type: none"> <li>• All storm drain inlets and water quality inlets will be stenciled or labeled.</li> <li>• Signs will be posted in areas where dumping could occur.</li> <li>• The Maintenance Entity will maintain stencils and signs.</li> </ul>
S-2: Outdoor Material Storage Areas	<ul style="list-style-type: none"> <li>• Where Project plans include outdoor materials storage areas that may contribute pollutants to the storm water conveyance system, measures to mitigate impacts must be included.</li> </ul>	<ul style="list-style-type: none"> <li>• Pesticides, fertilizers, paints, and other high-risk materials used for maintenance of common areas, parks, commercial areas, and multi-family residential common areas will be kept in enclosed storage areas.</li> </ul>
S-3: Outdoor Trash Storage and Waste Handling Areas	<p>All trash containers must meet the following structural or treatment-control BMP requirements:</p> <ul style="list-style-type: none"> <li>• Trash container areas must allow for drainage from adjoining roofs and a pavement diverter around the areas.</li> <li>• Trash container areas must be screened or walled to prevent off-site transport of trash.</li> </ul>	<ul style="list-style-type: none"> <li>• All outdoor trash storage areas will be covered and isolated from storm water runoff.</li> </ul>
S-4: Outdoor Loading/Unloading Dock Areas	<ul style="list-style-type: none"> <li>• Cover loading dock areas or design drainage to minimize storm water run-on and runoff</li> <li>• Prohibit direct connections to storm drains from depressed loading docks (truck wells)</li> </ul>	<ul style="list-style-type: none"> <li>• Loading dock areas will be covered or designed to preclude run-on and runoff.</li> <li>• Direct connections to storm drains from depressed loading docks (truck wells) will be prohibited.</li> <li>• Drains or direct drainage from hydraulically isolated loading dock areas will be connected to an approved sediment/oil/water separator system. A manual emergency spill diversion valve will be provided upstream of the separator.</li> </ul>

**TABLE 5.4-4  
LOW IMPACT DEVELOPMENT STANDARDS MANUAL  
SOURCE CONTROL REQUIREMENTS AND PROJECT  
BEST MANAGEMENT PRACTICES**

Source-Control Requirement	Criteria/Description	Corresponding Centennial Project Source-Control BMPs
S-5: Outdoor Vehicle/ Equipment Repair/ Maintenance Areas	<ul style="list-style-type: none"> <li>• Repair/maintenance bays must be indoors or designed in such a way that do not allow storm water run-on or contact with storm water runoff.</li> <li>• Design a repair/maintenance bay drainage system to capture all wash water, leaks, and spills.</li> <li>• Connect drains to a sump for collection and disposal.</li> <li>• Prohibit direct connection of the repair/ maintenance bays to the storm drain system.</li> <li>• If required by local jurisdiction, obtain an Industrial Waste Discharge Permit.</li> </ul>	<ul style="list-style-type: none"> <li>• Repair/maintenance bays will comply with design requirements.</li> </ul>
S-6: Outdoor Vehicle/ Equipment/ Accessory Wash Areas	<ul style="list-style-type: none"> <li>• Ensure these areas are self-contained and/or covered, equipped with a clarifier, or other pretreatment facility, and properly connected to a sanitary sewer.</li> </ul>	<ul style="list-style-type: none"> <li>• Areas for washing/steam cleaning of vehicles will be self-contained or covered with a roof or overhang; will be equipped with wash racks and have prior approval of the sewerage agency; will be equipped with a clarifier or other pretreatment facility; and will be properly connected to a sanitary sewer.</li> </ul>
S-7: Fuel and Maintenance Area	<ul style="list-style-type: none"> <li>• The fuel dispensing area must be covered with an overhanging roof structure or canopy. The cover's minimum dimensions must be greater than the area within the grade break. The cover must not drain onto the fuel dispensing area and the downspouts must be routed to prevent drainage across the fueling area.</li> <li>• The fuel dispensing area must be paved with Portland cement concrete (or equivalent smooth impervious surface). The use of asphalt concrete shall be prohibited.</li> <li>• The fuel dispensing areas must have a 2% to 4% slope to prevent ponding and must be separated from the rest of the site by a grade</li> </ul>	<ul style="list-style-type: none"> <li>• Fueling areas will comply with design requirements.</li> </ul>

**TABLE 5.4-4  
LOW IMPACT DEVELOPMENT STANDARDS MANUAL  
SOURCE CONTROL REQUIREMENTS AND PROJECT  
BEST MANAGEMENT PRACTICES**

Source-Control Requirement	Criteria/Description	Corresponding Centennial Project Source-Control BMPs
	<p>break that prevents run-on of urban runoff.</p> <ul style="list-style-type: none"> <li>At a minimum, the concrete fuel dispensing area must extend 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus 1 foot (0.3 meter), whichever is less.</li> </ul>	
S-8: Landscape Irrigation Practices	<ul style="list-style-type: none"> <li>Do not allow irrigation runoff from the landscaped area to drain directly to storm drain system.</li> <li>Minimize use of fertilizer, pesticides, and herbicides on landscaped areas.</li> <li>Plan sites with sufficient landscaped area and dispersal capacity (e.g., ability to receive irrigation water without generating runoff).</li> <li>Consult a landscape professional regarding appropriate plants, fertilizer, mulching applications, and irrigation requirements (if any) to ensure healthy vegetation growth.</li> </ul>	<ul style="list-style-type: none"> <li>Native and/or non-native/non-invasive, climate-appropriate vegetation will be utilized within the development.</li> <li>The use of the parcel-based LID BMPs and regional infiltration facilities will prevent the discharge of dry weather urban runoff from the Project.</li> <li>Landscape and irrigation system design will comply with the design requirements or approved alternatives.</li> </ul>
S-9: Building Materials Selection	<ul style="list-style-type: none"> <li>Wood that is pressure-treated with arsenate, copper, and chromium compounds may be replaced with alternative building materials.</li> <li>Minimize or avoid the use of copper and galvanized metals on buildings and in fencing.</li> <li>Reduce the use of pesticides around foundations through the use of alternative barriers where feasible.</li> </ul>	<ul style="list-style-type: none"> <li>Pressure-treated wood that is treated with arsenate, copper, or chromium compounds may be replaced with alternative building materials.</li> <li>The use of copper and galvanized metals on buildings and in fencing will be minimized or avoided.</li> <li>The use of alternative barriers for termites will be considered.</li> </ul>

**TABLE 5.4-4**  
**LOW IMPACT DEVELOPMENT STANDARDS MANUAL**  
**SOURCE CONTROL REQUIREMENTS AND PROJECT**  
**BEST MANAGEMENT PRACTICES**

Source-Control Requirement	Criteria/Description	Corresponding Centennial Project Source-Control BMPs
S-10: Animal Care and Handling Facilities	<ul style="list-style-type: none"> <li>• Site animal care and handling facilities away from the storm drain system and receiving waters.</li> <li>• Manage grazing to prevent impacts to receiving waters.</li> <li>• Manage horse access and horse waste to prevent pollutants from entering the storm drain system or receiving waters.</li> </ul>	<ul style="list-style-type: none"> <li>• Animal care and handling facilities will be sited away from the storm drain system and receiving waters.</li> <li>• Grazing in selected areas will be managed under the Adaptive Management Plan and/or Ranch-Wide Management Plan.</li> <li>• Horse waste will be managed to prevent pollutants from entering the storm drain or receiving waters.</li> </ul>
S-11: Outdoor Horticultural Areas	<ul style="list-style-type: none"> <li>• Do not allow wash water from horticulture areas to drain directly to the storm drain system or receiving waters.</li> </ul>	<ul style="list-style-type: none"> <li>• Wash water from horticultural areas will not drain directly to the storm drain system or to receiving waters.</li> </ul>
BMPs: Best Management Practices. Source: LACDPW 2014		

The Project would include additional source-control BMPs to minimize pollutants in storm water runoff. These BMPs will include provision of animal waste bag stations and a carwash pad for multi-family residential areas. An education program would be implemented that includes both the education of residents and commercial businesses regarding water quality issues. Topics would include services that could affect water quality, such as carpet cleaners and others that may not properly dispose of cleaning wastes; community car washes; and residential car washing. The education program would emphasize animal waste management, such as the importance of cleaning up after pets. As described in PDF 4-2, the Project would develop and implement Integrated Pest Management measures in accordance with the integrated pest management and pesticide and fertilizer application guidelines established by the University of California Division of Agriculture and Natural Resources Statewide Integrated Pest Management Program. The IPM measures will control nutrients and reduce pesticide use.

### ***Site-Design Best Management Practices***

Site-design principles reduce storm water runoff flows and impacts associated with land development to sensitive environmental features such as riparian areas, wetlands, and steep slopes. The benefits derived from site-design BMPs include the following:

- Reduction in the size of storm water quality control measures and conveyance systems.

- Reduction in pollutant loading to storm water quality control measures and receiving waters.
- Reduction in hydraulic impact on receiving waters.

The site-design principles in the Los Angeles County LID Standards Manual include site planning; protection and restoration of natural areas; minimization of land disturbance; and minimization of impervious cover. The following site designs have been incorporated into the Project to implement with the LID Standards Manual principles:

- Impervious areas would be minimized by incorporating parks and open space areas into the Project. Approximately 6,116 acres (approximately 50 percent) of the 12,323-acre Project site are parks and open space.
- Project BMPs, including parcel-based and regional LID BMPs, would disconnect impervious areas and reduce flows to natural channels through infiltration and evapotranspiration.
- In areas not subject to mass grading, the smallest site disturbance area possible would be delineated and flagged and temporary storage of construction equipment would be restricted in these areas to minimize soil compaction on site. Site clearing and grading would be limited as necessary to allow development, to allow access, and to provide fire protection.
- Streets, sidewalks, and parking lot aisles would be designed to the minimum widths required by the Americans with Disabilities Act and safety regulations for fire and emergency vehicle access.
- Native and/or non-native/non-invasive vegetation that requires less watering and chemical application will be utilized in compliance with the County Code and Section 3.3 of the Specific Plan.
- Impervious surfaces will be minimized in common area landscape design.

### ***Low Impact Development and Hydromodification Best Management Practices***

The LID performance standards will be achieved with regional BMPs, including 28 on-site detention and retention basins, and distributed or parcel-specific BMPs. As required by MM 4-1, compliance with the LID performance standards will be further confirmed in a drainage system engineering and planning report submitted to the County in conjunction with the review and approval process for each tract map application. The following sections describe the principles used to design LID BMPs for the Project; the regional LID BMP system; and the Project's distributed and parcel-specific BMPs.

The principles used to design LID BMPs are consistent with the MS4 Permit, the LID Ordinance, and the LID Standards Manual, and include the following:

- Institutional, commercial, multi-family residential, recreation, and parkland use parcels will implement retention or biofiltration BMPs within the parcel footprint. Runoff from the remaining developed area and that is not retained within the parcel

footprints would flow through the storm drain system to regional infiltration/biofiltration facilities.

- Based on feasibility, the LID performance standards will be achieved in specific locations as follows:
  - a. If it is feasible to infiltrate all of the runoff produced from the LID design storm from the developed area (i.e., soil infiltration rates are at least 0.3 inch per hour, and no other technical infeasibility concerns exist), infiltration BMPs (Category 1) would be used. Category 1 infiltration BMPs include bioretention (without an underdrain), permeable pavement, infiltration galleries, infiltration basins or trenches, drywells, or an equivalent infiltration BMP.
  - b. If Category 1 infiltration BMPs are infeasible due solely to low soil infiltration rates (i.e., the soil infiltration rate is less than 0.3 inch per hour), bioinfiltration BMPs (Category 2) would be used. Bioinfiltration facilities are similar to bioretention facilities with an underdrain and include storage below the underdrain to maximize the volume infiltrated. Category 2 facilities would retain a portion of the runoff from the LID design storm, then biofilter 1.5 times the remaining runoff from the LID design storm included in the LID performance standards (see PDF 4-1 and MM 4-1).
  - c. If Category 1 or Category 2 BMPs are infeasible, biofiltration BMPs (Category 3) will be used. Category 3 BMPs biofilter runoff produced from the 1.5 times the LID design storm (see PDF 4-1 and MM 4-1) and include bioretention with an underdrain, flow-based biofiltration BMPs, or an equivalent biofiltration BMP.
- Runoff from roadways will be retained or biofiltered in retention or biofiltration BMPs within the right-of-way sized to capture the LID design storm volume or flow (see PDF 4-1 and MM 4-1), per the guidance in USEPA's *Managing Wet Weather with Green Infrastructure Municipal Handbook: Green Streets*, or roadways may drain to regional facilities.
- Regional facilities would be implemented to infiltrate the LID design storm volume or biofilter 1.5 times the LID design storm volume (see PDF 4-1 and MM 4-1) that has not been retained or biofiltered within parcels or road rights-of-way. These regional facilities will be designed to meet the County requirements for hydromodification-impacts in combination with the LID performance standards.

Descriptions of the LID, hydrology, and hydromodification control BMPs that would be implemented within the Project are provided below. Exhibits 4-20a through 4-20f provide representative designs of the proposed Project BMPs.

### Storm Water Management Facilities

The proposed Project has been designed to meet or exceed County MS4 Permit, LID Standards Manual, and LID Ordinance hydromodification and hydrology (flood-control) requirements for new development. The Project will implement site-design, source-control, LID, and hydromodification BMP features. Most Project runoff will be subject to control and treatment in a regional system that consists of 28 detention and retention basins located throughout the Project site (see Exhibit 5.2-4, Proposed Infiltration Basin Locations). Other



developed areas will control and treat runoff by utilizing distributed, smaller, or parcel-specific LID measures (see Exhibit 5.4-2, Low Impact Development [LID] Drainage Areas with Project). LID measures that will be implemented for the Project are discussed in more detail below.

#### *Regional Infiltration/Retention Basins*

Regional detention and retention basins are storm water management facilities designed to detain or infiltrate runoff from multiple parcels or project areas. The basins are typically shallow with flat, vegetated bottoms. Regional basins are constructed by either excavating a depression or building a berm to create aboveground storage. Runoff is stored in the basin and in the pore spaces of the underlying surface soils. Storm water treatment measures (e.g., swales, filter strips, and sedimentation forebays) that intercept runoff prior to reaching the basins reduce pollutant loads and provide water quality controls. Basin outlet structures are designed to mimic pre-development discharge rates. The basins allow for infiltration below the lowest surface discharge of the facility; remove sediment and sediment-bound pollutants by filtration in the underlying soils; and retain water in the form of soil moisture to promote the adsorption of pollutants (e.g., dissolved metals and petroleum hydrocarbons) into the surface of soil matrix. Plants utilize soil moisture and promote the drying of the soil. Extended detention for flood or hydromodification control would also provide additional pollutant removal through settling. As discussed in Section 5.2, Hydrology and Flood, the regional detention and retention basin system has been sized and designed to also meet applicable flood-control and hydromodification requirements.

The regional infiltration detention system for the Project includes 28 basins that will provide both hydromodification and flow control and water quality treatment for the majority of the proposed development area. The locations of the basins are shown on Exhibit 5.2-4. Normalized sizing charts were applied to the proposed development area's tributary to each basin to identify flow retention and duration volumes required to match the pre-development flow conditions and to achieve the LID and water quality performance standards. The water quality control volumes required to meet the LID performance standards and the total volume provided for hydromodification as well as flood and hydromodification control at each basin location are listed in Table 5.4-5.

**TABLE 5.4-5  
SUMMARY OF REGIONAL RETENTION AND DETENTION  
FOR WATER QUALITY CONTROL**

<b>Regional Basin Number</b>	<b>Receiving Channel</b>	<b>Tributary Area (acres)</b>	<b>Tributary Area Imperviousness (%)</b>	<b>LID Total Volume Required (acre-feet)</b>	<b>Total Volume Provided (acre-feet)</b>
Basin 0	East Tributary 4	21.5	54.9	0.72	10
Basin 1	Aqueduct crossing @ ~292 <sup>nd</sup> St	1528.5	52	48.89	420
Basin 2	Oso Creek	326.9	45	9.32	120
Basin 2a	Oso Creek	64.1	30	1.35	30
Basin 2b	Oso Creek	76.5	43.8	2.14	25
Basin 3	East Tributary 4c	52.2	42	1.41	30
Basin 4	East Tributary 4a	97.9	47.7	2.92	32
Basin 5	Oso Creek	321.4	36.3	7.77	80
Basin 6	East Tributary 4a	533.4	52.6	17.21	180
Basin 7	East Tributary 4b	230.5	33.4	5.24	55
Basin 8	East Tributary 4	398.6	47.1	11.78	125
Basin 9	East Tributary 3	48.0	30	1.01	12
Basin 10	East Tributary 3	164.4	28.8	3.37	35
Basin 11	East Tributary 2	754.6	52.3	24.23	255
Basin 12	Tentrock Tributary	30.7	86	1.50	20
Basin 13	Tentrock Tributary	114.0	59.1	4.05	45
Basin 14	Tentrock Tributary	420.9	90.8	21.59	250
Basin 15	Tentrock Tributary	59.8	91	3.07	40
Basin 16	Tentrock Tributary	99.5	57.5	3.45	40
Basin 17	Tentrock Tributary	43.8	42	1.18	15
Basin 18	Tentrock Tributary	101.6	91	5.21	65
Basin 19	Tentrock Canyon	36.9	30	0.78	9
Basin 20	Tentrock Canyon	43.4	30	0.91	10
Basin 21	Aqueduct crossing @ ~292 <sup>nd</sup> St	70.8	42	1.91	23
Basin 22	Aqueduct crossing @ ~292 <sup>nd</sup> St	182.8	59.3	6.51	60
Basin 23	Aqueduct crossing @ ~292 <sup>nd</sup> St	148.5	91	7.62	50
Basin 24	Aqueduct crossing @ ~292 <sup>nd</sup> St	550.8	48.7	16.72	170
Basin 25	Aqueduct crossing @ ~286 <sup>th</sup> St	148.3	35.3	3.52	60
LID: Low Impact Development Source: Geosyntec 2016a					

### ***Parcel-Based Best Management Practices***

Distributed and parcel-based BMPs are smaller-scale facilities typically treating runoff from one or a few parcels, including underground vaults and pipes. Exhibit 5.4-2, Low Impact Development (LID) Drainage Areas with Project, shows the locations of the primary distributed LID management measures that will be implemented for portions of the Project site. As discussed in Section 5.2, Hydrology and Flood, these measures also provide flood and hydromodification controls. Distributed and parcel-based measures will meet the LID performance standards incorporated into MM 4-1 and include infiltration, bioinfiltration, and biofiltration BMPs.

Distributed and parcel-based infiltration, bioinfiltration, and biofiltration BMPs provide for pollutant removal (e.g., filtration, adsorption, nutrient uptake) by filtering storm water through vegetation and soils and by reducing runoff volumes by infiltration. To achieve the LID performance standards, distributed and parcel-based LID BMPs are designed to (1) have a minimum storage volume equivalent to the storm water quality design volume (SWQDv), as calculated in accordance with the Los Angeles County LID Calculator (LACDPW 2014); (2) infiltrate to the extent feasible based on parcel-specific infiltration feasibility; and (3) biofilter 1.5 times the runoff that cannot be feasibly infiltrated from the 1.1-inch design storm.

### ***Green Streets***

The Project will utilize “green street” techniques consistent with the USEPA’s *Managing Wet Weather with Green Infrastructure Municipal Handbook: Green Streets* to meet the requirements of the LID performance standards for runoff from public rights-of-way. Two forms of green street implementation would be incorporated into the Project:

1. Where streets are tributary to regional facilities, the full requirements of the LID performance standards would be met by managing runoff in the regional LID facilities.
2. For streets that are not tributary to regional LID facilities, stand-alone green street BMPs within the street right-of-way would be used to meet the requirements of the LID performance standards, and distributed hydromodification-control BMPs would be used to meet the County LID Standards Manual Green street LID BMPs include infiltration or biofiltration BMPs, such as bioretention systems with an underdrain, vegetated swales, and filter strips. Proprietary flow-based biofiltration BMPs (e.g., Filterra® or equivalent) would also be used where appropriate and feasible.

### ***Operation and Maintenance of Best Management Practices***

As discussed in Section 5.18, Water Resources, the Project’s potable and recycled water infrastructure—including potable and recycled water treatment, delivery, metering and monitoring—will be managed by a water district or public utility district (PUD) that will serve the Project (the “Project Water Purveyor”). The Project Water Purveyor could also operate and maintain non-construction water-control BMPs within the site, and would be responsible for BMP inspections, monitoring, maintenance, and enforcement. Until the Project Water Purveyor or a similar BMP management agency is established, the Project

Applicant/Developer will be responsible for all water quality BMPs, including design, permitting, construction, operations, and maintenance.

### 5.2.5 THRESHOLD CRITERIA

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact if it would:

- Threshold 4-1** Violate any (surface water) water quality standards or waste discharge requirements.
- Threshold 4-2** Generate construction or post-construction runoff that would violate applicable stormwater NPDES permits or otherwise significantly affect surface water or groundwater quality.
- Threshold 4-3** Result in point or nonpoint source pollutant discharges into State Water Resources Control Board-designated Areas of Special Biological Significance.
- Threshold 4-4** Use onsite wastewater treatment systems in areas with known geological limitations (e.g. high groundwater) or in close proximity to surface water (including, but not limited to, streams, lakes, and drainage course).
- Threshold 4-5** Otherwise substantially degrade water quality.

To evaluate whether the Project would cause a significant impact under any of the following thresholds, an integrated or “weight of evidence” approach was employed (rather than a decision based on any one criterion). The application of this approach is described in more detail below as it applies to evaluation of surface and groundwater quality.

The Water Quality Technical Report (see Appendix 5.4-A) analyzes whether polluted runoff may result from the Project based on the results of quantitative water quality modeling and qualitative assessments that account for the water quality controls and BMPs that will be implemented in accordance with PDF 4-1 and PDF 4-2 and required by MM 4-1 and MM 4-2. Any increases in pollutant concentrations or loads in runoff resulting from the development of the Project site are considered an indication of a potentially significant adverse water quality impact. If loads and concentrations resulting from development are predicted to stay the same or to be reduced when compared with existing conditions, it is concluded that the Project will not cause a significant adverse impact to the ambient water quality of the receiving waters for that pollutant.

If pollutant loads or concentrations are expected to increase, then for both the construction and post-development phases, potential impacts are assessed by evaluating the Project’s compliance with the applicable regulatory requirements of the Construction General Permit and the General Dewatering Permit during construction, and County MS4 Permit, LID Ordinance and LID Standard Manual requirements under post-construction conditions. Post-development increases in pollutant loads and concentrations are evaluated by comparing

the magnitude of the increase to relevant water quality criteria, including receiving water quality objectives and criteria from the Los Angeles or Lahontan Basin Plans and the CTR, as described below.

Groundwater quality standards are compared with post-development runoff water quality to assess potential Project impacts to groundwater quality.

### **Surface Water Quality Analysis Criteria**

Potential Project impacts to surface receiving waters subject to a TMDL are analyzed by comparing construction and post-development water quality runoff constituent concentrations with applicable TMDL waste load or load allocations. Potential Project impacts to all surface receiving waters are analyzed by comparing post-development water quality runoff constituent concentrations with applicable numeric and narrative receiving water quality criteria in the Los Angeles and Lahontan Basin Plans and the CTR.

The narrative and numeric water quality objectives contained in the Los Angeles and Lahontan Basin Plans and the CTR apply to the Project's receiving waters. Pollutant levels in Project runoff that do not exceed receiving water quality objectives are considered to have no significant impacts to water quality.

### **Municipal Separate Storm Sewer System Permit, Low Impact Development Ordinance, and Low Impact Development Standards Manual Analysis Criteria**

As described in PDF 4-1 and required by MM 4-1, the Project will implement the hydrology (storm water runoff), and LID standards for new development in the County MS4 Permit, the County LID Ordinance, and the County LID Standards Manual. The MS4 Permit requires that BMPs be implemented to reduce the discharge of pollutants in storm water to the maximum extent practicable (MEP). The effectiveness of storm water LID controls are primarily based on two factors: (1) the amount of runoff that is captured by the controls and (2) the selection of BMPs to address identified pollutants of concern. The MS4 Permit, LID Ordinance, and LID Standards Manual include selection and numerical sizing criteria for new development water quality controls. Project runoff subject to treatment in LID BMPs that comply with County selection and numerical sizing criteria for new development are considered to have no significant impacts to water quality related to MS4 Permit requirements.

### **Construction General Permit and General Dewatering Permit Analysis Criteria**

As discussed in Section 5.4.2, the Project will comply with the state's Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit during construction. The Construction General Permit requires that construction period BMPs be implemented in accordance with an impact risk assessment. A Storm Water Pollution Prevention Plan (SWPPP) must be prepared and implemented that includes BMPs that meet or exceed the permit requirements applicable to the level of construction risk. The Lahontan RWQCB Limited Threat Discharge Permit covers

construction dewatering and other construction-related discharges associated with low or limited water quality risks. The limited threat discharge permit contains discharge prohibitions, receiving water limitations, and monitoring and reporting requirements. The Los Angeles RWQCB General Dewatering Permit addresses discharges from temporary dewatering operations associated with construction and permanent dewatering operations associated with development. Project construction period runoff that is subject to treatment BMPs that comply with the state's Construction General Permit and with the limited threat discharge and dewatering permits adopted by the Lahontan and Los Angeles RWQCBs during construction are considered to have no significant impacts to water quality.

Potential water quality impacts to surface water from quantitatively analyzed constituents of concern are discussed under Threshold 4-1. Potential water quality impacts to surface water from qualitatively-analyzed constituents of concern are discussed under Threshold 4-5. Potential water quality impacts to groundwater are discussed in Threshold 4-2. Thresholds 4-3 and 4-4 discuss potential impacts to Areas of Special Biological Significance and from the location of wastewater reclamation facilities near ephemeral and intermittent drainage courses.

## 5.2.6 ENVIRONMENTAL IMPACTS

**Threshold 4-1      Would the project violate any (surface water) water quality standards or waste discharge requirements?**

### **On-Site Impacts**

Potential surface water quality impacts during construction and operation (i.e., post-construction) of the Project for qualitatively analyzed constituents are discussed under Threshold 4-1 and would be less than significant with mitigation. Potential groundwater quality impacts during construction and operation (i.e., post-construction) of the Project are discussed under Threshold 4-2 and would be less than significant with mitigation.

Potential surface water quality impacts during construction and operation (i.e., post-construction) for quantitatively analyzed constituents are discussed below. As discussed in Section 5.4.5, the pollutants of concern for which there are sufficient flow composite sampling data in the Los Angeles County database to conduct a quantitative analysis are the following:

- TSS (sediment)
- Total Phosphorus
- Nitrate + Nitrite-Nitrogen, Ammonia, and Total Nitrogen
- Total and Dissolved Copper
- Total Lead
- Total and Dissolved Zinc
- Chloride

### **Construction Impacts**

Construction impacts from Project development would be minimized through compliance with the state Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit. The state Construction General Permit requires that construction period BMPs be implemented in accordance with an impact risk assessment. An SWPPP must be prepared and implemented that includes BMPs that meet or exceed the permit requirements applicable to the level of construction risk. Construction period BMPs may include erosion controls that prevent erosion; sediment controls that trap sediment carried in runoff in basins or other facilities; or BMPs that control other potential construction-related pollutants. The permit requires that BMPs incorporate the best available technology economically achievable and best conventional pollutant control technology (the “BAT/BCT standard”). BMP implementation must be based on the phase of construction and current weather conditions to control erosion and sediment. A Construction Site Monitoring Program that identifies monitoring and sampling requirements during construction is a required component of the SWPPP.

Project construction is anticipated to be classified as Risk Level 2 as defined in the Construction General Permit. Water Quality BMPs will be implemented in response to the risk assessment (Geosyntec 2016b). The following types of BMPs would be implemented during construction of the Project and would meet the BAT/BCT standard to comply with the Construction General Permit:

- **Erosion Control**

- Physically stabilizing the area through hydraulic mulch, soil binders, straw mulch, bonded fiber matrices, and erosion-control blankets (i.e., rolled erosion-control products).
- Containing and securely protecting stockpiled materials from wind and rain at all times, unless actively being used.
- Roughening soil in graded areas (through track walking, scarifying, sheepsfoot rolling, or imprinting) to slow runoff, to enhance infiltration, and to reduce erosion.
- Stabilizing vegetation through temporary seeding and mulching to establish interim vegetation.
- Controlling wind-erosion (dust) through the application of water or other dust palliatives (serving to lessen), as necessary, to prevent and alleviate dust nuisance.

- **Sediment Control**

- Protecting perimeters through silt fences, fiber rolls, gravel bag berms, gravel bag barriers, sand bag barriers, and compost socks to prevent discharges.
- Protecting storm drain inlets.
- Capturing sediment with sediment traps and basins.

- Reducing velocity through check dams, sediment basins, and outlet protection/velocity dissipation devices.
- Reducing off-site sediment tracking through stabilized construction entrance/exit, construction road stabilization, and entrance/exit tire wash.
- Slope interruption at permit-prescribed intervals (fiber rolls, gravel bag berms, sand bag berms, compost socks, biofilter bags).
- **Waste and Materials Management**
  - Managing the following types of materials, products, and wastes (i.e., solid, sanitary, concrete, hazardous, and equipment-related). Management measures include covered storage and secondary containment for material storage areas, secondary containment for portable toilets, covered dumpsters, dedicated and lined concrete washout/waste areas, proper application of chemicals, and proper disposal of all manner of wastes.
  - Protecting soil, landscaping, and construction material stockpiles by covering them, applying water or soil binders, and using perimeter-control measures.
  - Incorporating a spill response and prevention program as part of the SWPPP and on-site availability of spill response materials to be conspicuously located at all times.
- **Non-Storm Water Management**
  - Incorporating BMPs or good housekeeping practices to reduce or limit pollutants at their source before they are exposed to storm water, including such measures as water conservation practices, vehicle and equipment cleaning, fueling practices, and street sweeping. All such measures will be recorded and maintained as part of the Project's SWPPP.
  - Protecting receiving waters through compliance with the Los Angeles and the Lahontan RWQCB's General WDRs, which govern construction-related dewatering discharges. Typical BMPs for construction dewatering are listed below.
    - i. Infiltration of clean groundwater.
    - ii. On-site treatment using suitable treatment technologies.
    - iii. On-site or transport off site of sanitary sewer discharge with local sewer district approval.
    - iv. Use of sedimentation bags for small volumes of localized dewatering.
- **Training and Education**
  - Including Construction General Permit-defined "Qualified SWPPP Developers" (QSD) and "Qualified SWPPP Practitioners" (QSP). QSDs and QSPs shall have required certifications and shall attend State Board sponsored training.
  - Training individuals responsible for SWPPP preparation, implementation, and permit compliance, including contractors and subcontractors.



- Including signage (bilingual, if appropriate) to address SWPPP-related issues (such as site cleanup policies, BMP protection, washout locations).
- **Inspections, Maintenance, Monitoring, and Sampling:**
  - Performing routine site inspections and inspections before, during (for storm events lasting more than 24 hours), and after storm events.
  - Preparing and implementing Rain Event Action Plans (REAPs) prior to any storm event with 50 percent probability of producing 0.5 inch of rainfall, including performing required preparatory procedures and site inspections.
  - Implementing BMP maintenance and repairs, as indicated by routine, storm-event, and REAP inspections.
  - Implementing a Construction Site Monitoring Plan for non-visible pollutants, if a leak or spill is detected.
  - Sampling discharge points for turbidity and pH, at minimum, three times per qualifying storm event and recording and retention of results.

Additional information concerning the implementation of the Construction General Permit during Project construction is provided in Section 5.2, Hydrology and Flood, and in the Water Quality Technical Report, which is Appendix 5.4-A of this EIR.

Construction on the Project site may require dewatering. For example, dewatering may be needed if water has been standing on site and needs to be removed for construction, vector control, or other reasons. Further, dewatering may be necessary if groundwater is encountered during grading or to allow discharges associated with testing of water lines, sprinkler systems, and other facilities. In general, the Construction General Permit authorizes construction dewatering activities and other construction-related non-storm water discharges that (1) comply with Section III.C of the General Permit; (2) do not cause or contribute to a violation of any water quality standards; (3) do not violate any other provisions of the General Permit; (4) do not require a non-storm water permit as may be issued by certain RWQCBs in the state; and (5) are not prohibited by the applicable basin Plan provision.

The Lahontan RWQCB's Limited Threat Discharge Limited Permit authorizes construction dewatering activities in the Lahontan RWQCB region provided the following occur:

1. pollutant concentrations in the discharge do not cause, have a reasonable potential to cause, or contribute to an excursion above any applicable federal water quality criterion promulgated by USEPA pursuant to the CWA Section 303, or water quality objective adopted by the Regional Water Quality Control Board or the SWRCB, including discharge prohibitions for the receiving waters in the Lahontan Region;
2. pollutant concentrations in the discharge will not cause or contribute to degradation of water quality or impair beneficial uses of receiving waters;
3. the discharge does not cause acute or chronic toxicity in the receiving waters; and

4. discharge to land is not a practical alternative based on information provided by the discharger.

The discharger must also comply with a monitoring and reporting program that includes monitoring of the discharge and receiving waters for a mandatory suite of constituents and submit quarterly reports to the Lahontan RWQCB.

The Los Angeles RWQCB General Dewatering Permit authorizes discharges within the Los Angeles RWQCB region subject to BMPs that control potential water quality and other hydrological impacts. The Lahontan RWQCB Limited Threat Discharge Permit WDRs authorize discharges within the Lahontan RWQCB region subject to BMPs that control their potential water quality impacts. BMPs that would be implemented under the General Dewatering Permit for construction dewatering include infiltration of clean groundwater; on-site treatment using suitable treatment technologies; on-site or transport off site for sanitary sewer discharge with local sewer district approval; or use of a sedimentation bag for small volumes of localized dewatering.

The Project would reduce or prevent erosion and sediment transport and transport of other potential pollutants from the Project site during construction through implementation of BMPs meeting the BAT/BCT standard in accordance with the state Construction General Permit. These measures will ensure that discharges during Project construction do not cause or contribute to any exceedance of water quality standards in any receiving waters. All discharges from qualifying storm events must be sampled for turbidity and pH, and results will be compared to Numeric Action Levels (250 NTU and 6.5–8.5, respectively) to ensure that BMPs are functioning as intended. If discharge sample results exceed applicable action levels, a review of causative agents and the existing site BMPs must be undertaken, and maintenance and repair on existing BMPs be performed and/or additional BMPs be provided to ensure that future discharges meet the criteria. Construction BMPs would ensure effective control of sediment discharges and pollutants associated with sediments, such as nutrients, heavy metals, and certain pesticides, including legacy pesticides. Compliance with the BAT/BCT standards requires that BMPs used to control construction water quality are updated over time as new water quality control technologies are developed and become available for use. Compliance with the Construction General Permit will reduce construction period water quality impacts to less than significant levels.

The Project will also comply with the Lahontan RWQCB Limited Threat Discharge Permit and the Los Angeles RWQCB General Dewatering Permit during covered construction activities. These permits require BMPs that reduce potential construction impacts from dewatering and other low-threat construction discharges to less than significant levels.

The Project will comply with the waste discharge requirements in the state Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit during construction. The risk-based water quality and other BMPs implemented to the BAT/BCT standard (as required by the Construction General Permit) as well as additional measures required by the Lahontan RWQCB Limited Threat Discharge Permit and the Los Angeles RWQCB General Dewatering Permit will also avoid violation of any surface water quality standard during construction. Potential construction

period Project impacts from the violation of any surface water quality standards or waste discharge requirements would be less than significant and no mitigation is required.

### ***Operational Impacts***

As discussed above, the Project will construct and maintain distributed and parcel-specific LID and regional flood, hydromodification, and LID-control facilities that will meet or exceed applicable federal, State, and County hydrology and water quality control requirements. The locations of the primary distributed and parcel-specific LID facilities are shown in Exhibit 5.4-2, Low Impact Development (LID) Drainage Areas with Project. The locations of the 28 runoff detention and retention basins that comprise the regional control system are shown in Exhibit 5.2-4. Each basin has been sized to provide sufficient capacity to meet hydrology and flood, hydromodification, and water quality protection requirements. The following discussion summarizes the quantitative analysis of Project runoff water quality under post-development conditions, including regional, distributed and parcel-specific BMPs, relative to applicable receiving water quality standards. Potential water quality impacts for constituents subject to a qualitative analysis are discussed in Threshold 4-5.

### **Quantitative Analysis Results**

Computer modeling was completed to forecast potential pollutant loadings that could be generated on the Project site under post-development conditions with applicable BMPs. Quantitatively analyzed constituents were evaluated with respect to the following three criteria:

1. Comparison of post-development versus pre-development (i.e., existing condition, which is primarily open space with livestock grazing and agriculture) storm water quality concentrations and loads;
2. Comparison with Los Angeles County MS4 Permit requirements; and
3. Evaluation relative to receiving water quality criteria. (The water quality criteria do not apply directly to runoff from the Project site and are used as conservative measures of potential water quality impacts.)

The comparison of post-development versus pre-development storm water quality concentrations and loads (criterion 1) are summarized in Table 5.4-6, Average Annual Runoff Volume and Pollutant Loads, and Table 5.4-7, Predicted Average Annual Pollutant Concentrations. Table 5.4-6 summarizes the predicted changes in the post-development mean annual volume of storm water runoff from existing conditions and mean annual loads for the pollutants of concern subject to a quantitative analysis. Table 5.4-7 summarizes the predicted changes in the average annual pollutant concentrations for these pollutants of concern. Pollutant loads refer to the total amount of each pollutant that would be produced on the site as an absolute volume. The pollutant concentration is a function of the measurement of the pollutant within a given amount of water. Therefore, the units for pollutant concentrations reflect the amount of the pollutant in one liter (L) of water.

The results include the Project site and approximately 15 acres located off site that would be subject to Project-related construction, including intersections with SR-138, utility connections, water wells, and Aqueduct crossings (see Section 4.0, Project Description). The modeling results are conservative because they only consider pollutant reductions attributable to the implementation of the proposed LID BMPs. Additional pollution reductions would occur due to site design and source-control, hydrology or hydromodification BMPs, and the post-development constituent loads and concentrations are likely to be lower than projected in the analysis.

**TABLE 5.4-6  
PREDICTED AVERAGE ANNUAL POLLUTANT LOADS**

<b>Parameter</b>	<b>Units</b>	<b>Existing</b>	<b>Developed</b>	<b>Change</b>
Volume	af	240	1,014	774
TSS	tons/yr	84	131	47
Total Phosphorous	lbs/yr	355	807	452
Nitrate-N + Nitrite-N	lbs/yr	1,448	1,981	533
Ammonia-N	lbs/yr	129	1,216	1,087
Total Nitrogen	lbs/yr	2,287	8,908	6,621
Total Copper	lbs/yr	11	42	31
Dissolved Copper	lbs/yr	1.2	19.8	18.6
Total Lead	lbs/yr	3.3	18.7	15.4
Total Zinc	lbs/yr	18	236	218
Dissolved Zinc	lbs/yr	19	141	122
Chloride	tons/yr	3.7	23.9	20.2

af: acre-feet; TSS: total suspended solids (a measure of sediment); tons/yr: tons per year; nitrate-N, nitrite-N and ammonia-N are inorganic forms of nitrogen; lbs/yr: pounds per year.

Note: Modeled off-site improvements include 15 acres of roadway improvements.

Source: Geosyntec Consultants 2016b

**TABLE 5.4-7  
PREDICTED AVERAGE ANNUAL POLLUTANT CONCENTRATIONS**

Parameter	Units	Existing	Developed	Change
TSS	mg/L	256	95	-161
Total Phosphorous	mg/L	0.5	0.3	-0.2
Nitrate-N + Nitrite-N	mg/L	2.2	0.7	-1.5
Ammonia-N	mg/L	0.2	0.4	0.2
Total Nitrogen	mg/L	3.5	3.2	-0.3
Total Copper	µg/L	16.3	15.2	-1.1
Dissolved Copper	µg/L	1.9	7.2	5.3
Total Lead	µg/L	5.0	6.8	1.8
Total Zinc	µg/L	27.0	85.6	58.6
Dissolved Zinc	µg/L	28.6	51.1	22.5
Chloride	mg/L	11.4	17.3	5.9

TSS: total suspended solids (a measure of sediment); mg/L: milligrams per liter; nitrate-N, nitrite-N and ammonia-N are inorganic forms of nitrogen; µg/L: micrograms per liter.

Note: Modeled off-site improvements include 15 acres of roadway improvements.

Source: Geosyntec Consultants 2016b

A discussion of the results shown in Tables 5.4-6 and 5.4-7 above, including a comparison of pre- and post-Project development conditions as well as comparison with water quality criteria for each pollutant modeled, is provided below.

### Runoff Volume

Mean annual runoff volumes with are projected to increase from approximately 224 acre-feet per year (afy) under existing conditions to 774 afy under post-development conditions due to the increase in impervious surfaces on the site. For modeling purposes, the existing site was assumed to have an imperviousness of one percent in accordance with the Los Angeles County Hydrology Manual (Hydrology Manual) (LACDPW 2006). As discussed below, the increase in mean annual runoff volumes is projected to increase the annual load (in tons or pounds per year; see Table 5.4-6) of most constituents of concern.

Post-development impervious surfaces were estimated based on the proposed land uses and on the associated level of imperviousness indicated in the Hydrology Manual; these surfaces would have a composite imperviousness of approximately 54 percent. The entire Project site was estimated to have a composite imperviousness at buildout of approximately 30 percent when open space is included. Generally, runoff volume is directly proportional to percent imperviousness. As discussed above and in Section 5.2, Hydrology and Flood, the Project includes site-design, source-control, LID, water quality, and hydromodification-control BMPs that will meet or exceed County MS4 Permit, LID Ordinance, and LID Standards Manual standards for new development. Site-design BMPs, including the minimization of impervious area and the conservation of approximately 47 percent of the site (or 5,807 acres) in park and open space land uses, would reduce the post-development storm water runoff volumes. LID BMPs also reduce mean annual runoff volumes by infiltrating approximately 121 acre-

feet of storm water runoff per year on average. Potential Project impacts related to runoff volume are discussed in Section 5.2, Hydrology and Flood, and will be less than significant with mitigation.

#### Total Suspended Solids (TSS)

**Comparison of Pre- and Post-Development Conditions:** Post-development TSS loads are predicted to increase due to the increase in mean annual runoff volume discussed above. Under post-development conditions, the average TSS concentration in storm water runoff from the Project site would be reduced from 256 mg/l to 95 mg/l (see Table 5.4-7). This reduction is due to several factors, including increased hardscape and decreased grazing on the Project site, which tends to reduce the amount of suspended solids that would be carried in runoff.

**Comparison with Water Quality Criteria:** Table 5.4-8, Comparison of Predicted Total Suspended Solids Concentrations with Water Quality Criteria for the Project, compares the predicted average annual TSS concentration in post-development storm water runoff from the total modeled area to the narrative TSS water quality criteria in the Lahontan and Los Angeles Basin Plans.

**TABLE 5.4-8  
COMPARISON OF PREDICTED TOTAL SUSPENDED SOLIDS CONCENTRATIONS WITH  
WATER QUALITY CRITERIA FOR THE PROJECT**

Parameter	Predicted Average Annual Total Project Concentration (mg/L)	Los Angeles Basin Plan Surface Water Quality Objectives	Lahontan Basin Plan Surface Water Quality Objectives
TSS	95	Water shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses.	<p>The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect the water for beneficial uses.</p> <p>Waters shall not contain suspended materials in concentrations that cause nuisance or that adversely affect the water for beneficial uses.</p> <p>For natural high quality waters, the concentration of total suspended materials shall not be altered to the extent that such alterations are discernible at the 10% significance level.</p>
mg/L: milligrams per liter			
Source: Geosyntec Consultants 2016b			

As shown in Table 5.4-7, post-development average annual TSS concentrations would be significantly lower than under current conditions. This reduction would avoid the creation of nuisance or adversely affect beneficial uses in applicable receiving waters. There are no natural high quality waters as defined in the Lahontan Basin Plan that could be affected by

Project runoff. Potential Project impacts related to TSS concentrations would be less than significant.

### Nutrients

**Comparison of Pre- and Post-Development Conditions:** Total phosphorous loads are predicted to increase with development. Post-development phosphorus concentrations are predicted to decrease from 0.5 mg/L to 0.3 mg/L due to the reduction in agricultural and related land uses that are known to generate nutrient loads in runoff (see Table 5.4-7).

Nitrate + nitrite-nitrogen and total nitrogen average annual concentrations are also predicted to decrease while the average annual concentration of ammonia is predicted to increase in storm water runoff as a result of the Project (see Table 5.4-7). The nitrate + nitrite-nitrogen and total nitrogen decreases can be attributed to the reduction in agricultural and related land uses that are known to generate nutrient loads in discharges from LID BMPs. Ammonia concentrations will increase slightly due to greater concentrations of ammonia measured in developed area runoff in comparison to open space runoff.

As discussed above, the nutrient analysis is conservative because it only considers LID and hydromodification-control BMP constituent reductions. Other BMPs—including site-design BMPs that minimize nutrients in runoff through the preservation of natural areas, the use of native or drought tolerant plants in development area plant palettes, educational materials regarding the proper handling of fertilizers and pet waste, and the implementation of an IPM program—would further reduce nutrient loads and concentrations below the levels projected in Tables 5.4-6 and 5.4-7.

**Comparison with Water Quality Criteria:** The Lahontan and Los Angeles Basin Plans contain both narrative and numerical objectives for nutrients, including total phosphorus, total nitrogen, nitrate-N plus nitrite-N, and total ammonia (Table 5.4-9, Comparison of Nutrient Concentrations with Water Quality Criteria for the Project).

**TABLE 5.4-9  
COMPARISON OF NUTRIENT CONCENTRATIONS WITH WATER QUALITY CRITERIA  
FOR THE PROJECT**

Parameter	Predicted Average Annual Concentration (mg/L)	Los Angeles Basin Plan Surface Water Quality Objectives (mg/L)	Lahontan Basin Plan Surface Water Quality Objectives (mg/L)
Total Phosphorus	0.3	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.	Waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect the water for beneficial uses whereby discharges are not to cause excessive algae growth in receiving waters.
Total Nitrogen	3.2		
Nitrate-N + Nitrite-N	0.7		
Total Ammonia	0.4	1.24 <sup>b</sup>	8.5 <sup>c</sup>
mg/L: milligrams per liter; ELS: early life stage ; pH: hydrogen potential; °C: degrees Celsius; °F: degrees Fahrenheit			
<sup>a</sup> Waters shall not exceed 10 mg/L nitrogen as nitrate-nitrogen plus nitrite-nitrogen (NO <sub>3</sub> -N + NO <sub>2</sub> -N), 45 mg/L as nitrate (NO <sub>3</sub> ), 10 mg/L as nitrate-nitrogen (NO <sub>3</sub> -N), or 1 mg/L as nitrite-nitrogen (NO <sub>2</sub> -N).			
<sup>b</sup> 30-day average, ELS present, based on average pH (7.97) and average temperature of 25°C.			
<sup>c</sup> Total ammonia Water Quality Objective calculated using pH = 7.5 (log mean pH) and Temperature = 30°C (86°F), which is very conservative.			
Source: Geosyntec Consultants 2016b			

The post-development total phosphorous concentration in Project storm water discharges to ephemeral receiving water drainages is lower than under existing conditions and is not likely to promote (i.e., increase) algae growth and therefore would comply with the narrative objective for biostimulatory substances in the Basin Plans. Ephemeral drainages dry out between storm events and do not support algal growth. As shown in Table 5.4-9, the average annual storm water concentration of ammonia, nitrate-N, and nitrite-N are predicted to be considerably lower than the numerical objectives in both basin plans and would also comply with applicable narrative water quality objectives. Potential Project impacts related to nutrients would be less than significant.

### Metals

**Comparison of Pre- and Post-Development Conditions:** Projected loads and concentrations for the trace metals, copper, lead, and zinc are presented in Tables 5.4-6 and 5.4-7 above. Except for lead, CTR criteria apply to the dissolved forms of each metal. Los Angeles County land use-based monitoring data for dissolved lead is insufficient to facilitate modeling for this constituent. Copper, lead, and zinc are the most prevalent metals typically found in urban runoff. Other trace metals, such as cadmium, chromium, and mercury, are typically not detected in urban runoff or are detected at very low levels.

As shown in Tables 5.4-6 and 5.4-7, post-development dissolved copper, total lead, and total and dissolved zinc loads and concentrations are projected to increase compared with



pre-development conditions. The average annual concentration of total copper is predicted to decrease. These results are consistent with data indicating that metal loads and concentrations generally increase when a largely undeveloped site is subject to development from the introduction of automobile components, infrastructure materials, and atmospheric deposition.

As discussed above, the metals analysis is conservative because it only considers LID and hydromodification-control BMP constituent reductions. Other BMPs, such as site-design measures that direct drainage from impervious areas to vegetated infiltration areas, the selection of building materials that do not include copper or zinc, or source controls (e.g., education for property owners, street sweeping private streets, and parking lots) would further reduce metal loads and concentrations below the levels projected in Tables 5.4-6 and 5.4-7.

**Comparison with Water Quality Criteria:** Table 5.4-10, Comparison of Predicted Metals Concentrations with Water Quality Criteria for the Project, compares the projected post-development metal concentrations with narrative metals water quality objectives in the Lahontan and Los Angeles Basin Plans and numerical criteria in the CTR.

**TABLE 5.4-10  
COMPARISON OF PREDICTED METALS CONCENTRATIONS WITH WATER QUALITY  
CRITERIA FOR THE PROJECT**

<b>Parameter</b>	<b>Predicted Average Annual Total Concentration (µg/L)</b>	<b>Los Angeles Basin Plan Surface Water Quality Objectives</b>	<b>Lahontan Basin Plan Surface Water Quality Objectives</b>	<b>CTR Criteria*</b>
Total Copper	15.2	All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.	All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective would be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration and/or other appropriate methods as specified by the Regional Board. The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors shall not be less than that for the same water body in areas unaffected by the waste discharge or, when necessary, for other control water that is consistent with the requirements for "experimental water" as defined in Standard Methods for the Examination of Water and Wastewater.	52
Dissolved Copper	7.2			50
Total Lead	6.8			480
Total Zinc	85.6			390
Dissolved Zinc	110	All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.		120

µg/L: micrograms per liter; CTR: California Toxics Rule; mg/L: milligrams per liter

\* CTR acute aquatic life criteria are calculated for the maximum allowable hardness of 400 mg/L; an average hardness of 589 mg/L was observed in Piru Creek, which is representative of the Project's receiving waters.

Source: Geosyntec Consultants 2016b.

The narrative objectives in each Basin Plan focus on avoiding metals (i.e., “toxic substances”) in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. The CTR numerical criteria are based on similar water quality objectives required to protect aquatic life and provide a quantitative basis for evaluating Project compliance with the Basin Plan narrative objectives. CTR criteria are expressed for acute (one hour) and chronic (four-day average) conditions. For the Project site, only acute conditions are applicable because the duration of storm water discharges in the Antelope Valley region is consistently less than four days. The CTR criteria are calculated on the basis of the hardness of the receiving waters. Lower hardness concentrations result in lower, more stringent CTR criteria. The maximum allowable hardness of 400 mg/L was used as an estimate of the hardness in the Project’s receiving waters based on an average hardness of 589 mg/L observed in Piru Creek, the most proximate receiving water to the site for which hardness data was available.

As shown on Table 5.4-10, each of the projected post-development metal concentrations are below the CTR numerical criteria. As a result, the projected post-development metals concentrations would also comply with the toxicity avoidance narrative criteria in the Lahontan and Los Angeles Basin Plans. Potential Project impacts related to metals would be less than significant.

### Chloride

**Comparison of Pre- and Post-Development Conditions:** As shown in Tables 5.4-6 and 5.4-7, average annual chloride concentrations and loads are predicted to increase compared with existing conditions. This result is due to the fact that chloride sources in urban areas (e.g., bulk precipitation deposition, leaching from materials such as plywood and plastics, fumigants, and paint removers) are typically more prevalent in developed areas than in undeveloped locations in Los Angeles County.

**Comparison with Water Quality Criteria:** Table 5.4-11, Comparison of Predicted Chloride Concentrations with Water Quality Criteria for the Project, compares the predicted chloride concentration in post-development Project runoff with the Los Angeles Basin Plan water quality objective. The Lahontan Basin Plan does not contain water quality objectives for chloride.

**TABLE 5.4-11  
COMPARISON OF PREDICTED CHLORIDE CONCENTRATIONS WITH WATER QUALITY  
CRITERIA FOR THE PROJECT**

Parameter	Predicted Average Annual Total Concentration (mg/L)	Los Angeles Basin Plan Surface Water Quality Objectives (mg/L)	Lahontan Basin Plan Surface Water Quality Objectives*
Chloride	17.3	100	N/A
mg/L: milligrams per liter; N/A: not applicable			
* There is no Lahontan Basin Plan surface water quality objective for chloride in the Project site’s receiving waters.			
Source: Geosyntec Consultants 2016b.			

As shown in Table 5.4-11, the post-development conditions for chloride concentrations would be less than significant.

In summary, the development average annual chloride concentration in storm water runoff from the Project site is significantly below the Los Angeles Basin Plan water quality objective for chloride. Potential Project impacts related to chloride concentrations would potential Project impacts for all quantitatively analyzed constituents of concern, including TSS, nutrients, trace metals, and chloride, would be consistent with or significantly below applicable narrative and numerical water quality objectives in the Lahontan and Los Angeles Basin Plans and in the CTR. As discussed in Threshold 4-5, potential Project impacts related to constituents of concern that are qualitatively analyzed, including turbidity, pesticides, pathogens (bacteria, viruses, and protozoa), petroleum hydrocarbons (oil and grease, PAHs), trash and debris, MBAS, toxicity, and emerging contaminants, would be less than significant. As a result, with the implementation of MM 4-1 and MM 4-2, the Project would not result in a violation any surface water quality standards or waste discharge requirements and impacts would be less than significant.

## **Off-Site Impacts**

### ***Construction and Operational Impacts***

Approximately 15 acres located off site would be subject to Project-related construction, including intersections with SR-138, utility connections, water wells, and Aqueduct crossings (see Section 4.0, Project Description). The construction period and operational quantitative and qualitative water quality analysis includes these off-site locations. Consistent with the on-site analysis, with the implementation of MM 4-1 and MM 4-2 the Project would not result in a violation any off-site (surface water) water quality standards or waste discharge requirements and impacts would be less than significant.

***Impact Summary:*** The Project will implement a comprehensive system of site design, source control, low impact development, and hydromodification Best Management Practices that meets or exceeds the water quality and hydrology (storm water runoff) standards for new development in the County LID Ordinance, LID Standards Manual, and MS4 Permit. All water quality controls, including regional, distributed and parcel-specific measures, are designed to meet or exceed the LID performance standards consistent with the requirements of the MS4 Permit, the LID Ordinance, and the LID Standards Manual. The project will also implement integrated pest management and landscaping BMPs consistent with the integrated pest management and pesticide and fertilizer application guidelines established by the University of California Division of Agriculture and Natural Resources Statewide Integrated Pest Management Program. Compliance with the LID performance standards and integrated pest management and landscaping BMP requirements will be reconfirmed in drainage and landscape plans to be submitted to the County in conjunction with each Project tract map review and approval process. These requirements

are incorporated in MM 4-1 and MM 4-2. During construction, the Project will comply with the state Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit and implement BMPs that will comply with all applicable waste discharge requirements and applicable water quality standards. The quantitative analysis results show that post-development concentrations of TSS, nutrients, trace metals, and chloride would be consistent with or significantly below applicable narrative and numerical water quality objectives in the Lahontan and Los Angeles Basin Plans and in the CTR. The qualitative analysis in Threshold 4-5 shows potential Project impacts related to turbidity, pesticides, pathogens (bacteria, viruses, and protozoa), petroleum hydrocarbons (oil and grease, PAHs), trash and debris, MBAS, toxicity, and emerging contaminants would be less than significant. With the implementation of MM 4-1 and MM 4-2, and compliance with applicable laws and regulations, including the state Construction General Permit and the Lahontan RWQCB Limited Threat Discharge Permit, potential Project impacts related to a violation of any surface water quality standards or waste discharge requirements would be less than significant.

**Threshold 4-2**      **Would the project generate construction or post-construction runoff that would violate applicable stormwater NPDES permits or otherwise significantly affect surface water or groundwater quality?**

### **On-Site Impacts**

Surface water quality impacts during construction and operation (i.e., post-construction) of the Project are discussed under Threshold 4-1 above for qualitatively analyzed constituents and under Threshold 4-5 for qualitatively analyzed constituents. With mitigation, and compliance with applicable laws and regulations, the Project would not result in a violation of any surface water quality standards, waste discharge requirements, or applicable stormwater National Pollutant Discharge Elimination System (NPDES) permits, nor would it otherwise significantly affect or degrade surface water quality.

Potential groundwater quality impacts are addressed below.

### **Construction Impacts**

The primary groundwater quality concern during Project construction is that construction activities could substantially increase the rate or amount of surface runoff in a manner that would result in the infiltration of pollutants into the Antelope Valley Groundwater Basin. As discussed above, approximately 96 percent of the Project site is located within the Antelope Valley Groundwater Basin Watershed. No runoff from developed areas on the Project site will occur in the Quail Lake Watershed. Approximately 4 percent of the site is in the Gorman Creek Watershed, which drains to the Hungry Valley and Peace Valley Groundwater Basins.

Potential construction impacts to groundwater from Project development would be minimized through compliance with the state Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit, all of which have been issued as NPDES and state permits. The state Construction General Permit requires that construction period BMPs be implemented in accordance with an impact risk assessment. An SWPPP must be prepared and implemented that includes BMPs that meet or exceed the permit requirements applicable to the level of construction risk. Construction period BMPs may include erosion controls that prevent erosion; sediment controls that trap sediment carried in runoff in basins or other facilities; or BMPs that control other potential construction-related pollutants. The permit requires that BMPs incorporate the best available technology economically achievable and best conventional pollutant control technology. BMP implementation must be based on the phase of construction and current weather conditions to control erosion and sediment. A Construction Site Monitoring Program that identifies monitoring and sampling requirements during construction is a required component of the SWPPP.

Project construction is anticipated to be classified as Risk Level 2, as defined in the Construction General Permit. Water quality BMPs will be implemented in response to the risk assessment (Geosyntec 2016b). Additional information concerning the implementation of the Construction General Permit during Project construction is provided in Threshold 4-1 and Section 5.2, Hydrology and Flood, of this EIR. As discussed in Threshold 4-1, the Project will also comply with the Lahontan RWQCB Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit during covered construction activities.

Compliance with the state Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit during construction will not result in violation of applicable storm water NPDES permits or otherwise significantly affect surface water or groundwater quality. Potential impacts would be less than significant and no mitigation is required.

### ***Operational Impacts***

Groundwater quality impacts could result from the infiltration of developed area runoff into the Antelope Valley Groundwater Basin. As discussed above, approximately 93 percent of the Project site is located within the Antelope Valley Groundwater Basin Watershed. No runoff from Project developed areas will occur in the Quail Lake Watershed. Approximately four percent of the site is in the Gorman Creek Watershed, which drains to the Hungry Valley and Peace Valley Groundwater Basins. Developed area runoff could infiltrate into groundwater by (1) the infiltration of water applied to outdoor areas for landscaping, slopes, parks, schools, and common area irrigation; (2) infiltration in regional detention and retention basins and in distributed or parcel-specific LID BMPs; and (3) infiltration of post-treatment runoff that flows from regional detention and retention basins and distributed or from parcel-specific LID BMPs that eventually flows to Antelope Valley Groundwater Basin recharge locations.

As discussed in Section 5.4.5, Groundwater Pollutants of Concern, research conducted on the effects on groundwater from storm water infiltration indicates that, with appropriate pretreatment, storm water infiltration does not adversely impact groundwater quality

(Geosyntec 2016b). Exhibit 5.4-2, Low Impact Development (LID) Drainage Areas with Project, shows the portions of the site that are subject to regional water quality treatment in 28 retention and detention basins and the locations that are subject to water quality treatment in distributed or parcel-specific LID BMPs; as shown, all on-site runoff will be subject to appropriate pretreatment prior to infiltration in regional and distributed or parcel-specific LID BMPs.

Groundwater constituents of concern are characterized by high mobility, low adsorption potential, high solubility fractions, and high concentrations in runoff. Most of the constituents of concern, including metals and bacteria, lack these characteristics and are filtered from runoff by soils. As discussed in Threshold 4-1 for qualitatively analyzed constituents, and in Threshold 4-5 for quantitatively analyzed constituents, most constituents of concern would also not occur in high concentrations or in concentration levels that exceed applicable water quality objections. With the implementation of MM 4-1 and MM 4-2, potential groundwater impacts from these constituents would be less than significant.

As discussed in Section 5.4.5, chloride and nitrate have a greater potential for infiltration because these constituents are more mobile and could reach groundwater by infiltration. Table 5.4-12 compares the predicted average annual nitrate-N and chloride concentrations in Project post-development runoff with applicable groundwater quality objectives from the Los Angeles and Lahontan Basin Plans. As shown in Table 5.4-12, under developed conditions and including the proposed regional and distributed or parcel-specific LID BMPs, predicted average annual nitrate-N and chloride concentrations in Project runoff would be significantly below the nitrate-N groundwater quality objective in the Los Angeles Basin Plan (no nitrate-N groundwater objective is included in the Lahontan Basin Plan) and the chloride groundwater objectives in both Basin Plans.

**TABLE 5.4-12  
COMPARISON OF NITRATE-N AND CHLORIDE CONCENTRATIONS  
WITH GROUNDWATER QUALITY OBJECTIVES FOR THE PROJECT SITE**

Predicted Average Annual Concentration in Storm Water (mg/L)		Los Angeles Basin Plan Water Groundwater Quality Objectives (mg/L)		Lahontan Basin Plan Groundwater Quality Objectives (mg/L)	
Nitrate-N	Chloride	Nitrate-N	Chloride	Nitrate-N*	Chloride
0.7	17.3	10	50	N/A	250
mg/L: milligrams per liter; N/A: not applicable					
* There is no Lahontan Basin Plan groundwater quality objective for nitrate-N in the Project area groundwater basin.					
Source: Geosyntec Consultants 2016b.					

The Los Angeles Basin Plan groundwater quality objective for nitrate-nitrogen is 10 mg/L. The predicted nitrate-nitrogen concentration in runoff after treatment with LID BMPs is 0.7 mg/L, significantly below the Los Angeles Basin Plan groundwater quality objective.

The Lahontan Basin Plan groundwater quality objective for chloride is 250 mg/L and the Los Angeles Basin Plan's groundwater quality objective for the Hungry Valley and Peace Valley Groundwater Basins is 50 mg/L. The average annual chloride concentration in Project site runoff is predicted to be 17.3 mg/L, which is significantly lower than the groundwater objectives. Therefore, the potential for adversely affecting groundwater quality for chloride due to infiltration of Project site runoff would be less than significant.

As discussed in Section 5.18, Water Resources, at buildout, the Project will use approximately 4,659 afy of recycled water treated to unrestricted reuse standards in accordance with Title 22 of the of the *California Code of Regulations*, primarily for outdoor irrigation. Recycled water can be a contributing source of nitrate-N and chloride in runoff.

As discussed in Section 5.19, Wastewater, the Project will include two wastewater reclamation facilities (WRFs), including one to the west of and a larger facility to the east of the West Branch of the California Aqueduct. Title 22 of the *California Code of Regulations* establishes criteria for recycled water, treatment, conveyance, and water quality testing; these criteria are administered by the SWRCB Division of Drinking Water. State surface and ground water quality, including discharge from the WRFs, is further regulated by the Lahontan RWQCB under the Porter Cologne Act. Each of the proposed WRFs will be required to obtain WDRs from the Lahontan RWQCB that include enforceable operational, treatment, conveyance, discharge, water quality, and monitoring requirements before wastewater treatment and recycled water operations may commence. The WDRs issued by the board will be consistent with the RWQCB's wastewater treatment requirements. The proposed WRFs will not be located in or discharge to portions of the site within the boundaries of the Los Angeles RWQCB.

On February 3, 2009, in Resolution No. 2009-0011, the SWRCB adopted a Recycled Water Policy (SWRCB 2009b)(Policy) that provides direction to each RWQCB regarding appropriate criteria to be used in issuing permits for recycled water projects and is intended to streamline recycled water project permitting. The Policy notes that (1) some groundwater basins contain salts and nutrients that exceed or threaten to exceed water quality objectives established in Basin Plans; (2) all salts and nutrients should be managed on a basin-wide or watershed-wide basis through development of regional or sub-regional management plans; and (3) every groundwater basin/sub-basin in California is to have a consistent, locally driven salt/nutrient management plan developed by water and wastewater entities, together with contributing stakeholders in collaborative processes, including compliance with CEQA and participation by RWQCB staff. The Policy describes the components of these salt and nutrient management plans. Finally, the Policy addresses the control of incidental runoff from landscape irrigation projects, recycled water, groundwater recharge projects, anti-degradation factors, control of emerging constituents, and chemicals of emerging concern.

The WRF permits issued by the Lahontan RWQCB will contain waste discharge requirements that ensure compliance with the Lahontan Basin Plan surface water quality objectives for nitrate-N (10 mg/L) and chloride (100 mg/L) as well as the Basin Plan groundwater chloride objective of 250 mg/L. The permits will also be consistent with the SWRCB Recycled Water Policy, including salt and nutrient policy provisions. MM 19-5 in Section 5.19, Wastewater,



requires that, prior to the issuance of grading permits for areas served by each WRF, the County must be provided with documentation demonstrating that the applicable WRF is in conformance with all Lahontan RWQCB and Title 22 requirements.

With the implementation of MM 4-1, MM 4-2 and MM 19-5, and compliance with all WRF permit terms and conditions, the Project would not significantly affect groundwater quality and potential impacts will be less than significant.

## **Off-Site Impacts**

Approximately 15 acres located off site would be subject to Project-related construction, including intersections with SR-138, utility connections, water wells, and Aqueduct crossings (see Section 4.0, Project Description). The construction period and operational quantitative and qualitative water quality analysis includes these off-site locations. Consistent with the on-site analysis, with the implementation of MM 4-1, MM 4-2, and MM 19-5 and with compliance with all WRF permit terms and conditions, the Project would not significantly affect off-site groundwater quality, and potential impacts will be less than significant.

**Impact Summary:** The Project will implement a comprehensive system of site design, source control, low impact development, and hydromodification Best Management Practices that meet or exceed the water quality and hydrology (storm water runoff standards for new development in the County LID Ordinance, the LID Standards Manual, and the MS4 Permit. All water quality controls, including regional, distributed and parcel-specific measures, are designed to meet or exceed the LID performance standards consistent with the requirements of the MS4 Permit, the LID Ordinance and the LID Standards Manual. The project will also implement integrated pest management and landscaping BMPs consistent with the integrated pest management and pesticide and fertilizer application guidelines established by the University of California Division of Agriculture and Natural Resources Statewide Integrated Pest Management Program. Compliance with the LID performance standards and integrated pest management and landscaping BMP requirements will be reconfirmed in drainage and landscape plans to be submitted to the County in conjunction with each Project tract map review and approval process. These requirements are incorporated in MM 4-1 and MM 4-2. Two WRFs will be operated in conformance with all Lahontan RWQCB and Title 22 requirements, which will be reconfirmed in documentation and to be submitted to the County prior to the issue of building permits. These requirements are incorporated into MM 19-5. During construction, the Project will comply with the state Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit. Potential surface water quality impacts are discussed in Threshold 4-1 and 4-5 and will be less than significant after mitigation. With implementation of MM 4-1, MM 4-2, and MM 19-5

as well as compliance with applicable laws, regulations, and WRF permits, potential Project impacts from construction or post-construction runoff that would violate applicable storm water NPDES permits or that would otherwise significantly affect groundwater quality would be less than significant.

**Threshold 4-3      Would the project result in point or nonpoint source pollutant discharges into State Water Resources Control Board-designated Areas of Special Biological Significance?**

### **On-Site and Off-Site Impacts**

SWRCB-designated Areas of Special Biological Significance (ASBS) are 34 ocean areas, covering much of the length of California's coastal waters, that are monitored and maintained for water quality by the SWRCB. The only coastal ASBS in Los Angeles County is the Laguna Point to Latigo Point ASBS, which encompasses 11,842 acres of marine habitat and approximately 24 miles of coastline roughly between Pt. Mugu and Malibu (SWRCB 2014).

As discussed above, approximately 93 percent of the Project site is located within the Antelope Valley Groundwater Basin Watershed. No runoff from Project developed areas will occur in the Quail Lake Watershed. Approximately four percent of the site is in the Gorman Creek Watershed, which drains to Gorman Creek. Gorman Creek flows to Cañada de los Alamos in the Lower Hungry Valley before discharging to Pyramid Lake about six miles downstream from the Project boundary. Downstream of Pyramid Lake, Piru Creek flows south approximately 20 miles to Piru Lake, which is formed by the Santa Felicia Dam and then for approximately 6 miles south to Reach 4 of the Santa Clara River. The point of confluence with the Santa Clara River is located approximately 40 miles south of the Project site (Geosyntec 2016b). As a result, the Project site is approximately 72 miles upstream of the Pacific Ocean. The Santa Clara River discharges at McGrath State Beach in the City of Oxnard, which is approximately six miles from the northern terminus of the Laguna Point to Latigo Point ASBS. The Project will not result in point or non-point source pollutant discharges into any ASBS. There would be no impact and no mitigation is required.

**Impact Summary:** The Project will not result in point or non-point source pollutant discharges into any ASBS. There would be no impact and no mitigation is required.

**Threshold 4-4      Would the project use onsite wastewater treatment systems in areas with known geological limitations (e.g. high groundwater) or in close proximity to surface water (including, but not limited to, streams, lakes, and drainage course)?**

## On-Site Impacts (Construction and Operations)

As discussed in Section 5.19, Wastewater, the Project will include two WRFs, including one to the west of the West Branch of the California Aqueduct (WRF West) and a larger facility to the east of the Aqueduct (WRF East). Title 22 of the *California Code of Regulations* establishes criteria for recycled water, treatment, conveyance, and water quality testing, and it is administered by the SWRCB Division of Drinking Water. State surface and groundwater quality, including discharge from the WRFs, is further regulated by the Lahontan RWQCB under the Porter-Cologne Act. Each of the proposed WRFs will be required to obtain WDRs from the Lahontan RWQCB that include enforceable operational, treatment, conveyance, discharge, water quality, and monitoring requirements before wastewater treatment and recycled water operations may commence. The WDRs issued by the board will be consistent with the RWQCB's wastewater treatment requirements and the SWRCB's Recycled Water Policy (SWRCB Resolution No. 2009-0011). The proposed WRFs will not be located in or discharge to portions of the site within the boundaries of the Los Angeles RWQCB.

Both WRFs are proposed in locations that would allow for wastewater to generally flow by gravity for treatment and are sited in areas that are not adjacent to sensitive land uses. The wastewater collection system also includes locations where small sewer lift stations and force mains will be required. The proposed sewer lift stations will typically consist of a duplex, a submersible pump system equipped with aboveground electrical facilities, and generators to provide stand-by power.

The treatment facilities will consist of primary treatment using grinder pumps and by screening in channels, which can be constructed in phases, followed by secondary and tertiary treatment. The wastewater will be treated to state Title 22 unrestricted reuse standards, which requires biological oxidation clarification and filtration of treated wastewater. Membrane bioreactor (MBR) wastewater treatment technology will be utilized to meet the recycled water quality objectives. The MBR process combines a biological treatment system followed by membrane filtration. This MBR technology will provide recycled water supplies that exceed secondary and tertiary Title 22 requirements. Solids handling will be provided by anaerobic digesters to thicken the sludge followed by centrifuges or belt filter presses to further reduce the liquid content prior to being hauled to a suitable landfill or to convert it into fertilizer products. Exhibit 4-15, Treatment Methods at Project Wastewater Reclamation Facilities (WRF), in Section 4.0 Project Description, provides an overview of treatment processes and methods that would be used at each WRF.

Exhibit 5.19-2 in Section 5.19, Wastewater, shows the Project's proposed recycled water, storage, and distribution system. The WRFs and related facilities are not located in areas with high groundwater or that are in close proximity to perennial streams or lakes. As discussed in Section 5.2, Hydrology and Flood, and in Section 5.7 Biological Resources, Threshold 7-3, intermittent and ephemeral drainage courses occur within and adjacent to the Project site, including areas that are proximate to the proposed WRFs and related facilities.

Potential surface water quality impacts to drainage courses during construction and operation (i.e., post-construction) of the Project are discussed under Threshold 4-1 for

qualitatively analyzed constituents and under Threshold 4-5 for qualitatively analyzed constituents. Potential ground water quality impacts, including from the use of recycled water produced by the WRFs that could be conveyed and infiltrated by drainage courses, are discussed in Threshold 4-2. The WRFs will be required to obtain WDRs from the Lahontan RWQCB that include enforceable operational, treatment, conveyance, discharge, water quality, and monitoring requirements before wastewater treatment and recycled water operations may commence. The WDRs issued by the board will be consistent with the RWQCB's wastewater treatment requirements and will ensure compliance with the Lahontan Basin Plan's surface and ground water quality objectives and with the SWRCB's Recycled Water Policy. The proposed WRFs' wastewater treatment and recycled water systems will not be located or discharge to portions of the site within the boundaries of the Los Angeles RWQCB. MM 19-5 in Section 5.19, Wastewater, requires that, prior to the issuance of grading permits for areas served by each WRF, the County be provided with documentation demonstrating that the applicable WRF is in conformance with all Lahontan RWQCB and Title 22 requirements. During construction, including the construction of the WRFs and related facilities, the Project will comply with the state Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit.

With the implementation of MM 4-1, MM 4-2 and MM 19-5, compliance with all WRF permit terms and conditions, and compliance with all applicable laws and regulations, including the state Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, the Los Angeles RWQCB General Dewatering Permit and the SWRCB Recycled Water Policy, potential Project impacts from the use of on-site wastewater treatment systems in areas with known geological limitations or in close proximity to surface water will be less than significant.

## Off-Site Impacts

Approximately 15 acres located off site would be subject to Project-related construction, including intersections with SR-138, utility connections, water wells, and Aqueduct crossings (see Section 4.0, Project Description). No wastewater treatment systems will be located off site; no impacts from the use of wastewater treatment systems in areas with known geological limitations or in close proximity to surface water will occur off site; and no mitigation is required.

**Impact Summary:** Potential Project impacts from the use of on-site wastewater treatment systems in areas with known geological limitations or in close proximity to surface water will be less than significant with the implementation of MM 4-1, MM 4-2 and MM 19-5; with compliance with all WRF permit terms and conditions; and with compliance with all applicable laws and regulations, including the state Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, the Los Angeles RWQCB General Dewatering Permit and the SWRCB Recycled Water Policy.

## Threshold 4-5      **Would the project otherwise substantially degrade water quality?**

## On-Site Impacts (Construction and Operations)

Potential surface water quality impacts during construction and operation (i.e., post-construction) of the Project for quantitatively analyzed constituents are discussed under Threshold 4-1 and would be less than significant with mitigation. Potential surface water quality impacts during construction and operation (i.e., post-construction) for qualitatively analyzed constituents are discussed below.

Qualitatively evaluated pollutants and other surface water quality factors during construction and operation of the Project are discussed in this section. As discussed in Section 5.4.2, post-development storm water runoff water quality impacts associated with the following pollutants of concern are qualitatively addressed due to the unavailability of flow composite sampling data based on literature information and professional judgment:

- Turbidity
- Pesticides
- Pathogens (bacteria, viruses, and protozoa)
- Petroleum hydrocarbons (oil and grease, polynuclear aromatic hydrocarbons (PAHs))
- Trash and debris
- Methylene-blue active substances (MBAS)
- Toxicity
- Emerging Contaminants

Potential construction impacts to surface and groundwater from Project development would be minimized through compliance with the state Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit. The state Construction General Permit requires that construction period BMPs be implemented in accordance with an impact risk assessment. An SWPPP must be prepared and implemented that includes BMPs that meet or exceed the permit requirements applicable to the level of construction risk. Construction period BMPs may include erosion controls that prevent erosion, sediment controls that trap sediment carried in runoff in basins or other facilities, or BMPs that control other potential construction-related pollutants. The permit requires that BMPs incorporate the best available technology economically achievable and best conventional pollutant control technology. BMP implementation must be based on the phase of construction and current weather conditions to control erosion and sediment. A Construction Site Monitoring Program that identifies monitoring and sampling requirements during construction is a required component of an SWPPP.

Project construction is anticipated to be classified as Risk Level 2, as defined in the Construction General Permit. Water Quality BMPs will be implemented in response to the risk assessment (Geosyntec 2016b). Additional information concerning the implementation of the Construction General Permit during Project construction is provided in Threshold 4-1 and Section 5.2, Hydrology and Flood, of this EIR. As discussed in Threshold 4-1, the Project

will also comply with the Lahontan RWQCB Limited Threat Discharge Permit and the Los Angeles RWQCB General Dewatering Permit during covered construction activities. Compliance with the state Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit during construction will not result in violation of applicable storm water NPDES permits, nor would it otherwise significantly affect surface water or groundwater quality.

The following sections discuss potential construction and operational period impacts to qualitatively analyzed constituents of concern in more detail.

### ***Turbidity***

Turbidity is a measure of suspended matter that interferes with the passage of light through the water or in which visual depth is restricted. Turbidity may be caused by a wide variety of suspended materials that range in size from colloidal to coarse dispersions, depending upon the degree of turbulence. A colloid is a system where finely divided particles are dispersed within a continuous medium in a manner that prevents them from being filtered easily or settled rapidly. In lakes or other waters that have relatively quiescent (still) conditions, most of the turbidity would be due to colloidal and extremely fine dispersions. In rivers under flood conditions, most of the turbidity would be due to relatively coarse dispersions. Erosion of clay and silty soils may contribute to in-stream turbidity. Organic materials that reach rivers serve as food for bacteria, and the resulting bacterial growth and other microorganisms that feed upon the bacteria produce additional turbidity. Nutrients in runoff may stimulate the growth of algae, which also contributes to turbidity.

Discharges of turbid runoff are primarily of concern during the construction phase of development. Construction-related impacts are summarized above. The Project will comply with the state Construction General Permit, including implementation of an SWPPP, sediment- and erosion-control BMPs, non-visible pollutant monitoring, and trash-control BMPs that meet BAT/BCT standards. These measures would reduce potential turbidity impacts to less than significant levels.

Post-development conditions will include new impervious surfaces that will stabilize soils and reduce the amount of turbidity in the runoff from the Project site. Proposed source controls such as common area landscape management and common area litter control, and the regional and distributed LID BMPs, would prevent or reduce the release of organic materials and nutrients which might contribute to algal blooms and increase turbidity in receiving waters. As discussed above under Threshold 4-1, post-development nutrient concentrations in Project runoff would be below applicable water quality objectives and result in less than significant water quality impacts. Based on compliance with the Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit during construction and with the implementation of water quality BMPS in accordance with MM 4-1 and MM 4-2, runoff from the Project would not cause increases in turbidity that result in adverse effects to beneficial uses in the receiving waters. Potential turbidity impacts would be less than significant.

### ***Pesticides***

In urban settings, pesticides are commonly applied in and around buildings (structural pest control) to control against ants and other pests and in vegetated areas to control insects, molds, and other vectors. The forms of pesticides used have evolved in response to regulatory actions. Organochlorine pesticides including Chlordane, Dieldrin, DDT and Toxaphene were some of the earliest pesticides, applied generally in the 1940s to 1960s. These pesticides were found to be persistent in the environment, bioaccumulated in the food chain of various animals, and posed a health risk to humans consuming food contaminated by these pesticides. These persistent organochlorine pesticides can be of concern where past farming practices involved their application. Historical pesticides should no longer be discharged in the watershed except in association with erosion of sediments to which these pollutants may have adhered in the past. Site development involves remedial grading, which would stabilize soils and prevent their transport from the Project site, actually reducing the potential for discharge of sediments to which historical pesticides may have adsorbed (to accumulate on the surface) in pre-development conditions. Transport of legacy pesticides adsorbed to existing site sediments may be a concern during the construction phase of development. The SWPPP must contain sediment- and erosion-control BMPs pursuant to the Construction General Permit implemented to meet the BAT/BCT standard. These sediment and erosion controls would avoid construction-related impacts associated with the transport of legacy pesticides adsorbed to existing site sediments, and impacts would be less than significant.

Under post-development conditions, pesticides would be applied to common landscaped areas and residential lawns and gardens. Organochlorine pesticides have been replaced in response to State and federal regulations by organophosphate pesticides, a class of pesticides that includes diazinon and chlorpyrifos, which have been commonly found in urban streams. Depending on the sample locations within the County, only between 0 to 13 percent of the samples in the Los Angeles County water quality database had detectable levels of diazinon (depending on the land use). Levels of chlorpyrifos were below detection limits for all land uses in all samples taken between 1994 and 2000. Other pesticides included in the County database were seldom measured above detection limits. In general, County water quality database records reflect flows that are not subject to the same level of LID and treatment controls that would be included in the Project. As a result, post-development pesticide concentrations in Project runoff would likely be lower than the sample results in the County database.

Diazinon and chlorpyrifos are pesticides of concern due to their potential toxicity in receiving waters. The USEPA banned all indoor uses of diazinon in 2002 and stopped all sales for all outdoor non-agricultural use in 2003. Changes to the use of chlorpyrifos include reductions in the residue tolerances for agricultural use; phase out of nearly all indoor and outdoor residential uses; and disallowal of non-residential uses where children may be exposed. Retail sales of chlorpyrifos ceased by December 31, 2001, and structural (e.g., construction) uses were phased out by December 31, 2005. Some uses are still allowed such as for public health purposes for fire ant eradication and mosquito control. Permissible uses of diazinon are also restricted. All indoor uses were prohibited as of December 2001

and retailers were required to end sales for indoor use on December 2002. All outdoor non-agricultural uses were phased out by December 31, 2004.

Due to legal sale and use restrictions, it is likely that diazinon and chlorpyrifos use in the Project area will be limited under post-development conditions. These pesticides can be detected as legacy constituents in water and sediment samples, although the incidence of detection is declining over time. Statewide sampling from 2008 to 2010 conducted as part of the California Surface Water Ambient Monitoring Program (SWAMP) Stream Pollution Trends sampling indicates that organophosphate pesticides detected in sediment decreased between 2008 and 2010 from 12 percent of 92 sediment sampling sites in 2008 to 0 percent in 95 sites sampled in 2010 (Geosyntec 2016b).

Organophosphate pesticides have been largely replaced with pyrethroid pesticides, which are a synthetic form of naturally occurring pyrethrins. State-wide sampling conducted as part of the SWAMP indicated 55 percent of 92 sediment sampling sites monitored in 2008 contained pyrethroid pesticides. This percentage increased to 81 percent of 95 samples taken in 2010. A recent survey of data from approximately 80 studies that focused on pyrethroid pesticides in receiving waters subject to urban runoff conducted by the California Stormwater Quality Association (CASQA) included 9,200 samples for pyrethroids. Pyrethroids were detected in 34 percent of the sediment samples and 25 percent of the water samples in the CASQA study and at concentrations exceeding levels known to cause toxicity to sensitive aquatic organisms in water. In 2012, the California Department of Pesticide Regulation (CDPR) issued new regulations limiting the outdoor non-agricultural use of 17 pyrethroids (Geosyntec 2016b).

The CASQA report also summarized 3,200 fipronil sample results. Fipronil is a non-pyrethroid pesticide that has been used as a replacement for pyrethroid pesticides in urban areas. The pesticide and related degradates (fipronil desulfinyl, fipronil sulfone, and fipronil sulfide) are increasingly detected in water and sediment in urban watercourses. Fipronil was detected in 40 percent of the water samples and 36 percent of the sediment samples, and fipronil degradates were detected in 27 percent of the water samples and 61 percent of the sediment samples in the CASQA report.

The water quality risks posed by a pesticide relate to the quantity of the pesticide used, its breakdown or degradation rate, its runoff characteristics, and its relative toxicity in water and sediment. Many pesticides exhibit toxicity at very low concentrations, the most effective control strategy is source control and compliance with CDPR regulations limiting outdoor applications (see Section 5.4.2 above). Source-control measures such as education programs for owners, occupants, and employees in the proper application, storage, and disposal of pesticides also provide post-development pesticide controls. Most pesticides, including historical pesticides that may be present at the site, are relatively insoluble in water and tend to adsorb to the surfaces of sediment, which would be stabilized with development or, if eroded, would be settled or filtered out of the water column by the Project's regional and distributed LID BMPs. These measures are required by MM 4-1 and would remove pesticides from storm water in conjunction with TSS reductions for storm water infiltration and/or biofiltration.



As discussed in PDF 4-2 and as required by MM 4-2, the Project will implement an Integrated Pest Management (IPM) program consistent with the integrated pest management and pesticide and fertilizer application guidelines established by the University of California Division of Agriculture and the Natural Resources Statewide Integrated Pest Management Program. The IPM program will prevent or suppress pest problems (i.e., insects and diseases) through a combination of techniques including using pest-resistant plants; biological controls; cultural practices; habitat modification; and judicious use of pesticides. Pesticide management BMPs will be implemented to promote safety (e.g., Material Safety Data Sheets, precautionary statements, protective equipment); compliance with regulatory requirements; spill mitigation; groundwater and surface water protection measures associated with pesticide use; and pesticide applicator certifications, licenses, and training (i.e., all pesticide applicators must be certified by the CDPR). Pesticides are subject to degradation and vary in their ability to eradicate pests. Some pesticides break down almost immediately into nontoxic byproducts, while others can be active for longer periods of time. Pesticides that degrade rapidly are less likely to adversely affect non-targeted organisms. In some instances, longer-lasting pesticides are preferable if fewer applications or smaller amounts of pesticide use are required to control pests. The proper amount and frequency of pesticide use will be addressed in the IPM program.

Pesticide loads and concentrations in Project runoff will be reduced by the regional and distributed LID BMPs required by MM 4-1. An IPM program that will reduce pesticide requirements by controlling pests with nontoxic measures will be implemented in accordance with MM 4-2 and will ensure that unavoidable pesticide use will be managed to minimize impacts to surface and groundwater. Compliance with MM 4-1 and MM 4-2 will be reconfirmed in drainage and landscape plans to be submitted to the County with each Project tract map application. All Project pesticide use will comply with applicable laws and regulations, including USEPA and CDPR pesticide use limitations. As a result, the Project would result in less than significant impacts related to pesticides.

### ***Pathogens***

Pathogens are viruses, bacteria, and protozoa that can cause gastrointestinal or other illnesses in humans. Fecal indicator bacteria (FIB), such as total and fecal coliform, enterococci, and *E. coli*, are used by regulatory agencies as indirect measures of the presence of pathogens the risk of human illness.

The USEPA updated recreational water quality criteria in 2012 and recommended that two indicators, *E. Coli* for fresh waters and enterococci for marine or fresh waters, be used. The Los Angeles RWQCB subsequently revised the Los Angeles Basin Plan to incorporate the updated USEPA criteria. In fresh waters designated for water contact recreation (REC-1), the Los Angeles Basin Plan use *E. Coli* criteria of 126/100 milliliters (mL) for a geometric mean criterion and 235/100 mL for a single sample limit. The implementation provisions in the Los Angeles Basin Plan state that the geometric mean values should be calculated based on a statistically sufficient number of samples, generally not less than 5 samples equally spaced over a 30-day period.

The Lahontan Basin Plan contains a 20 fecal coliform units (cfu) per 100 mL water quality objective for all water bodies in the region. The Lahontan Water Board staff is engaged in a

multi-year project to assess bacteria concentrations in the region's surface waters; to evaluate the data relative to the existing bacteria water quality objective of 20 cfu/100 mL; and to modernize the objective to an E. Coli standard.

The Los Angeles Basin Plan provides that the single sample limit must be strictly applied, except in the context of a TMDL, where a "reference system/antidegradation approach" or "natural sources exclusion approach" may be used. A reference system is defined as an area and associated monitoring point that is not impacted by human activities that may potentially affect bacteria densities in the receiving water body. Under the reference system approach, a certain frequency of exceedance of the single sample objective is permitted on the basis of the observed exceedance frequency in the selected reference system or the targeted water body, whichever is less. Under the natural source exclusion approach, after all anthropogenic sources of bacteria have been controlled and are determined to not cause or contribute to an exceedance of the single sample objective and the natural sources have been identified and quantified, a certain frequency of exceedance of the single sample objective is permitted based on the residual exceedance frequency in the specific water body. These approaches recognize that there are natural sources of bacteria that may cause or contribute to exceedances of the single sample objective and acknowledge that it is not the intent of the Los Angeles RWQCB to require treatment of natural sources of bacteria from undeveloped areas.

#### ***Santa Clara River Bacteria Total Maximum Daily Load***

The Los Angeles RWQCB approved a Basin Plan amendment on July 8, 2010, to incorporate a TMDL for Indicator Bacteria for Reaches 3, 5, 6 and 7 of the Santa Clara River and for the Santa Clara River Estuary (Resolution #R10-006). The TMDL, in effect as of March 21, 2012, provides allowable exceedance day-based waste load allocations (WLAs) for MS4 dischargers for E. Coli in Reaches 3, 5, 6 and 7, and for fecal coliform, enterococcus, and total coliform in the Santa Clara River Estuary. These WLAs have been incorporated into the County MS4 Permit. The Indicator Bacteria TMDL MS4 WLAs are applied in the form of allowable exceedance days. The TMDL implementation schedule includes deadlines in 2016 and 2029. The TMDL is subject to reconsideration if one of the following occurs: (1) monitoring or any voluntary local reference system studies justify a TMDL revision; (2) the USEPA publishes revised recommended bacteria criteria that affect the TMDL; or (3) the Los Angeles RWQCB adopts a separate Basin Plan amendment, suspending recreational uses in the Santa Clara River during high flows.

#### ***Factors That Affect Fecal Indicator Bacteria Concentrations***

There are various factors that affect the reliability of FIB as pathogen indicators. One factor is that there are numerous natural or non-anthropogenic (or "zoonotic") sources of FIB in developed watersheds and in receiving water bodies, including birds and other wildlife, soils, and plant matter. Anthropogenic sources may include domesticated animals and pets, poorly functioning septic systems, sewer system overflows or spills, cross-connections between sewer and storm drains, and the utilization of outdoor areas or storm drains for human waste disposal by people without access to indoor sanitary facilities. All of these sources can contribute to the concentrations of FIB. The extent to which human health risks vary by FIB source type remains uncertain (Geosyntec 2016b).

A second factor is that FIB can multiply in the field if the substrate, temperature, moisture, and nutrient conditions are suitable. Bacteria presence and growth has been observed in various substrates such as beach sands, wrack line (accumulation of kelp and other vegetative debris in the inter-tidal area of beaches), inter/sub-tidal sediments, and material deposited in storm drains. FIB monitoring in the Santa Ana River indicate that the ubiquity of sources and potential regrowth exceed the human sources of fecal bacteria generated by the entire population in the watershed. Regrowth of bacteria downstream of a package treatment plant utilizing ultraviolet (UV) radiation to disinfect dry weather flows in Aliso Creek was considered a prime factor in the rapid rebound of FIB concentrations downstream of the plant. Recent research also implicates storm drain biofilms as another source of FIB to receiving waters (Geosyntec 2016b).

A third factor is that the persistence of FIB may differ from other pathogenic viruses, bacteria, and protozoa. Viruses, for instance, are small, low in number, and difficult to inactivate, while protozoa may form protective cysts that are resistant to destruction and render them dormant but capable of reactivating in the future. While some indicator bacteria may die off in the water column due to ultraviolet disinfection or other unfavorable environmental conditions (including predation and antagonism), pathogens occasionally may persist longer.

### ***Epidemiological Studies***

In Southern California, the Southern California Coastal Water Research Project (SCCWRP) conducted three epidemiology studies between 2007 and 2009 at Doheny Beach in Dana Point, Avalon Beach on Santa Catalina Island, and at Surfrider Beach in Malibu in an effort to document the relationship between illness rates and FIB levels, including enterococcus, fecal coliform, and total coliforms. The results from the Doheny Beach study indicate significant differences in diarrhea and other illness for swimmers compared to non-swimmers and for swimmers who experienced body immersion, head immersion, or swallowed water. When the source of FIB consistently exceeded water quality standards, enterococcus levels measured by using traditional and rapid methods were both strongly related to higher levels of illness. Fewer significant associations were measured during periods when a beach berm prevented urban runoff from flowing into the ocean. The results of the SCCWRP study indicate that the accuracy of predicting human health associations at urban runoff impacted beaches using currently available indicators remains uncertain (Geosyntec 2016b).

### ***Effects of Land Use and Runoff on Fecal Indicator Bacteria Concentrations***

Dry weather, non-storm stream flows from undeveloped watersheds tend to have lower concentrations of FIB than dry weather urban flows. A recent study by SCCWRP that monitored 15 unimpaired natural Southern California streams weekly during dry weather for a year showed that about 18 percent of the samples exceeded daily and monthly bacterial indicator thresholds, although concentrations from these unimpaired streams were one to two orders of magnitude lower than levels found in developed watersheds. The study reported an average of the geometric means for E. Coli in dry weather flows in each stream of 41 MPN/100 mL. The Santa Clara River bacteria TMDL WLAs are based on the unimpaired stream and reference beach data reported in the SCCWRP studies (Geosyntec 2016b).

During wet weather, storm water runoff can mobilize indicator bacteria from a number of watershed and instream sources, and indicator bacteria concentrations tend to increase. Median storm water runoff monitoring results for open space land uses include E. Coli concentrations of about 5,400 MPN/100 mL as reported in the 2001–2005 Los Angeles River Watershed Wet Weather Study. Open land use data from the National Storm Water Quality Database indicate a median wet weather concentration of 7,200 MPN/100 mL (Geosyntec 2016b).

Land use type and condition also affect runoff concentrations. Most studies show higher FIB concentrations in urban runoff than in open space runoff. Runoff from residential land uses from the Los Angeles River Watershed Wet Weather Study had a median E. Coli concentration of about 6,300 MPN/100 mL and about 8,300 in the National Storm Water Quality Database. The median value of four flow-weighted average results from the 2001–2005 Los Angeles River Watershed Wet Weather Study was about 6,100 MPN/100mL for E. Coli for the low density residential land use site. These data represent urban areas that generally have not implemented source and treatment controls comparable with the proposed Project regional and distributed LID BMPs (Geosyntec 2016b).

### ***Project Best Management Practices that Address Pathogen Indicators***

The primary sources of pathogen indicators from the Project development would likely be sediment, pet wastes, wildlife, and pathogen regrowth in storm drains or other favorable locations for propagation. Other sources of pathogens and pathogen indicators (e.g., such as cross connections or leakage from sanitary and storm water facilities) are unlikely given modern sanitary sewer installation methods and inspection and maintenance practices.

The levels of bacteria in runoff from the Project site would be reduced by the proposed regional and distributed source-control and LID BMPs required by MMs 4-1 and 4-2. The Project source controls will include educating pet owners and providing products and disposal containers that encourage and facilitate cleaning up after pets to control pet waste. Education regarding feeding waterfowl also assists in managing wildlife sources and reducing related wastes and FIBs.

The proposed Project infiltration and bioretention LID BMPs and filtration through soils will provide effective pathogen controls. Studies by the City of Austin, Texas showed that sand filters removed from 37 percent to 83 percent of fecal coliforms and 25 percent to 81 percent of fecal streptococci in runoff (Geosyntec 2016b). Studies by the Southwest Florida Water Management District documented that significant reductions in total and fecal coliform bacteria and other indicators were observed between inflow and outflow samples subject to sand filtration ranging from nearly 70 percent for total coliforms and between 65 percent and 100 percent for fecal coliform bacteria. Analysis of enterococcus influent and effluent data for bioretention facilities have also documented significant reductions, including median influent concentrations of 605 MPN/100 mL and median effluent concentrations of 234 MPN/100 mL (Geosyntec 2016b).

Storm water discharges from the Project site without the proposed LID BMPs could potentially exceed the Lahontan and Los Angeles Basin Plan standards for FIB. Implementation of MM 4-1 will result in regional and distributed LID BMPs consistent with

controls that have been documented to reduce FIB concentrations in developed area runoff. Source-control BMPs would be implemented in accordance with the IPM and landscaping measures required by MM 4-2, including educating pet owners; educating residents regarding feeding (and therefore attracting) of waterfowl near water bodies; and providing products and disposal containers that encourage and facilitate cleaning up after pets. The Project would not include septic systems, and the sewer system would be designed to current standards which minimizes the potential for leaks. With mitigation, the Project would not result in appreciable changes in pathogen levels in the receiving waters compared with existing conditions, and impacts would be less than significant.

### ***Petroleum Hydrocarbons***

During construction, hydrocarbons in site runoff could result from construction equipment or vehicle fueling or spills. Construction-related impacts are analyzed above and in more detail in Threshold 4-1. Compliance with the state Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit would reduce construction water quality impacts, including from hydrocarbons, to less than significant levels.

Hydrocarbons are a broad class of compounds including oil and grease, most of which are non-toxic. Hydrocarbons are hydrophobic (low solubility in water) and have the potential to volatilize; most forms are biodegradable. Polynuclear aromatic hydrocarbons (PAHs) are a class of hydrocarbons that can be toxic depending on concentration levels, exposure history, and the sensitivity of the receptor organisms.

Hydrocarbon sources in developed settings derive principally from transportation sources, including emissions and leaks from vehicles and spill from fueling operations. These sources are located on impervious surfaces (including roads and parking lots) that generate runoff and can mobilize oil, grease, PAHs, and other hydrocarbon compounds. Hydrocarbon concentrations in developed area storm water have been reported in several studies. Runoff was sampled at 8 stations located in the Los Angeles metropolitan area near the mouths of major channels (i.e., mass emissions stations) and at 15 land use stations from 2001 through 2004. The mean flow-weighted total PAH concentration for the mass emission stations was 2,300 nanograms per liter (ng/L), compared with approximately 140 ng/L for one storm from an open space-dominated drainage. These data indicate that development increases PAH runoff concentrations. The most prevalent PAHs in developed area runoff (e.g., pyrene, fluoranthene, and chrysene) have higher molecular weights and are pyrogenic (related to combustion) (Geosyntec 2016b).

The majority of PAHs in storm water adsorb to the organic carbon fraction of particulates in runoff, including soot carbon generated from vehicle exhaust. Sediments could become contaminated with PAHs at levels considered toxic to benthic organisms. In a monitoring survey conducted as part of the SWAMP Stream Pollution Trends Project, average PAHs in stream sediments increased from 2008 to 2009 and then decreased in 2010. These data suggest that PAHs in stream sediments subject to urban runoff may decrease over time. An examination of the correlation between amphipod survival and PAH levels in 2008, 2009 and 2010 indicated that PAHs are not statistically correlated with amphipod survival.

Consequently, PAHs do not appear to be a cause of observed toxicity in SWAMP Stream Pollution Trends Project 2008–2010 data set (Geosyntec 2016b).

PAHs in urban runoff are primarily associated with transportation activities and are expected to increase with development. Source-control BMPs that reduce petroleum hydrocarbon loads include educational materials on oil disposal and recycling programs, spill control at fueling facilities, carpooling, and public transportation alternatives to driving. The proposed regional and distributed LID BMPs would further reduce PAH concentrations in runoff. As discussed above, PAHs tend to be adsorbed to particulates and are reduced by settlement, filtration, and/or adsorption LID BMPs. These forms of BMPs are required by MM 4-1. With mitigation, potential water quality impacts from petroleum hydrocarbons in Project runoff would be less than significant.

### ***Trash and Debris***

Urban development tends to generate significant amounts of trash and debris. Trash refers to any human-derived material including paper, plastics, metals, glass, and cloth. Debris is defined as any organic material transported by storm water, including leaves, twigs, and grass clippings. Trash and debris are often characterized as material retained on a five-millimeter (mm) mesh screen. These constituents contribute to the degradation of receiving waters by utilizing available oxygen as they decompose; by attracting pests; by disturbing physical habitats; by clogging storm drains and conveyance culverts; and by mobilizing nutrients, pathogens, metals, and other pollutants. Trash that is carried in runoff in developed areas can be both accidental and intentionally deposited. During wet weather events, gross debris deposited on paved surfaces can be transported to storm drains and is eventually discharged to receiving waters. Trash and debris can also be mobilized by wind or transported directly (and often illegally) into waterways.

During construction, there is potential for an increase in trash and debris loads due to lack of proper contractor good housekeeping practices at the construction site. Construction-related impacts are analyzed above and in more detail in Threshold 4-1. Compliance with the state Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit would reduce construction water quality impacts, including from trash and debris, to less than significant levels.

The proposed source-control and LID BMPs for the Project would minimize the adverse impacts of trash and debris during long-term operations. Source controls such as street sweeping, public education, fines for littering, and storm drain stenciling are effective in reducing the amount of trash and debris that is available for mobilization during wet and dry weather events. LID BMPs trap and remove trash and debris from runoff. The implementation of source controls and LID BMPs are required by MM 4-1. With mitigation, potential water quality impacts from trash and debris in Project runoff would be less than significant. The Project would result in a less than significant impact related to trash and debris.

### ***Methylene Blue Activated Substances (MBAS)***

MBAS, which are related to the presence of detergents in runoff, may be incidentally associated with urban development due to commercial and/or residential vehicle washing or other outdoor cleaning activities. MBAS are a measure of surfactants in water; surfactants lower the surface tension of a liquid and lower the interfacial tension between two liquids. In storm water, surfactants disturb the naturally high surface tension of water, which affects insects and can affect gills in aquatic life.

The presence of MBAS and soap in runoff from the Project would be controlled through source-control BMPs, including a public education program on residential and charity car washing, and the provision of a car wash pad connected to the sanitary sewer in the multi-family residential areas. Other sources of MBAS, such as cross connections and leakage from sanitary to storm water facilities, are unlikely given modern sanitary sewer installation methods and inspection and maintenance practices. Source-control BMPs are required by MM 4-1 and, with mitigation, Project water quality impacts from MBAS in runoff will be less than significant.

### ***Other Surface Water Quality Factors***

#### Toxicity

The Lahontan Basin Plan and Los Angeles Basin Plan each contain a narrative objective for toxicity which states that waters shall be maintained free of toxic substances in concentrations that are toxic to or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Pesticides, metals, PAHs, and other organic compounds (e.g., PCBs) can enter the aquatic food chain and cause acute or chronic toxicity in the form of lethal or sublethal effects to affected organisms, including adverse effects to survival, reproduction, and prey avoidance. The extent which specific concentrations of constituents of concern cause these effects is commonly measured by exposing sensitive organisms to water samples with known constituent concentrations over a period of time and assessing organism responses.

Pesticides are a primary cause of most of the observed toxicity in receiving waters when organisms are exposed to urban runoff water samples or are exposed to sediments contaminated by urban runoff. Data from the SWAMP Stream Pollution Trends Second Year Report show that the primary class of pesticides causing toxicity are pyrethroids and that the concept of “toxicity units” is an effective measure of cumulative toxicity associated with a mix of individual pyrethroids in runoff (Geosyntec 2016b). Data from streams and other receiving water bodies subject to urban runoff determined that pyrethroids were commonly found at concentrations exceeding levels that cause toxicity to sensitive aquatic organisms in water. The average reported concentrations of bifenthrin, cyfluthrin, cyhalothrin, cypermethrin, and permethrin in water samples ranged from approximately one to more than three orders of magnitude above chronic criteria values. Similar toxicity impacts were associated with pyrethroid concentrations in sediment (Geosyntec 2016b). Potential water quality impacts from pesticides in Project runoff are discussed above (see the subsection “Pesticides” under this Threshold 4-5). Other pollutants that can affect toxicity (metals and PAHs) are also addressed above. With incorporation of source-control and LID BMPs as

required by MM 4-1, potential impacts associated with acute and chronic aquatic toxicity would be less than significant.

### Constituents of Emerging Concern

Constituents of emerging concern (CEC) refer to chemicals that are potentially present in the aquatic environment subject to ongoing impact assessment methodological development. State efforts to characterize CECs include a 2012 report entitled *Monitoring Strategies for Chemicals of Emerging Concern (CECs) in California's Aquatic Ecosystems*, which included recommendations for phased monitoring and evaluation of CECs in storm water and wastewater treatment plant discharges. The report-identified CECs were based on risk-based screening criteria and recommended the following approaches (Geosyntec 2016b):

- Non-targeted analyses using advanced bioanalytical and chemical methods.
- Confirmatory biological investigations linking chemical and bioassay screening data with higher order effects (i.e., at the organism and population level).
- Environmental fate models and screening-level mass-based models that can assist in estimating the predicted environmental concentrations in effluents coupled with structure-based toxicity assessments to determine the source, occurrence, fate, and effects of CECs.
- Baseline monitoring for antibiotic resistance in wastewater treatment plant effluent.

The extent to which CECs that could occur in Project runoff could impact water quality has not yet been characterized. Most CECs would be effectively controlled by the source and LID controls required by MM 4-1, including unit processes to filter, absorb, and biologically transform CECs in storm water runoff. Other control measures may be required for CECs that are determined by the State or by other programs to pose potential water quality impacts and would be implemented to the maximum extent feasible by the Project. Subject to the analysis uncertainties discussed above, with mitigation, potential Project water quality impacts that could be associated with CECs would be less than significant.

### Pollutant Bioaccumulation

The Los Angeles Basin Plan contains a narrative objective for bioaccumulation, which states that toxic pollutants shall not be present at levels that will bioaccumulate in aquatic life to levels that are harmful to aquatic life or human health. Bioaccumulation is the net uptake and retention of a chemical in an organism from all routes of exposure (diet, dermal, respiratory) and any source (water, sediment, food). The Lahontan Basin Plan does not include an objective for pollutant bioaccumulation. Certain toxic pollutants can bioaccumulate in fish and other organisms at levels that are harmful for both the organism itself and the organisms that prey upon these species (including humans). An important pathway into the food chain is via sediments, as many bioaccumulative pollutants of concern are adsorbed to sediments. Pollutants that are known to bioaccumulate include certain pesticides, metals (i.e., lead and mercury), PAHs, and synthetic organic compounds like PCBs and dioxins. Bioaccumulative pollutants that are present in storm water runoff from the Project site may have the potential to accumulate in LID BMP vegetation and soils, potentially



increasing the risk of exposure to wildlife and the food chain. Factors that could affect the extent of potential bioaccumulation include (Geosyntec 2016b):

- The bioavailability of the pollutant.
- Conditions in the soils (e.g., pH, acid-volatile sulfide concentration, organic content) that affect the form and bioavailability of the pollutant and other environmental conditions.
- The efficiency by which pollutants in the soils are taken up and migrate up the trophic levels including plankton, zooplankton, and prey and predator species.
- The type of habitats, organisms attracted to these habitats, and their feeding habits.
- System design and maintenance.

Tests on the survival of amphipods in sediments from receiving waters in urbanized watersheds indicate that the sum of pyrethroid pesticides, PCBs, and DDT most closely correlate with adverse impacts (Geosyntec 2016b). PAHs and metals did not show a significant correlation. The Project site is unlikely to contain legacy PCBs or DDT concentrations in amounts that would be carried in runoff and cause water quality impacts. As discussed above, pyrethroid pesticides could occur in Project runoff and may cause bioaccumulation impacts.

Mercury and selenium are also known to cause bioaccumulation impacts. Selenium is not naturally present at levels of concern in the Project's watershed. Mercury sources include fossil fuel power plant emissions and exposed tailings at former mercury mines, which are also not present on or adjacent to the Project site (Geosyntec 2016b). Project bioaccumulation impacts from mercury and selenium are unlikely to occur.

Potential bioaccumulation impacts from the proposed distributed and regional LID BMPs would be minimal for several reasons. The vegetation and soil media in the LID BMPs would trap sediments and pollutants in soils which contain bacteria that metabolize and transform pollutants. This process will reduce the potential for bioaccumulative pollutants to enter the food chain. The Project will not significantly contribute to bioaccumulation of pollutants in major downstream waters, including the Santa Clara River, because these waters are located several miles from the site, and constituent concentrations in Project runoff that may discharge from on-site facilities will be significantly below all applicable Lahontan and Los Angeles Basin Plan and CTR water quality objectives. With mitigation, potential Project bioaccumulation impacts to aquatic life or human health will be less than significant.

#### Dry Weather Runoff (Nuisance Flows)

Pollutants in dry weather flows can adversely impact receiving waters and, unlike storm event runoff, are more persistent over time. The primary sources of dry weather flows in urban areas include irrigation, vehicle washing, construction dewatering, fire hydrant purging, and drainage from swimming pools and decorative fountains. Other sources may include leaks from sanitary sewers and septic tanks; wash water from laundry and vehicle wash facilities; and many types of industrial wastewaters that discharge directly (via illicit

connections) to the storm drain system. The Project will not include septic tanks, and illicit industrial discharges are unlikely to occur due to the proposed site design and land uses.

Dry weather flows are typically low in sediment because the flows are relatively low and because coarse suspended sediment tends to settle out or be filtered out by vegetation. As a consequence, dry weather flows typically include low concentrations of pollutants associated with suspended solids such as phosphorous, some bacteria, some trace metals, and some pesticides. Constituents of concern in dry weather flows tend to be dissolved or subject to mobilization in runoff, such as nitrate and trace metals, pathogens, and oil and grease.

As discussed in Section 5.2, Hydrology and Flood, and Section 5.18, Water Resources, landscaping in public and common areas would utilize drought-tolerant vegetation that requires little watering or chemical application, consistent with Section 3.3 of the *Centennial Specific Plan*. Landscape watering in common areas, commercial areas, multi-family residential areas, and in parks would use efficient irrigation technology such as evapotranspiration sensors to minimize excess watering (see Section 5.18). Source-control BMPs (e.g., educational programs and materials) would describe appropriate car washing locations (at commercial car washing facilities or the car wash pad in the multi-family residential areas) and techniques (minimizing usage of soap and water); would encourage low impact landscaping and appropriate watering techniques, appropriate swimming pool dechlorination and discharge procedures; and would discourage driveway and sidewalk washing. Illegal dumping would be discouraged by stenciling storm drain inlets and posting signs that illustrate the connection between the storm drain system and the receiving waters and natural systems downstream. The source controls are required by MM 4-1 and MM 4-2.

The proposed regional and distributed LID BMPs would infiltrate and provide treatment for dry weather flows and small storm events. Water cleansing is a natural function of vegetated areas. The LID BMPs are required by MM 4-1. Sedimentation of particulates is a primary removal mechanism in LID facilities and treatment performance is enhanced as plant and soil materials allow pollutants to come in contact with bacteria that metabolize and transform pollutants, especially nutrients and trace metals. Plants also take up nutrients in their root system. Pathogens in dry weather flows would be removed through infiltration. Oil and grease in dry weather flows would be adsorbed by the vegetation and soil within the LID BMPs. Dry weather flows and small storm flows would infiltrate into the bottom of the basin after receiving treatment in the vegetation.

With mitigation and the implementation of the source-control BMPs (which reduce the amount of dry weather runoff and constituent loads that could be carried in the runoff) and regional and distributed LID BMPs (which capture and treat dry weather runoff), the Project would result in less than significant water quality impacts related to dry weather flows.

## Off-Site Impacts

Approximately 15 acres located off site would be subject to Project-related construction, including intersections with SR-138, utility connections, water wells, and Aqueduct crossings (see Section 4.0, Project Description). The construction period and operational on-site qualitative water quality analysis includes these off-site locations. Consistent with the on-site analysis, with the implementation of MM 4-1 and MM 4-2, the Project would not otherwise degrade off-site groundwater quality; potential impacts will be less than significant with mitigation.

**Impact Summary:** The Project will implement a comprehensive system of site design, source control, low impact development, and hydromodification Best Management Practices that meet or exceed the water quality and hydrology (storm water runoff) standards for new development in the County LID Ordinance, the LID Standards Manual, and the MS4 Permit. All water quality controls, including regional, distributed and parcel-specific measures, are designed to meet or exceed the LID performance standards consistent with the requirements of the MS4 Permit, the LID Ordinance, and the LID Standards Manual. The Project will also implement integrated pest management and landscaping BMPs consistent with the integrated pest management and pesticide and fertilizer application guidelines established by the University of California Division of Agriculture and Natural Resources Statewide Integrated Pest Management Program. Compliance with the LID performance standards and integrated pest management and landscaping BMP requirements will be reconfirmed in drainage and landscape plans to be submitted to the County in conjunction with each Project tract map review and approval process. These requirements are incorporated in MM 4-1 and MM 4-2. During construction, the Project will comply with the state Construction General Permit, the Lahontan RWQCB Limited Threat Discharge Permit, and the Los Angeles RWQCB General Dewatering Permit, and it will implement BMPs that comply with all applicable waste discharge requirements and applicable water quality standards. The quantitative analysis results in Threshold 4-1 show that post-development concentrations of TSS, nutrients, trace metals, and chloride would be consistent with or significantly below applicable narrative and numerical water quality objectives in the Lahontan and Los Angeles Basin Plans and in the CTR. The qualitative analysis shows that potential Project impacts related to turbidity, pesticides, pathogens (bacteria, viruses, and protozoa), petroleum hydrocarbons (oil and grease, PAHs), trash and debris, MBAS, toxicity, and emerging contaminants would be less than significant. With implementation of MM 4-1 and MM 4-2 and with compliance with applicable laws and regulations (including the state Construction General Permit and the Lahontan RWQCB Limited Threat Discharge Permit), the Project will not otherwise degrade water quality; impacts will be less than significant with mitigation.

## 5.2.7 MITIGATION MEASURES

**MM 4-1** The Project shall implement Low Impact Development (LID) and water quality control Best Management Practices (BMPs) that will achieve the following LID performance standard:

LID BMPs shall be selected and sized to retain the volume of storm water runoff produced from the higher of the 85<sup>th</sup> percentile or ¾ inch, 24-hour storm depth as determined from the Los Angeles County 85<sup>th</sup> Percentile 24-hr Rainfall Isohyetal Map (February 2004) (LID design volume). When it has been demonstrated that 100 percent of the LID design volume cannot be feasibly infiltrated within the Project, then the volume shall be harvested and reused. If that volume cannot be harvested and reused within 96 hours, then biofiltration shall be provided for 1.5 times the portion of the LID design volume that is not retained. Runoff from roadways shall be retained or biofiltered in retention or biofiltration BMPs sized to capture the design storm volume or flow, per the guidance in the U.S. Environmental Protection Agency's (USEPA's) *Managing Wet Weather with Green Infrastructure: Green Streets*. LID BMPs may be parcel-based or regional facilities.

Compliance with the LID performance standards shall be confirmed by the County based on a Drainage System Engineering and Planning Report to be submitted with each Tentative Map application. The Report shall describe applicable water quality control and LID BMPs and shall utilize approved Los Angeles County methodologies to demonstrate compliance with the LID performance standards. To the extent feasible, incorporate permeable pavement, groundcovers, and/or other measures to increase infiltration.

**MM 4-2** The Project shall implement integrated pest management (IPM) and landscaping best management practices (BMPs) consistent with the integrated pest management and pesticide and fertilizer application guidelines established by the University of California Division of Agriculture and Natural Resources Statewide Integrated Pest Management Program. The IPM and landscaping BMPs shall be confirmed in a Landscaping Plan submitted to the County during the review and approval process for each tract map application. The BMPs shall include a Planting Plan that is consistent with the plant water use requirements of Section 3.3 of the *Centennial Specific Plan*; with procedures for removing non-native vegetation and planting native vegetation; with fertilizer guidelines; and with the IPM approach for preventing or suppressing pest problems (i.e., insects and diseases). This shall be done through a combination of techniques including using pest-resistant plants; using biological controls; incorporating cultural practices; including habitat modification; and judiciously using pesticides. The IPM and landscaping BMPs shall address the following:

- Pest identification.
- Practices to prevent pest incidence and to reduce pest buildup.

- Monitoring to examine vegetation and surrounding areas for pests to evaluate trends and to identify when controls are needed.
- Establishment of action thresholds that trigger control actions.
- Pest-control methods (cultural, mechanical, environmental, biological, and appropriate pesticides).
- Pesticide management, which includes safety requirements (e.g., Material Safety Data Sheets, precautionary statements, protective equipment); regulatory requirements; spill mitigation measures; groundwater and surface water protection measures associated with pesticide use; and pesticide applicator certifications, licenses, and training (i.e., all pesticide applicators must be certified by the California Department of Pesticide Regulation).

### 5.2.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of MM 4-1 and MM 4-2, potentially significant impacts to water quality would be reduced to levels considered less than significant.

### 5.2.9 REFERENCES

California Building Standards Commission. 2015b. *California Code of Regulations* (Title 24, Part 11, California Green Building Standards Code). Sacramento, CA: CBSC. <http://www.bsc.ca.gov/Codes.aspx>.

California, State of, Office of Administrative Law. 2015a (as amended). *California Code of Regulations* (Title 3, Food and Agriculture; Division 6, Pesticides and Pest Control Operations; Chapter 4, Environmental Protection; Subchapter 5, Surface Water; Article 1, Pesticide Contamination Prevention; Section 6970, Surface Water Protection in Outdoor Nonagricultural Settings). Eagen, MN: Thompson Reuters for the California Office of Administrative Law. <http://ccr.oal.ca.gov/linkedslice/default.asp?SP=CCR-1000&Action=Welcome>.

———. 2015b (as amended). *California Code of Regulations* (Title 22, Social Security). Eagen, MN: Thompson Reuters for the California Office of Administrative Law. [https://govt.westlaw.com/calregs/index?\\_lrTS=20170505183248399&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/calregs/index?_lrTS=20170505183248399&transitionType=Default&contextData=(sc.Default)).

California, State of. 2016 (access date). *California Water Code* (Division 7, Water Quality; Sections 13000–16104, the Porter-Cologne Water Quality Control Act). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedBranch.xhtml?tocCode=WAT&division=7.&title=&part=&chapter=&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedBranch.xhtml?tocCode=WAT&division=7.&title=&part=&chapter=&article=).

GEI Consultants. 2010 (November). *Hydrogeologic Investigation [for the] Proposed Centennial Project [in] Western Antelope Valley, Los Angeles, California*. Glendale, CA: GEI Consultants (Appendix A of EIR Appendix 5.18-A).

- Geosyntec Consultants. 2016a (February). Draft *Centennial Project Hydromodification Technical Report*. Oakland, CA: Geosyntec (Appendix 5.2-B).
- . 2016b (February). *Centennial Project Water Quality Technical Report*. Oakland, CA: Geosyntec (Appendix 5.4-A).
- Lahontan Regional Water Quality Control Board (Lahontan RWQCB). 1995 (as amended through 2015). *Water Quality Control Plan for the Lahontan Region North and South Basins* (Basin Plan). South Lake Tahoe and Victorville, CA: Lahontan RWQCB. [http://www.waterboards.ca.gov/rwqcb6/water\\_issues/programs/basin\\_plan/references.shtml](http://www.waterboards.ca.gov/rwqcb6/water_issues/programs/basin_plan/references.shtml).
- Los Angeles, County of. 2015a (last accessed). *Los Angeles County, California – Code of Ordinances*. Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles. [https://www.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances](https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances).
- Los Angeles, County of. Department of Public Works (LACDPW). 2014. *Low Impact Development Standards Manual*. Los Angeles, CA: LACDPW. <http://dpw.lacounty.gov/idd/lib/fp/Hydrology/Low%20Impact%20Development%20Standards%20Manual.pdf>.
- . 2006. *Los Angeles County Department of Public Works Hydrology Manual*. Los Angeles, CA: LACDPW. [http://dpw.lacounty.gov/wrd/publication/engineering/2006\\_Hydrology\\_Manual/2006%20Hydrology%20Manual-Divided.pdf](http://dpw.lacounty.gov/wrd/publication/engineering/2006_Hydrology_Manual/2006%20Hydrology%20Manual-Divided.pdf).
- Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.
- . 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.
- Los Angeles Regional Water Quality Control Board (Los Angeles RWQCB). 2006 (as amended). *Water Quality Control Plan: Los Angeles Region. Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*. Los Angeles, CA: Los Angeles RWQCB. [http://www.waterboards.ca.gov/losangeles/water\\_issues/programs/basin\\_plan/basin\\_plan\\_documentation.shtml](http://www.waterboards.ca.gov/losangeles/water_issues/programs/basin_plan/basin_plan_documentation.shtml).
- Psomas. 2017 (April). *Centennial Master Plan Hydrology*. Santa Clarita, CA: Psomas (Appendix 5.2-A).
- State Water Resources Control Board (SWRCB). 2015a (August 27, updated). Impaired Water Bodies: 2010 Integrated Report (Clean Water Act Section 303(d) List/305(b) Report) – Statewide. Sacramento, CA: SWRCB. [http://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2010.shtml](http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml).
- . 2015b (November 19, last updated). Impaired Water Bodies: Final 2012 California Integrated Report (Clean Water Act Section 303(d) List/305(b) Report). Sacramento,

- CA: SWRCB.  
[http://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2012.shtml](http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2012.shtml).
- . 2014 (Last updated May 2). California's Areas of Special Biological Significance: Map and Video [Laguna Point to Latigo Point ASBS]. Sacramento, CA: SWRCB. [http://www.swrcb.ca.gov/water\\_issues/programs/ocean/asbs\\_map.shtml](http://www.swrcb.ca.gov/water_issues/programs/ocean/asbs_map.shtml).
- . 2009a (September 2, adopted). *National Pollution Elimination System General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities*. Sacramento, CA: SWRCB. [http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/docs/constpermits/wqo2009\\_0009\\_dwq.pdf](http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo2009_0009_dwq.pdf).
- . 2009b. *Construction General Permit Fact Sheet*. Sacramento, CA: SWRCB. [http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/docs/constpermits/wqo\\_2009\\_0009\\_factsheet.pdf](http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo_2009_0009_factsheet.pdf).
- U.S. Congress. 2015a (access date). *Code of Federal Regulations* (Title 40, Protection of the Environment; Part 131, Water Quality Standards). Washington D.C.: U.S. Government Printing Office. <https://www.gpo.gov/fdsys/pkg/CFR-2015-title40-vol22/pdf/CFR-2015-title40-vol22-part131.pdf>.
- . 2015b. *Code of Federal Regulations* (Title 40, Protection of Environment; Chapter 1, Environmental Protection Agency; Subchapter H, Ocean Dumping; Part 230, Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material). Washington, D.C.: U.S. Government Printing Office. <https://www.gpo.gov/fdsys/pkg/CFR-2015-title40-vol22/pdf/CFR-2015-title40-vol22-part131.pdf>.
- . 2015b (access date). *United States Code* (Title 33, Navigation and Navigable Waters; Section 1251 et seq., Congressional declaration of goals and policy). Washington, D.C.: U.S. Government Printing Office. <http://uscode.house.gov/>.
- U.S. Environmental Protection Agency (USEPA). 2008 (December). *Managing Wet Weather with Green Infrastructure Municipal Handbook: Green Streets*. Washington, D.C.: USEPA. [https://www.epa.gov/sites/production/files/2015-10/documents/gi\\_munichandbook\\_green\\_streets\\_0.pdf](https://www.epa.gov/sites/production/files/2015-10/documents/gi_munichandbook_green_streets_0.pdf).

*This page is intentionally left blank.*



## 5.5 LAND RESOURCES

This section of the Draft Environmental Impact Report (EIR) describes the potential impacts to agricultural, forest, and mineral resources from implementation of the Project.

### 5.5.1 INTRODUCTION

#### **Purpose**

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that agricultural, forest, and mineral resource issues be evaluated as part of the environmental documentation process. The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively.

#### **Summary**

The Project will result in the conversion of approximately 642 acres of on-site Prime Farmland. The Project site is identified as being within the West Economic Opportunity Area (EOA), one of three EOAs established by the Antelope Valley Area Plan (AVAP). The EIR for the AVAP considered the impacts of converting a total of 6,169 acres of Important Farmland and concluded that the conversion would be a significant and unavoidable impact (DRP 2014). Although the Project is consistent with the AVAP's land use policy, the Project would not result in any new impacts to agricultural lands, and the Project would allow for continued grazing activity and small-scale agriculture and agriculture-related uses (PDF 5-1), because the Project is directly facilitating the conversion of 642 acres of Prime Farmland to non-agricultural uses, it is considered a significant impact of the Project. For the same reasons as described in the AVAP EIR, there is no feasible mitigation to reduce this impact to a less than significant level, and therefore would be a significant unavoidable impact of the Project.

The adoption of the Project will require a discretionary zone change to be made by the County that is consistent with, and would help implement, the AVAP—specifically the Rural Preservation Strategy and associated Policy LU 1.1—as it applies to the Project site. Also, there are no Williamson Act contracts onsite, or within Los Angeles County (outside of Catalina Island). Therefore, there would be no conflict with applicable agricultural land use policies if the County adopts the Project.

As discussed above, the only agricultural zoning on the Project site is the A-1-2: Light Agriculture zone located on the lands to the east of 300<sup>th</sup> Street West. This zoning allows tree crops as a permitted use. Although the remainder of the Project site is not zoned for agricultural uses under the AVAP, an approximate 13-acre area in the northwestern corner of the site is identified as containing montane hardwood resources and approximately 883 acres in the southwestern and southeastern portions of the site are identified as containing primarily mixed chaparral (approximately 553 acres) as well as blue oak woodland, blue oak-foothill pine, juniper, and pinyon-juniper resources (approximately 330 acres) on maps

prepared by the California Department of Fire and Forestry Protection's Fire and Resource Assessment Program (FRAP 2006). It is noted that the statewide mapping of forest and timber resources as part of the FRAP is separate from the vegetation mapping performed for the Project site, and is used herein solely for the determination of potential forest and timber resources. Finally, no part of the Project site is zoned as a Timberland Production Zone.

As discussed further in Section 5.7, Biological Resources, the proposed development areas of the Project site have been used for open cattle grazing for over 150 years and, as a result the majority of the on-site acreage consists of grasslands that do not support a large number of tree species. While the existing zoning in the easternmost portion of the site allows for tree crop production, these lands have never been managed for forest resources including for timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, or for other public benefits. Further, the Department of Forestry and Fire Protection regulations (Section 895.1) define commercial species of trees for each forest district. The Project site does not contain any trees listed as a "commercial species" for the applicable Southern Forest District as defined in the applicable regulations. Project implementation would not conflict with zoning for forest land or timberland as the Project site is not used for forest land or timberland resources and is not considered forest land or timberland by the County or the State. The Project will not conflict with zoning for timberland or a Timberland Production Zone, as the site has not been designated as such. There would be no impact to forest land and no mitigation is required

Project implementation would not result in impacts related to the loss of known mineral resources because there are no known mineral resources on the Project site or the off-site Project features.

## Section Format

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce significant impacts; and level of significance after mitigation, if any. This information is presented in the following format (please refer to Section 2.0, Introduction, and Section 5.0, Environmental Setting, Impacts, and Mitigation, for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Agricultural and Forest Resources
  - Relevant Plans, Policies, and Regulations
  - Environmental Setting
  - Project Design Features

- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance after Mitigation
- Mineral Resources
  - Relevant Plans, Policies, and Regulations
  - Environmental Setting
  - Project Design Features
  - Threshold Criteria
  - Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
    - On-Site Impacts
    - Off-Site Impacts
  - Mitigation Measures
  - Level of Significance After Mitigation
- References

## References

All references cited for preparation of this analysis are listed in Section 5.5.4.

## 5.5.2 AGRICULTURAL AND FOREST RESOURCES

### Relevant Plans, Policies, and Regulations

#### *Federal*

There are no applicable federal plans, policies, or regulations regarding agricultural or forest resources.

#### *State*

##### Farmland Mapping and Monitoring Program

The Farmland Mapping and Monitoring Program (FMMP) is a non-regulatory program that provides a consistent and impartial analysis of agricultural land use and land use changes throughout California. The FMMP provides land use conversion information for decision makers to use in their planning for present and future use of California's agricultural resources. As part of the nationwide agricultural land use mapping effort, the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS, formerly Soil Conservation Service [SCS]) developed a series of definitions known as Land Inventory and Monitoring (LIM) criteria. The LIM criteria classify the land's suitability for agricultural production; suitability includes both the physical and chemical characteristics

of soils and actual land use. Important Farmland Maps have been derived from the NRCS soil survey maps using the LIM criteria.

Since 1980, the State of California has assisted the NRCS in completing its mapping of the state. The FMMP was created by the California Department of Conservation (DOC) to carry out the mapping activity on a continuing basis and with a greater level of detail, which they did by modifying the LIM criteria for use in California. The California LIM criteria utilize the NRCS and Storie Index Rating systems,<sup>1</sup> and also consider other physical conditions such as the following: water moisture regimes, available water capacity, and developed irrigation water supply; soil temperature range; acid-alkali balance; water table; soil sodium content; flooding (uncontrolled runoff from natural precipitation); erodibility; permeability rate; rock fragment content; and soil rooting depth. The following farmland classifications are based on information from the Department of Conservation Division of Land Resources Protection's, *A Guide to the Farmland Mapping and Monitoring Program* (DOC 2004):

- **Prime Farmland (P).** Prime Farmland is land which has the best combination of physical and chemical characteristics for the long-term production of agricultural crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed (including water management) according to current farming methods. The land must have been used for the production of irrigated crops at some time during the two previous cycles prior to the mapping date.<sup>2</sup> It does not include publicly owned lands for which there is an adopted policy that prevents agricultural use.
- **Farmland of Statewide Importance (F).** Farmland of Statewide Importance is land other than Prime Farmland that has a good combination of physical and chemical characteristics for the production of crops. It must have been used for the production of irrigated crops at some time during the two previous cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy that prevents agricultural use.
- **Unique Farmland (U).** Unique Farmland is land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance. It must be currently used for the production of specific high-economic value crops (as listed in the last three years of *California Agriculture* produced by the California Department of Food and Agriculture). It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or a high yield of a specific crop when treated and managed according to current farming methods. Examples of such crops may include oranges, olives, avocados, rice, grapes, and cut flowers. This land is usually irrigated, but may include non-irrigated orchards or vineyards, as found in some climatic zones in California. The land must have been cultivated at some time during the two cycles prior to the mapping date.

---

<sup>1</sup> The Storie Index provides a numeric rating (based upon a 100 point scale) of the relative degree of suitability or value of a given soil for intensive agriculture. The rating is based on four soil characteristics that represent the inherent characteristics and qualities of the soil, which are considered in the index rating. The four factors are profile characteristics, texture of the surface layer, slope, and other factors (e.g., drainage, salinity) (DOC 1997).

<sup>2</sup> A cycle is approximately two years.

- **Farmland of Local Importance (L).** Farmland of Local Importance is of importance to the local agricultural economy and is determined by each County’s Board of Supervisors and a local advisory committee. According to the DOC, Farmland of Local Importance in Los Angeles County includes producing lands that would meet the standard criteria for Prime Farmland or Farmland of Statewide Importance, but which are not irrigated (DOC 2004).
- **Grazing Land (G).** Grazing Land is land on which the existing vegetation, whether grown naturally or through management, is suitable for livestock grazing. The minimum mapping unit for Grazing Land is 40 acres.
- **Urban and Built-Up Land (D).** Urban and Built-Up Land is occupied with structures that have a building density of at least one unit to one-half acre or approximately six structures to a ten-acre parcel.<sup>3</sup>
- **Other Land (X).** This category is for land that is not included in any other mapping categories. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines; borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land that is surrounded on all sides by urban development and is greater than 40 acres is mapped as “Other Land”.

For CEQA purposes, Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance are collectively defined as “Important Farmland”. Grazing Land is also considered a farmland category, but is not included in the “Important Farmland” definition.

### California Land Conservation Act

The California Land Conservation Act (LCA), also known as the Williamson Act, was adopted in 1965 to encourage the preservation of the state’s agricultural lands and to prevent their premature conversion to urban uses. In order to preserve these agricultural uses, the Williamson Act established an agricultural preserve contract procedure by which any California County or City can tax landowners at a lower rate, using a scale based on the actual use of the land for agricultural purposes, as opposed to its unrestricted (i.e., “fair”) market value. In return, landowners guarantee that their properties will remain under agricultural production for at least a ten-year period. The contract is renewed annually for an additional year automatically unless the owner files a notice of non-renewal. In this manner, each agricultural preserve contract (at any given date) is always operable at least nine years into the future. The only lands in Los Angeles County under Williamson Act Contract are located on Catalina Island (DOC 2016b). As such, no part of the Project site is under Williamson Act Contract.

---

<sup>3</sup> A “unit” is defined as a structure or foundation on which uses associated with development are placed. Uses may include and are not limited to residential, industrial, commercial, construction, institutional, public administration purposes, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water-control structures, and other development purposes. Highways, railroads, and other transportation facilities are mapped as part of this unit if they are part of a surrounding urban area.

## Right-to-Farm Ordinances

Right-to-Farm Ordinances have been adopted by several California Counties to protect farmers in established farming areas from legal action that new residents in nearby urban settings may take against nuisances associated with normal, day-to-day farming activities (e.g., odor, noise, dust). Los Angeles County does not have a Right-to-Farm Ordinance.

### *County*

#### Los Angeles County General Plan and Antelope Valley Area Plan

The *Los Angeles County General Plan* and the *Antelope Valley Area Plan (AVAP)*, part of the County General Plan, includes goals and policies that address agricultural issues in the unincorporated County. As discussed further below, the Project site is identified in the AVAP as within the West EOA, one of three EOAs established by the AVAP where increased residential, commercial, and industrial uses are encouraged while preserving the rural character and ecological resources of the surrounding areas, including agricultural activity. The AVAP goal and policy applicable to the analysis of agriculture resources with Project implementation are listed below. Section 5.8, Land Use, Entitlements, and Planning, presents a more in-depth analysis of the Project's consistency with relevant plans, policies and regulations.

**Goal LU 1:** A land use pattern that maintains and enhances the rural character of the unincorporated Antelope Valley.

**Policy LU 1.1:** Direct the majority of the unincorporated Antelope Valley's future growth to rural town center areas and identified economic opportunity areas, through appropriate land use designations, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

## **Environmental Setting**

### ***Agriculture Resource Planning in the Antelope Valley***

Development of the Antelope Valley started in 1876 and the developing communities were dependent upon stock raising, dry farming, and fruit orchards. While the years during and after World War II saw military investments come to prominence, this type of development declined, and the final decades of the 20th century saw the Antelope Valley emerge with major new housing opportunities as vast acreages were subdivided for affordable tract homes. Farming regained its status as a productive employer, but the area continued to develop without balancing the growth in housing with a corresponding growth in jobs and investment in infrastructure.

The AVAP was adopted by the County Board of Supervisors on June 16, 2015, which updates and supersedes the previous Antelope Valley Areawide General Plan adopted in 1986 (DRP 2015c). The AVAP is centered on the Rural Preservation Strategy, developed to reflect the community's desire to maintain the rural attributes of the Antelope Valley while acknowledging the "growing populations need for additional housing and employment opportunities. . ." per the AVAP's vision statement (DRP 2015a). As discussed in the AVAP,

the Rural Preservation Strategy is based on four types of environments—Rural Town Center Areas, Rural Town Areas, Rural Preserve Areas, Economic Opportunity Areas—that serve different purposes. Collectively, these environments preserve the rural character of the region, conserve environmental resources, and protect residents from potential hazards while allowing for additional growth and development (DRP 2015a). [SEP]

In Rural Town Center Areas and Rural Town Areas, the amount of potential development allowed by the AVAP will be equal to, or greater than, the amount of potential development allowed by the previous Area Plan. Therefore, those areas are likely to benefit from increased property tax revenues and developer fees, which can help fund additional infrastructure. EOAs are defined clusters of land along the routes of two new proposed major infrastructure projects in the Antelope Valley (i.e. the High Desert Corridor and the Northwest 138 Corridor Improvement Project), which are expected to indirectly generate growth and development. The EOAs maximize the investment of State and regional agencies in public infrastructure while achieving the general goal of rural preservation in the Antelope Valley. Any development induced by these two infrastructure projects is intended be guided to EOAs in order for surrounding areas to be preserved and maintained at low density or agricultural uses ( DRP 2015a). The Project site is in the West EOA.

### ***Contribution of Agriculture to the Los Angeles County Economy***

According to the most recent data from the California Department of Food and Agriculture (CDFA), the County of Los Angeles is ranked 33<sup>rd</sup> in the state for agricultural production market value, with 2013–2014 gross revenues of approximately \$230,068,000. The leading commodity crops included woody ornamental and other nursery plants, vegetables, fruits and nuts, and hay (CDFA 2015).

### ***Farmland Conversion Trends in Los Angeles County***

Agricultural land conversion has a long history in Los Angeles County; the extent of this conversion is reflected in Table 5.5-1, Los Angeles County Agricultural Acres per Crop 1970–2014.

**TABLE 5.5-1  
LOS ANGELES COUNTY AGRICULTURAL ACRES PER CROP 1970–2013**

Crop	Acreage						1970-2014 % Change <sup>c</sup>
	1970	1980	1990	2002 <sup>a</sup>	2010	2014 <sup>b</sup>	
Fruit and Nut Crops	7,829	3,032	1,889	1,692	1,913	764	(90)
Vegetable Crops	6,592	6,446	2,926	12,934	4,472	6,765	3
Nursery Products	1,972	2,280	2,160	2,240	2,071	1,530	(22)
Flowers and Foliage	656	490	235	72	81	88	(87)
Field Crops	57,890	42,298	8,683	8,458	15,985	11,147	(81)
<b>Average Change:</b>							<b>(57)</b>
<sup>a</sup> Current at time the NOP was released in 2004. <sup>b</sup> Most current information available in January 2017. <sup>c</sup> Numbers in parentheses denote negative numbers. Sources: LACFB 2014, 2010; LACAC 2000, 1990, 1980, 1970.							

As shown in Table 5.5-1, the total acreage in production for all crop types has varied over time, with an approximate average net reduction in acreage of 57 percent of these crops since 1970 as shown in the last column. The 2014 value of agricultural commodities in Los Angeles County was \$229,686,760, which includes all the crop types listed above as well as livestock production, forest products, and apiary that are not measured in acreages (LACFB 2014). However, according to the AVAP Draft EIR, agricultural production has increased in the Antelope Valley since the mid-1990s due to the increase in production of vegetable crops (mainly onions and carrots) and fruit crops (mainly peaches)—28 percent and 15 percent, respectively (DRP 2014).

In addition to considering agricultural production, the following discussion considers the coverage of FMMP-designated farmlands, which does not account for the type or amount of crops on that land. Table 5.5-2, Farmland Mapping and Monitoring Program Resources in Los Angeles County 2000–2014, provides an overview of the amount of FMMP-designated lands present in the County and the percent change in each category over that period. The 2012–2014 period is the most recent FMMP data published by the California Department of Conservation.



**TABLE 5.5-2  
FARMLAND MAPPING AND MONITORING PROGRAM RESOURCES  
IN LOS ANGELES COUNTY 2000-2014**

Category	Acreage				2002-2014 % Change <sup>c</sup>
	2002 <sup>a</sup>	2006	2012	2014 <sup>b</sup>	
Prime Farmland	32,187	32,611	27,733	25,427	(21)
Farmland of Statewide Importance	939	1,024	841	826	(12)
Unique Farmland	1,155	1,024	1,088	1,066	(8)
Farmland of Local Importance	8,171	8,975	5,671	3,964	(51)
<i>Subtotal Important Farmland</i>	<i>42,452</i>	<i>43,634</i>	<i>35,333</i>	<i>31,283</i>	<i>(26)</i>
Grazing Land	233,399	228,729	235,829	237,069	2
<b>Total FMMP Lands</b>	<b>275,851</b>	<b>272,363</b>	<b>271,162</b>	<b>268,352</b>	<b>(3)</b>

FMMP: Farmland Mapping and Monitoring Program; NOP: Notice of Preparation

<sup>a</sup> Current at time the NOP was released in 2004. Acreage was calculated in 2002 using the rectified imagery, which resulted in significant boundary adjustments, particularly in areas with terrain. A large reclassification from Farmland of Local Importance to Grazing Land is due to these factors and an analysis of the long-term idling of dryland farming areas.

<sup>b</sup> Most current information available in January 2017.

<sup>c</sup> Numbers in parentheses denote negative numbers.

Source: DOC 2017.

As shown in Table 5.5-2, the acreage of Important Farmland collectively decreased approximately 26 percent and Grazing Land remained stable (approximate 2 percent increase). For additional context, historic land use conversion data for Los Angeles County available for the past 20 years, from 1984 through 2014, shows a decrease in Important Farmland of 29,594 acres (49 percent) and an increase in Grazing Land of 7,306 acres (3 percent) over this period (DOC 2017). The AVAP Draft EIR identifies a total of 24,443 acres of Important Farmland within the AVAP planning area, which includes only unincorporated portions of the Antelope Valley (LACDRP 2014).

The FMMP also tracks the acres of “Land Committed to Nonagricultural Use” as an optional category and is defined as existing farmland, grazing land, and vacant areas that have a permanent commitment for development. Table 5.5-3, Lands Committed to Non-Agricultural Use in Los Angeles County 2002-2010, summarizes the lands placed in this category in each two-year mapping cycle. The land committed to non-agricultural use is not reported in the 2010-2012 or 2012-2014 data, the most recent FMMP data.

**TABLE 5.5-3  
AGRICULTURAL LANDS COMMITTED TO NON-AGRICULTURAL USE  
IN LOS ANGELES COUNTY 2002-2010**

FMMP Category	Acreage			
	2002-2004	2004-2006	2006-2008	2008-2010
Prime Farmland	46	46	46	44
Farmland of Statewide Importance	0	0	0	0
Unique Farmland	0	0	0	0
Farmland of Local Importance	0	0	0	0
<i>Subtotal Important Farmland</i>	46	46	46	44
Grazing Land	2,278	2,258	2,246	2,212
<b>Totals</b>	<b>2,324</b>	<b>2,304</b>	<b>2,292</b>	<b>2,256</b>
FMMP: Farmland Mapping and Monitoring Program Source: DOC 2017.				

As shown in Table 5.5-3, in 2010, 44 acres of Prime Farmland and slightly more than 2,200 acres of Grazing Land were developed as non-agricultural uses in Los Angeles County, which is a slight reduction when compared to previous 2-year mapping periods.

#### ***On-Site Farmland Mapping and Monitoring Program Designations and Agricultural Production***

Table 5.5-4 below summarizes the acres of FMMP-designated lands on the Project site, based on the most recent FMMP data publicly available. The Centennial Project site contains approximately 642 acres of land designated as Prime Farmland, with the majority of the site (approximately 11,616 acres) designated as Grazing Land (2016a). These acreages represent approximately 2.5 percent of the Prime Farmland and approximately 4.9 percent of the Grazing Land, respectively, designated under the FMMP in the County of Los Angeles in 2014 (DOC 2017). The Project site includes no lands that are designated as Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance. The on-site Prime Farmland represents approximately 10.4 percent of the Important Farmland in the AVAP planning area (6,169 acres).

**TABLE 5.5-4  
FARMLAND MAPPING AND MONITORING PROGRAM DESIGNATIONS  
AND ACREAGES ON THE CENTENNIAL PROJECT SITE**

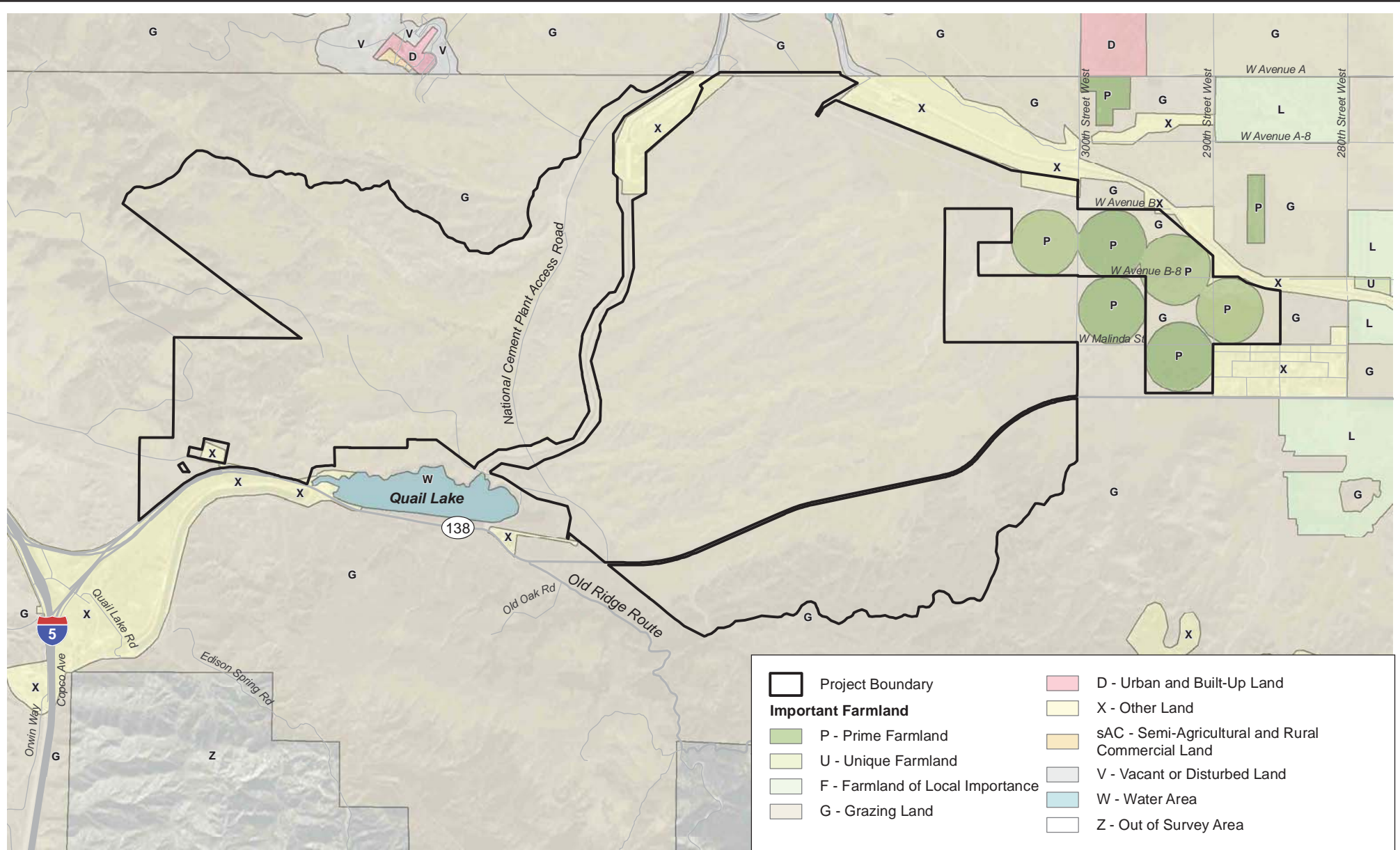
FMMP Category	Acreage
Prime Farmland	642
Grazing Land	11,616
Other Land, and Vacant and Disturbed Land	65
<b>Total</b>	<b>12,323</b>
FMMP: Farmland Mapping and Monitoring Program	
Source: DOC 2016a.	

The distribution of classified farmland on the Project site is illustrated on Exhibit 5.5-1, Important Farmland (FMMP Designations). As shown, the majority of the surrounding lands are designated as Grazing Land, and there are two small, discrete areas of Prime Farmland located off site to the northeast of the site.

Land in agricultural production is defined as either being farmed for crop production or as being used for rangeland cattle grazing. Exhibit 5.5-2, Current On-Site Agricultural Uses, shows the current agricultural uses on the Project site. The Project site has been used for open grazing for over 150 years. The Tejon Ranch Company currently leases the Project site to an independent company for grazing and agricultural uses. Approximately 10,950 acres (89 percent) of the Project site are currently used for grazing. This is somewhat less than the area designated as Grazing Land, pursuant to the FMMP, as described in Table 5.5-4. The grazing area is spread almost entirely across the site, and grazing occurs in the spring. The total area of grazing acreage on the Project site represents approximately 5 percent of the 237,069 acres of grazing land in Los Angeles County in the year 2014. To date, the grazing on site is not managed for biological resources. Cattle can graze on any portion of the site regardless of sensitive habitats or plant species that may be present.

In addition to grazing, the Tejon Ranch Company owns and cultivates approximately 1,000 acres in the eastern portion of the Project site as pivot fields.<sup>4</sup> These 1,000 acres include 5 separate pivot fields that correlate with the approximate 642 acres of Prime Farmland on the site (see Table 5.5-4 and Exhibit 5.5-1). Each pivot field is a circle within a square parcel. Therefore, each pivot field has adjacent lands in each parcel that are indirectly involved in the production activities (e.g., equipment access, water infrastructure) but do not directly produce crops. These “edge” lands outside the pivot circles comprise the difference between the 642 acres of Prime Farmland and the total of approximately 1,000 acres of land (i.e., approximately 348 acres) under cultivation Tejon Ranch Company. The pivot fields are managed for the production of either alfalfa or a three-way forage mix (e.g., barley, oats, sedan grass). The total 1,000-acre area has been cultivated by the Tejon Ranch Company since 1998. Prior to 1998, the land was used primarily for grazing.

<sup>4</sup> A “pivot field” is a circular agricultural field with a centralized “pivot” irrigation system.



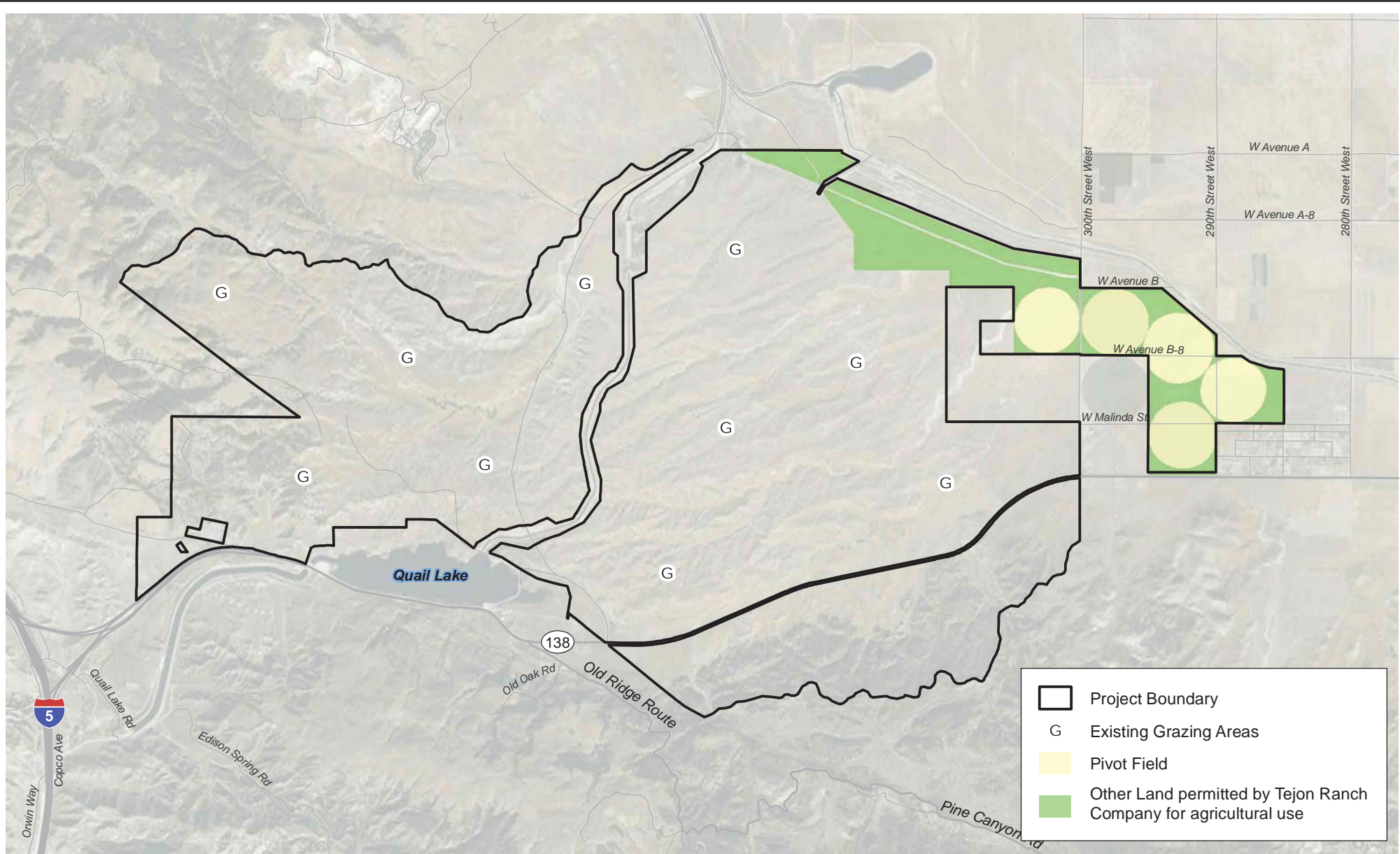
# Important Farmland (Farmland Mapping and Monitoring Program Designations)

# Exhibit 5.5-1

Centennial Project



D:\Projects\3CEN\Centennial\MXD\IE\Ex\_current\_ag\_20150512.mxd



# Current On-Site Agricultural Uses

# Exhibit 5.5-2

Centennial Project



### ***Agricultural Pesticide Use***

Various pesticides, some herbicides, and nitrogen fertilizers are currently used and stored on the Project site. These materials are used in the pivot fields in the eastern portion of the Project site. As agricultural activities on the site are phased out, the use of these chemicals would decline. For a more detailed discussion of current and historical on-site pesticide use, please refer to Section 5.3, Hazards and Fire Safety.

### **Project Design Features**

**PDF 5-1** Project development would allow for continued grazing operations on portions of the Open Space preserve areas as a management tool for grassland conservation, subject to the specifications of the Native Perennial Grassland and Wildflower Field Mitigation Plan to be prepared as part of the Project implementation. Additionally, the Project would accommodate a total of 50 acres of small-scale agriculture and agriculture-related uses (e.g., community gardens, farmers markets/fresh fruit and vegetable stands, growing and sales of nursery stock, commercial greenhouses).

### **Threshold Criteria**

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist that was in place when the Notice of Preparation (NOP) was released. The Project will result in a significant impact if it would:

- Threshold 5-1** Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.
- Threshold 5-2** Conflict with existing zoning for agricultural use, with a designated Agricultural Opportunity Area, or with a Williamson Act contract.
- Threshold 5-3** Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code, Section 12220[g]), timberland (as defined by Public Resources Code, Section 4526), or timberland zoned Timberland Production (as defined by Government Code, Section 51104[g]).
- Threshold 5-4** Result in the loss of forest land or conversion of forest land to non-forest use.
- Threshold 5-5** Involve other changes in the existing environment, which due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest land use.



## Environmental Impacts

**Threshold 5-1**      **Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?**

### *On-Site Impacts*

As shown on Exhibit 5.5-1, the lands designated as Prime Farmland are located in the easternmost portion of the site. As shown on Exhibit 4-1, Centennial Project – Conceptual Land Use Plan, this land is proposed to be developed as residential, commercial, and business park uses. Therefore, Project implementation would result in the conversion of approximately 642 acres of Prime Farmland to urban and other land uses, which is a significant impact under CEQA. Lands that the California Department of Conservation has designated as Farmland of Statewide Importance or Unique Farmland are not present on the Project site. Conversion of Other Land or Grazing Land to non-agricultural uses is not considered a significant impact under CEQA. As described in PDF 5-1, the Project would allow for continued grazing operations on selected open space areas as a management tool for grassland conservation. While to date, grazing has not been specifically managed throughout the site for habitat or biological resources, once the Project is approved, all future grazing activities would be managed in an effort to protect sensitive species present on the site while providing a beneficial impact to native grassland and wildflower fields, as described in PDF 5-1.

Also, the Project would accommodate a total of 50 acres of small-scale agriculture and agriculture-related uses, including, but not limited to community gardens, farmers markets/fresh fruit and vegetable stands, growing and sales of nursery stock, and commercial greenhouses (PDF 5-1). However, these activities may or may not occur within the 642 acres of the site currently designated as Prime Farmland. In addition, Tejon Ranch will put an agricultural preservation easement of not less than 489 acres of Prime and Unique farmland outside of the Project site, but on the Tejon Ranch property.

The AVAP EIR considered the impacts of converting a total of 6,169 acres of Important Farmland based on the proposed land use designations considered incompatible with continued agricultural use, and maintaining 17,855 acres (or approximately 74 percent of the AVAP planning area), in land use designations considered compatible with agricultural use. By focusing future urban development in the EOAs and, to a lesser extent, the Rural Town Center Areas and Rural Town Areas, the AVAP EIR concluded that the overall rural character and agricultural uses within Antelope Valley would be preserved. However, the AVAP EIR concluded that the conversion of 6,169 acres of Important Farmland within the Antelope Valley was a significant and unavoidable impact, with no feasible mitigation measures available to reduce the impact based on current court decisions regarding agricultural mitigation as well as limited availability of land outside the AVAP planning area suitable for cultivation as Farmland in Los Angeles County (DRP 2014a).

The Project is consistent with the intent of the AVAP's land use policy that anticipates conversion of Farmland on and proximate to the site, among other areas, and the Project would not result in any new impacts to agricultural lands not previously considered in the AVAP EIR. However, Project implementation would result in the conversion of 642 acres of Prime Farmland, which is considered a direct, significant impact of the Project. Potential mitigation in the form of establishing 642 acres of new farming areas on Tejon Ranch has been investigated and determined to be infeasible with implementation of the Tejon Ranch Conservation and Land Use Agreement and other existing and proposed development on Tejon Ranch due to insufficient available land that could be cultivated to meet Prime Farmland standards.

For the same reasons as described in the AVAP EIR as well as lack of available land within Tejon Ranch that would equate to 642 acres of Prime Farmland, there is no feasible mitigation to reduce this impact to a less than significant level. Therefore, this would remain a significant unavoidable impact of the Project.

### ***Off-Site Impacts***

With the exception of isolated parcels of designated Prime Farmland areas to the northeast of the site (see Exhibit 5.5-1), all surrounding lands have been designated by the FMMP as Grazing Land and Other Land, which are both designations indicating that the land is unsuitable for agricultural cultivation. A significant impact due to conversion of Important Farmland would occur only if off-site features were to encroach on these Prime Farmland areas and convert them to non-agricultural uses. There are no lands designated as Important Farmland within any off-site Project feature sites. Therefore, a less than significant impact would occur and no mitigation is required.

***Impact Summary:*** The Project will result in the conversion of approximately 642 acres of on-site Prime Farmland, for which there is no feasible mitigation to reduce this impact to a less than significant level. Therefore, this would be significant and unavoidable impact related to conversion of farmland.

**Threshold 5-2      Would the project conflict with existing zoning for agricultural use, with a designated Agricultural Opportunity Area, or with a Williamson Act contract?**

### ***On-Site Impacts***

The AVAP land use designations on the Project site include: H5: Residential 5 (0-5 dwelling units [du]/gross acre); OS-C: Open Space Conservation; CR: Rural Commercial; RL1: Rural Land 1 (1 du/1 gross acre); IL: Light Industrial; and RL2: Rural Land 2 (1 du/2 gross acres). The AVAP zoning on the Project site includes A-1-2: Light Agriculture; OS: Open Space; RPD: Residential Planned Development; CPD-DP: Commercial Planned Development; and MPD-DP: Manufacturing industrial planned development. The A-1-2 zone is located on the lands to the east of 300<sup>th</sup> Street West. The Project site is designated on the AVAP zoning map as within the West EOA (DRP 2015a).



In its Resolution approving the AVAP, the County Board of Supervisors directed staff to prepare amendments to the Zoning Code that were consistent with, and implement, the AVAP. The AVAP also removed the Agricultural Resource Area designations on the Project site. The Zoning designations for the Project site were amended to be consistent with the AVAP as part of the routine Zoning Code update process for the AVAP.

Because the Project site is not currently zoned to support development of the specific uses proposed in the Project, a zone change is required upon adoption of the Project. The *California Government Code* establishes the authority for Cities and Counties to adopt specific plans either by resolution as policy, or by ordinance as regulation. The *Centennial Specific Plan* is a regulatory plan that would be considered for adoption by ordinance by the County of Los Angeles Board of Supervisors.

The purpose of this EIR is to assess the environmental effects from implementing the proposed land uses if the Project were adopted. As such, the adoption of the *Centennial Specific Plan* would require a discretionary zone change to be made by the County that is consistent with, and would help implement, the AVAP—specifically the Rural Preservation Strategy and associated Policy LU 1.1—as it applies to the Project site. Specifically, implementation of the Project would focus residential, employment-generating, and civic land uses (e.g., library, post office, schools) within a designated Economic Opportunity Area, thereby facilitating preservation of agricultural and other rural development. Project consistency with the AVAP and zoning code is addressed in greater detail in Section 5.8, Land Use, Planning, and Entitlements.

Also, there are no Williamson Act contracts on site, or within Los Angeles County (outside of Catalina Island). Therefore, there would be no conflict with applicable agricultural land use policies if the County adopts the Project. There would be a less than significant impact and no mitigation is required.

### ***Off-Site Impacts***

There are no lands zoned as, or being used for, agriculture, nor are there any Williamson Act contracts within any off-site Project features (intersections with SR-138, utility connections, water wells, and California Aqueduct crossings). Therefore, a less than significant impact would occur and no mitigation is required.

***Impact Summary:*** The adoption of the Project will be a discretionary zone change to be made by the County that is consistent with, and would help implement, the AVAP—specifically the Rural Preservation Strategy and associated Policy LU 1.1—as it applies to the Project site. The Project is consistent with the AVAP, and would not conflict with any local land use plans, policies, or zoning designations for agricultural use. The Project site is not subject to a Williamson Act contract. There would be a less than significant impact, and no mitigation is required.

**Threshold 5-3**      **Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code, Section 12220[g]), timberland (as defined by Public Resources**

---

**Code, Section 4526), or timberland zoned Timberland Production (as defined by Government Code, Section 51104[g])?**

***On-Site Impacts***

According to the *California Public Resources Code* (Section 12220[g]), “forest land” is defined as “land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits”.

The *California Public Resources Code* (Section 4526) defines “timberland” as follows:

land, other than land owned by the federal government and land designated by the board<sup>5</sup> as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees. Commercial tree species shall be determined by the board on a district basis after consultation with the district committees and others.

The *California Government Code* (Section 51104[g]) defines “Timberland Production Zone” as an area that “is zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses”. As discussed above, the only agricultural zoning on the Project site is the A-1-2: Light Agriculture zone located on the lands to the east of 300<sup>th</sup> Street West. This zoning allows tree crops as a permitted use. Although the remainder of the Project site is not zoned for agricultural uses under the AVAP, an approximate 13-acre area in the northwestern corner of the site is identified as containing montane hardwood resources, and approximately 883 acres in the southwestern and southeastern portions of the site are identified as containing primarily mixed chaparral (approximately 553 acres) as well as blue oak woodland, blue oak-foothill pine, juniper, and pinyon-juniper resources (approximately 330 acres) on maps prepared by the California Department of Fire and Forestry Protection’s Fire and Resource Assessment Program (FRAP 2006). It is noted that the statewide mapping of forest and timber resources as part of the FRAP is separate from the vegetation mapping performed for the Project site, and is used herein solely for the determination of potential forest and timber resources. Finally, no part of the Project site is zoned as a Timberland Production Zone.

As discussed further in Section 5.7, Biological Resources, the proposed development areas of Project site have been used for open grazing for over 150 years and, as a result the majority of the on-site acreage consists of grasslands that do not support a large number of tree species. While the existing zoning in the easternmost portion of the site allows for tree crop production, these lands have never been managed for forest resources including for timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, or for other public benefits. Further, the Department of Forestry and Fire Protection regulations (Section 895.1) define commercial species of trees for each forest district. The Project site does not contain

---

<sup>5</sup> “Board” is further defined as the State Board of Forestry and Fire Protection.

any trees listed as a “commercial species” for the applicable Southern Forest District as defined in the applicable regulations.

While the Project will not allow for tree crop production as a permitted use as in the existing condition, it would allow some agricultural uses (including growth and sale of nursery stock as well as crop production for crops such as Christmas trees) as interim uses. Regardless, implementation of the Project would not conflict with zoning for forest land or timberland as the Project site is not used for forest land or timberland resources and is not considered forest land or timberland by the County or the State. Finally, the Project will not conflict with zoning for timberland or a Timberland Production Zone, as the site has not been designated as such. There would be no impact to forest land and no mitigation is required.

### ***Off-Site Impacts***

Like the Project site, the locations of off-site Project features (intersections with SR-138, utility connections, water wells, and California Aqueduct crossings) have never been managed for forest land or timberland resources. The off-site Project features are not zoned for forest, timberland, or as a Timberland Production Zone. There would be no impact to forest land and no mitigation is required.

***Impact Summary:*** While the Project will not allow for tree crop production as a permitted use as in the existing condition, it would allow some agricultural uses (including growth and sale of nursery stock as well as crop production for crops such as Christmas trees) as interim uses. Regardless, implementation of the Project would not conflict with zoning for forest land or timberland as the Project site is not used for forest land or timberland resources and is not considered forest land or timberland by the County or the State. Finally, the Project will not conflict with zoning for timberland or a Timberland Production Zone, as the site has not been designated as such. There would be no impact and no mitigation is required.

**Threshold 5-4      Would the project result in the loss of forest land or conversion of forest land to non-forest use?**

### ***On-Site Impacts***

As discussed above under Threshold 5-3, the Project site is not used for forest land or timberland resources, and it is not considered forest land or timberland by the County or the State. There is no forest land on or near the site that would be directly or indirectly converted as a result of the Project. There would be no impact to forest land and no mitigation is required.

While there are no forest lands, there are trees and woodland areas on the Project site and the impacts to these are addressed in Section 5.7, Biological Resources. Further information on carbon sequestration and how it relates to impacts to vegetation is discussed in Section 5.21, Climate Change.

### ***Off-Site Impacts***

Like the Project site, the off-site Project features (intersections with SR 138, utility connections, water wells, and California Aqueduct crossings) are not considered forest land or timberland. There would be no impact and no mitigation is required.

***Impact Summary:*** There is no forest land or timberland on or near the site that would be directly or indirectly converted as a result of the Project. There would be no impact to forest land and no mitigation is required.

**Threshold 5-5**      **Would the project involve other changes in the existing environment, which due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest land?**

### ***On-Site and Off-Site Impacts***

Threshold 5-5 refers to the potential for Farmland or forest land to be converted as an indirect impact (i.e., either in another location/off-site or in the future) due to implementation of the Project. As such, both on-site and off-site impacts are addressed together. Indirect conversion of agricultural uses or forest land can occur where a Project provides infrastructure (e.g., roads, utilities) or another change in land use that provides incentive for other agricultural or forest land landowners to convert their lands to non-agricultural or non-forest land uses. All physical direct and indirect impacts of Project implementation, both on-site and off-site, are addressed under Thresholds 5-1 and 5-4 above. There would be no other changes in the environment not addressed under Thresholds 5-1 and 5-4 that would indirectly result in conversion of Farmland to non-agricultural use or forest land to non-forest land use. The potential growth-inducing impacts of the Project are discussed in Section 6.0, Growth-Inducing Impacts.

***Impact Summary:*** There would be no other changes in the environment not addressed under Thresholds 5-1 and 5-4 that would indirectly result in conversion of Farmland to non-agricultural use or forest land to non-forest land use. The potential growth-inducing impacts of the Project are discussed in Section 6.0, Growth-Inducing Impacts.

### **Mitigation Measures**

There is no feasible mitigation available to reduce significant impacts from the direct conversion of 642 acres of Prime Farmland. Potential mitigation in the form of establishing 642 acres of new farming areas on Tejon Ranch has been investigated and determined to be infeasible due to insufficient available land that could be cultivated to meet Prime Farmland standards with limitations imposed by the implementation of the Tejon Ranch Conservation and Land Use Agreement and other existing and proposed development on Tejon Ranch, as previously discussed. Therefore the conversion of Prime Farmland to non-agricultural use would be a significant and unavoidable impact.

## Level of Significance after Mitigation

The conversion of 642 acres of on-site Prime Farmland to urban uses would remain a significant and unavoidable impact.

### 5.5.3 MINERAL RESOURCES

#### Relevant Plans, Policies, and Regulations

##### *Federal*

There are no applicable federal plans, policies or regulations regarding mineral resources.

##### *State*

##### Mineral Resources and Mineral Hazards Mapping Program

The California Geological Survey (CGS) provides geologic expertise and information about California's diverse non-fuel mineral resources. As required by the Surface Mining and Reclamation Act (SMARA) of 1975, the State Geologist classifies these resources in an effort to locate economically significant mineral deposits and potential areas of deposits based on scientific data. Information relating to California's non-fuel resources, naturally occurring mineral hazards, and active and historic mining activities are collected to classify land under the Mineral Resources and Mineral Hazards Mapping Program. To date, the CGS has completed 97 mineral land classification studies that cover about 34 percent of the state. Of these, only 32 classification studies (covering approximately 25 percent of the state) include the resource areas that provide construction aggregate to over 90 percent of California's population. Construction aggregate is California's primary mineral resource (CGS 2015a).

The CGS defines several geographic areas that collectively cover a single mineral classification study as "Production-Consumption Regions" (P-C Regions). The CGS identifies Mineral Resource Zones for each P-C Region, mine/quarry, or other geographic area included in a mineral classification study. Mineral Resource Zones (MRZs) are areas classified by the presence or absence of significant sand, gravel, or stone deposits that are suitable as sources of aggregate, as described below.

- **MRZ-1:** Mineral Resource Zone where adequate information indicates that no significant mineral deposits are present or likely to be present.
- **MRZ-2:** Mineral Resource Zone where adequate information indicates that several mineral deposits are present or that there is a high likelihood of their presence so development should be controlled.
- **MRZ-3:** Mineral Resource Zone where the significance of mineral deposits cannot be determined from the available data.
- **MRZ-4:** Mineral Resource Zone where there is insufficient data to assign any other MRZ designation.

Lands not addressed by the CGS regarding their mineral content, either within a P-C Region or outside a mineral classification area, are defined as “unclassified”.

### **County**

#### Los Angeles County General Plan and Antelope Valley Area Plan

The *Los Angeles County General Plan* and the AVAP, part of the County General Plan, address mineral resource issues that affect the County. There are no goals and policies related to mineral resources applicable to the Project, as there are no County- or State-designated mineral resource areas on or near the site, as discussed further below.

### **Environmental Setting**

The Project site is not known to contain mineral deposits of any economic importance or any otherwise “classified” mineral deposits. It is known that the National Cement Plant, located in Kern County approximately one mile north of the Project site, quarries aggregate on site as part of their operations. However, there are no records or other evidence of aggregate being located on the Project site.

According to the CGS, the Project site is within an “unclassified” area of both the Saugus-Newhall and Palmdale Production-Consumption Regions (CGS 2015b). The County General Plan and the AVAP do not identify “Mineral Resource Zones” within or near the Project site. Moreover, these documents do not identify mineral resources of interest anywhere in the northwestern quadrant of Los Angeles County. For additional information on potential oil and gas wells on site please refer to Section 5.3, Hazards and Fire Safety.

### **Project Design Features**

There are no PDFs identified for mineral resources.

### **Threshold Criteria**

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist that was in place when the NOP was released. The Project will result in a significant impact if it would:

**Threshold 5-6**      Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

**Threshold 5-7**      Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

### **Environmental Impacts**

**Threshold 5-6**      **Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?**

**Threshold 5-7**      **Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?**

### ***On-Site Impacts***

As discussed above, based on consultation with CGS regarding MRZ in the Project vicinity and review of the County General Plan and AVAP, the Project site is not known to contain mineral deposits of any economic importance or any otherwise “classified” mineral deposits. As discussed above, while it is known that the Cement Plant, located north of the Project site, quarries aggregate, there is no evidence of aggregate or other mineral resources being located on the Project site itself. Therefore, Project implementation would not result in the loss of availability of a known mineral resource that would be of value to the region and residents of the State, nor would it create the loss of availability of a locally important mineral resource recovery site. Therefore, there would be no impact.

### ***Off-Site Impacts***

Because there are no known mineral resources on or in the vicinity of the Project site where off-site Project features would be located, implementation of off-site Project features would not result in an impact related to loss of availability of a mineral resource of State or local value. Additionally, because there are no known mineral resources on or in the vicinity of the Project site within Caltrans right-of-way, the Project will not result in an impact related to loss of availability of a mineral resource of State or local value.

***Impact Summary:*** The Project will not result in impacts related to the loss of known mineral resources because there are no known mineral resources on the Project site.

## **Mitigation Measures**

There would be no impacts to mineral resources; therefore, no mitigation measures are required.

## **Level of Significance After Mitigation**

Due to the lack of identified mineral resources on the Project site, implementation of the proposed development would not result in impacts to mineral resources.

## **5.5.4 REFERENCES**

Cal FIRE, Fire and Resource Assessment Program (FRAP). 2006. FRAP 2006 Statewide Vegetation Mosaic. Sacramento, CA: Cal FIRE, FRAP.

California Department of Conservation, Division of Land Resources Protection (DOC). 2017 (January 27, access date). Farmland Mapping and Monitoring Program: Los Angeles County, Important Farmland Data Availability (Land Use Conversion Tables for 1984-Present, 2002–2004, 2004–2006, 2006–2008, 2008–2010, 2010–2012, 2012–

2014. Sacramento, CA: DOC.  
<http://www.conservation.ca.gov/dlrp/fmmp/Pages/LosAngeles.aspx>.
- . 2016a (April). *Los Angeles County Important Farmland 2014*. Sacramento, CA: DOC.
- . 2016b. *Los Angeles County Williamson Act FY 2015/2016*. Sacramento, CA: DOC.  
[ftp://ftp.consrv.ca.gov/pub/dlrp/wa/LA\\_15\\_16\\_WA.pdf](ftp://ftp.consrv.ca.gov/pub/dlrp/wa/LA_15_16_WA.pdf).
- . 2004. *A Guide to the Farmland Mapping and Monitoring Program*. Sacramento, CA: DOC. [http://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp\\_guide\\_2004.pdf](http://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp_guide_2004.pdf).
- . 1997. *California Agricultural Land Evaluation and Site Assessment Model; Instruction Manual*. Sacramento, CA: DOC.
- California Department of Food and Agriculture (CDFA). 2015. *California Agricultural Statistics Review 2014–2015*. Sacramento, CA: CDFA.  
<https://www.cdfa.ca.gov/statistics/PDFs/2015Report.pdf>.
- California Geological Survey (CGS). 2015a (May 6, access date). Minerals: Program Summary. Sacramento, CA: CGS. <http://www.conservation.ca.gov/cgs/minerals>.
- . 2015b (May 7). Personal communication. Email correspondence between R. Miller, Senior Geologist (California Geological Survey) and J. Neary, Assistant Project Manager (BonTerra Psomas).
- California, State of. 2015a (access date). *California Code of Regulations* (Title 14, Natural Resources; Division 1.5, Department of Forestry and Fire Protection; Chapter 4, Forest Practices; Subchapter 1, Abbreviations and Definitions; Section 895.1 Definitions). Sacramento, CA: the State.
- . 2015b (access date). *California Code of Regulations* (Title 14, Natural Resources; Division 6, Resources Agency; Chapter 3, Guidelines for Implementation of the California Environmental Quality Act). Sacramento, CA: the State.
- . 2012. *California Public Resources Code* (Division 4, Forests, Forestry and Range and Forest Lands; Part 2, Protection of Forest, Range and Forage Lands; Chapter 8, Z'berg-Nejedly Forest Practice Act of 1973; Article 2, Definitions; Section 4526). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=4.&title=&part=2.&chapter=8.&article=2](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=4.&title=&part=2.&chapter=8.&article=2).
- . 2008. *California Public Resources Code* (Division 10.5, California Forest Legacy Program Act of 2007; Chapter 1, General Provisions; Section 12200). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=10.5.&title=&part=&chapter=1.&article=1](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=10.5.&title=&part=&chapter=1.&article=1).



———. 1982. *California Government Code* (Title 5, Local Agencies; Division 1, Cities and Counties; Part 1, Powers and Duties Common to Cities and Counties; Chapter 6.7, Timberland; Section 51104). Sacramento, CA: the State.  
[http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=1.&title=5.&part=1.&chapter=6.7.&article=1](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=1.&title=5.&part=1.&chapter=6.7.&article=1).

Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.

———. 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.

———. 2015c (May 27, last accessed). Town & County—Antelope Valley Area Plan Update. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.

———. 2014a (October). *Final Environmental Impact Report, Antelope Valley Area Plan, County of Los Angeles*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc/environmental/>.

———. 2014b (August). *Antelope Valley Area Plan, Town & Country, Draft Environmental Impact Report, SCH #2014061043*. Los Angeles, CA: LACDRP.

Los Angeles County Agricultural Commissioner. (LACAC). 2000. *Year 2000 Crop and Livestock Report*. Arcadia, CA: LACAC, Weights and Measures Department.  
<http://www.lacfb.org/Crop2000.pdf>.

———. 1990. *1990 Crop and Livestock Report*. Arcadia, CA: LACAC, Weights and Measures Department. <http://www.lacfb.org/cr1990.pdf>.

———. 1980. *Crop and Livestock Los Angeles County 1980 Report*. El Monte, CA: Los Angeles County Department of Agriculture. <http://www.lacfb.org/cropreport1980.pdf>.

———. 1970. *Los Angeles County 1970 Crop and Livestock Report*. El Monte, CA: Los Angeles County Department of Agriculture. <http://www.lacfb.org/CR1970.pdf>.

Los Angeles, County of, Farm Bureau (LACFB). 2014. *2014 Los Angeles County Crop and Livestock Report*. Palmdale, CA: LACFB.  
[http://file.lacounty.gov/acwm/cms1\\_232575.pdf](http://file.lacounty.gov/acwm/cms1_232575.pdf).

———. 2010. *2010 Los Angeles County Crop and Livestock Report*. Palmdale, CA: LACFB.  
<http://www.lacfb.org/2010.pdf>.

*This page is intentionally left blank.*

## 5.5 LAND RESOURCES

This section of the Draft Environmental Impact Report (EIR) describes the potential impacts to agricultural, forest, and mineral resources from implementation of the Project.

### 5.5.1 INTRODUCTION

#### **Purpose**

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that agricultural, forest, and mineral resource issues be evaluated as part of the environmental documentation process. The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively.

#### **Summary**

The Project will result in the conversion of approximately 642 acres of on-site Prime Farmland. The Project site is identified as being within the West Economic Opportunity Area (EOA), one of three EOAs established by the Antelope Valley Area Plan (AVAP). The EIR for the AVAP considered the impacts of converting a total of 6,169 acres of Important Farmland and concluded that the conversion would be a significant and unavoidable impact (DRP 2014). Although the Project is consistent with the AVAP's land use policy, the Project would not result in any new impacts to agricultural lands, and the Project would allow for continued grazing activity and small-scale agriculture and agriculture-related uses (PDF 5-1), because the Project is directly facilitating the conversion of 642 acres of Prime Farmland to non-agricultural uses, it is considered a significant impact of the Project. For the same reasons as described in the AVAP EIR, there is no feasible mitigation to reduce this impact to a less than significant level, and therefore would be a significant unavoidable impact of the Project.

The adoption of the Project will require a discretionary zone change to be made by the County that is consistent with, and would help implement, the AVAP—specifically the Rural Preservation Strategy and associated Policy LU 1.1—as it applies to the Project site. Also, there are no Williamson Act contracts onsite, or within Los Angeles County (outside of Catalina Island). Therefore, there would be no conflict with applicable agricultural land use policies if the County adopts the Project.

As discussed above, the only agricultural zoning on the Project site is the A-1-2: Light Agriculture zone located on the lands to the east of 300<sup>th</sup> Street West. This zoning allows tree crops as a permitted use. Although the remainder of the Project site is not zoned for agricultural uses under the AVAP, an approximate 13-acre area in the northwestern corner of the site is identified as containing montane hardwood resources and approximately 883 acres in the southwestern and southeastern portions of the site are identified as containing primarily mixed chaparral (approximately 553 acres) as well as blue oak woodland, blue oak-foothill pine, juniper, and pinyon-juniper resources (approximately 330 acres) on maps

prepared by the California Department of Fire and Forestry Protection's Fire and Resource Assessment Program (FRAP 2006). It is noted that the statewide mapping of forest and timber resources as part of the FRAP is separate from the vegetation mapping performed for the Project site, and is used herein solely for the determination of potential forest and timber resources. Finally, no part of the Project site is zoned as a Timberland Production Zone.

As discussed further in Section 5.7, Biological Resources, the proposed development areas of the Project site have been used for open cattle grazing for over 150 years and, as a result the majority of the on-site acreage consists of grasslands that do not support a large number of tree species. While the existing zoning in the easternmost portion of the site allows for tree crop production, these lands have never been managed for forest resources including for timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, or for other public benefits. Further, the Department of Forestry and Fire Protection regulations (Section 895.1) define commercial species of trees for each forest district. The Project site does not contain any trees listed as a "commercial species" for the applicable Southern Forest District as defined in the applicable regulations. Project implementation would not conflict with zoning for forest land or timberland as the Project site is not used for forest land or timberland resources and is not considered forest land or timberland by the County or the State. The Project will not conflict with zoning for timberland or a Timberland Production Zone, as the site has not been designated as such. There would be no impact to forest land and no mitigation is required

Project implementation would not result in impacts related to the loss of known mineral resources because there are no known mineral resources on the Project site or the off-site Project features.

## Section Format

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce significant impacts; and level of significance after mitigation, if any. This information is presented in the following format (please refer to Section 2.0, Introduction, and Section 5.0, Environmental Setting, Impacts, and Mitigation, for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Agricultural and Forest Resources
  - Relevant Plans, Policies, and Regulations
  - Environmental Setting
  - Project Design Features

- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance after Mitigation
- Mineral Resources
  - Relevant Plans, Policies, and Regulations
  - Environmental Setting
  - Project Design Features
  - Threshold Criteria
  - Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
    - On-Site Impacts
    - Off-Site Impacts
  - Mitigation Measures
  - Level of Significance After Mitigation
- References

## References

All references cited for preparation of this analysis are listed in Section 5.5.4.

## 5.5.2 AGRICULTURAL AND FOREST RESOURCES

### Relevant Plans, Policies, and Regulations

#### *Federal*

There are no applicable federal plans, policies, or regulations regarding agricultural or forest resources.

#### *State*

##### Farmland Mapping and Monitoring Program

The Farmland Mapping and Monitoring Program (FMMP) is a non-regulatory program that provides a consistent and impartial analysis of agricultural land use and land use changes throughout California. The FMMP provides land use conversion information for decision makers to use in their planning for present and future use of California's agricultural resources. As part of the nationwide agricultural land use mapping effort, the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS, formerly Soil Conservation Service [SCS]) developed a series of definitions known as Land Inventory and Monitoring (LIM) criteria. The LIM criteria classify the land's suitability for agricultural production; suitability includes both the physical and chemical characteristics

of soils and actual land use. Important Farmland Maps have been derived from the NRCS soil survey maps using the LIM criteria.

Since 1980, the State of California has assisted the NRCS in completing its mapping of the state. The FMMP was created by the California Department of Conservation (DOC) to carry out the mapping activity on a continuing basis and with a greater level of detail, which they did by modifying the LIM criteria for use in California. The California LIM criteria utilize the NRCS and Storie Index Rating systems,<sup>1</sup> and also consider other physical conditions such as the following: water moisture regimes, available water capacity, and developed irrigation water supply; soil temperature range; acid-alkali balance; water table; soil sodium content; flooding (uncontrolled runoff from natural precipitation); erodibility; permeability rate; rock fragment content; and soil rooting depth. The following farmland classifications are based on information from the Department of Conservation Division of Land Resources Protection's, *A Guide to the Farmland Mapping and Monitoring Program* (DOC 2004):

- **Prime Farmland (P).** Prime Farmland is land which has the best combination of physical and chemical characteristics for the long-term production of agricultural crops. It has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops when treated and managed (including water management) according to current farming methods. The land must have been used for the production of irrigated crops at some time during the two previous cycles prior to the mapping date.<sup>2</sup> It does not include publicly owned lands for which there is an adopted policy that prevents agricultural use.
- **Farmland of Statewide Importance (F).** Farmland of Statewide Importance is land other than Prime Farmland that has a good combination of physical and chemical characteristics for the production of crops. It must have been used for the production of irrigated crops at some time during the two previous cycles prior to the mapping date. It does not include publicly owned lands for which there is an adopted policy that prevents agricultural use.
- **Unique Farmland (U).** Unique Farmland is land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance. It must be currently used for the production of specific high-economic value crops (as listed in the last three years of *California Agriculture* produced by the California Department of Food and Agriculture). It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or a high yield of a specific crop when treated and managed according to current farming methods. Examples of such crops may include oranges, olives, avocados, rice, grapes, and cut flowers. This land is usually irrigated, but may include non-irrigated orchards or vineyards, as found in some climatic zones in California. The land must have been cultivated at some time during the two cycles prior to the mapping date.

---

<sup>1</sup> The Storie Index provides a numeric rating (based upon a 100 point scale) of the relative degree of suitability or value of a given soil for intensive agriculture. The rating is based on four soil characteristics that represent the inherent characteristics and qualities of the soil, which are considered in the index rating. The four factors are profile characteristics, texture of the surface layer, slope, and other factors (e.g., drainage, salinity) (DOC 1997).

<sup>2</sup> A cycle is approximately two years.

- **Farmland of Local Importance (L).** Farmland of Local Importance is of importance to the local agricultural economy and is determined by each County’s Board of Supervisors and a local advisory committee. According to the DOC, Farmland of Local Importance in Los Angeles County includes producing lands that would meet the standard criteria for Prime Farmland or Farmland of Statewide Importance, but which are not irrigated (DOC 2004).
- **Grazing Land (G).** Grazing Land is land on which the existing vegetation, whether grown naturally or through management, is suitable for livestock grazing. The minimum mapping unit for Grazing Land is 40 acres.
- **Urban and Built-Up Land (D).** Urban and Built-Up Land is occupied with structures that have a building density of at least one unit to one-half acre or approximately six structures to a ten-acre parcel.<sup>3</sup>
- **Other Land (X).** This category is for land that is not included in any other mapping categories. Common examples include low density rural developments; brush, timber, wetland, and riparian areas not suitable for livestock grazing; confined livestock, poultry, or aquaculture facilities; strip mines; borrow pits; and water bodies smaller than 40 acres. Vacant and nonagricultural land that is surrounded on all sides by urban development and is greater than 40 acres is mapped as “Other Land”.

For CEQA purposes, Prime Farmland, Farmland of Statewide Importance, Unique Farmland, and Farmland of Local Importance are collectively defined as “Important Farmland”. Grazing Land is also considered a farmland category, but is not included in the “Important Farmland” definition.

### California Land Conservation Act

The California Land Conservation Act (LCA), also known as the Williamson Act, was adopted in 1965 to encourage the preservation of the state’s agricultural lands and to prevent their premature conversion to urban uses. In order to preserve these agricultural uses, the Williamson Act established an agricultural preserve contract procedure by which any California County or City can tax landowners at a lower rate, using a scale based on the actual use of the land for agricultural purposes, as opposed to its unrestricted (i.e., “fair”) market value. In return, landowners guarantee that their properties will remain under agricultural production for at least a ten-year period. The contract is renewed annually for an additional year automatically unless the owner files a notice of non-renewal. In this manner, each agricultural preserve contract (at any given date) is always operable at least nine years into the future. The only lands in Los Angeles County under Williamson Act Contract are located on Catalina Island (DOC 2016b). As such, no part of the Project site is under Williamson Act Contract.

---

<sup>3</sup> A “unit” is defined as a structure or foundation on which uses associated with development are placed. Uses may include and are not limited to residential, industrial, commercial, construction, institutional, public administration purposes, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water-control structures, and other development purposes. Highways, railroads, and other transportation facilities are mapped as part of this unit if they are part of a surrounding urban area.

## Right-to-Farm Ordinances

Right-to-Farm Ordinances have been adopted by several California Counties to protect farmers in established farming areas from legal action that new residents in nearby urban settings may take against nuisances associated with normal, day-to-day farming activities (e.g., odor, noise, dust). Los Angeles County does not have a Right-to-Farm Ordinance.

### *County*

#### Los Angeles County General Plan and Antelope Valley Area Plan

The *Los Angeles County General Plan* and the *Antelope Valley Area Plan (AVAP)*, part of the County General Plan, includes goals and policies that address agricultural issues in the unincorporated County. As discussed further below, the Project site is identified in the AVAP as within the West EOA, one of three EOAs established by the AVAP where increased residential, commercial, and industrial uses are encouraged while preserving the rural character and ecological resources of the surrounding areas, including agricultural activity. The AVAP goal and policy applicable to the analysis of agriculture resources with Project implementation are listed below. Section 5.8, Land Use, Entitlements, and Planning, presents a more in-depth analysis of the Project's consistency with relevant plans, policies and regulations.

**Goal LU 1:** A land use pattern that maintains and enhances the rural character of the unincorporated Antelope Valley.

**Policy LU 1.1:** Direct the majority of the unincorporated Antelope Valley's future growth to rural town center areas and identified economic opportunity areas, through appropriate land use designations, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

## **Environmental Setting**

### ***Agriculture Resource Planning in the Antelope Valley***

Development of the Antelope Valley started in 1876 and the developing communities were dependent upon stock raising, dry farming, and fruit orchards. While the years during and after World War II saw military investments come to prominence, this type of development declined, and the final decades of the 20th century saw the Antelope Valley emerge with major new housing opportunities as vast acreages were subdivided for affordable tract homes. Farming regained its status as a productive employer, but the area continued to develop without balancing the growth in housing with a corresponding growth in jobs and investment in infrastructure.

The AVAP was adopted by the County Board of Supervisors on June 16, 2015, which updates and supersedes the previous Antelope Valley Areawide General Plan adopted in 1986 (DRP 2015c). The AVAP is centered on the Rural Preservation Strategy, developed to reflect the community's desire to maintain the rural attributes of the Antelope Valley while acknowledging the "growing populations need for additional housing and employment opportunities. . ." per the AVAP's vision statement (DRP 2015a). As discussed in the AVAP,



the Rural Preservation Strategy is based on four types of environments—Rural Town Center Areas, Rural Town Areas, Rural Preserve Areas, Economic Opportunity Areas—that serve different purposes. Collectively, these environments preserve the rural character of the region, conserve environmental resources, and protect residents from potential hazards while allowing for additional growth and development (DRP 2015a). [SEP]

In Rural Town Center Areas and Rural Town Areas, the amount of potential development allowed by the AVAP will be equal to, or greater than, the amount of potential development allowed by the previous Area Plan. Therefore, those areas are likely to benefit from increased property tax revenues and developer fees, which can help fund additional infrastructure. EOAs are defined clusters of land along the routes of two new proposed major infrastructure projects in the Antelope Valley (i.e. the High Desert Corridor and the Northwest 138 Corridor Improvement Project), which are expected to indirectly generate growth and development. The EOAs maximize the investment of State and regional agencies in public infrastructure while achieving the general goal of rural preservation in the Antelope Valley. Any development induced by these two infrastructure projects is intended be guided to EOAs in order for surrounding areas to be preserved and maintained at low density or agricultural uses ( DRP 2015a). The Project site is in the West EOA.

### ***Contribution of Agriculture to the Los Angeles County Economy***

According to the most recent data from the California Department of Food and Agriculture (CDFA), the County of Los Angeles is ranked 33<sup>rd</sup> in the state for agricultural production market value, with 2013–2014 gross revenues of approximately \$230,068,000. The leading commodity crops included woody ornamental and other nursery plants, vegetables, fruits and nuts, and hay (CDFA 2015).

### ***Farmland Conversion Trends in Los Angeles County***

Agricultural land conversion has a long history in Los Angeles County; the extent of this conversion is reflected in Table 5.5-1, Los Angeles County Agricultural Acres per Crop 1970–2014.

**TABLE 5.5-1  
LOS ANGELES COUNTY AGRICULTURAL ACRES PER CROP 1970–2013**

Crop	Acreage						1970-2014 % Change <sup>c</sup>
	1970	1980	1990	2002 <sup>a</sup>	2010	2014 <sup>b</sup>	
Fruit and Nut Crops	7,829	3,032	1,889	1,692	1,913	764	(90)
Vegetable Crops	6,592	6,446	2,926	12,934	4,472	6,765	3
Nursery Products	1,972	2,280	2,160	2,240	2,071	1,530	(22)
Flowers and Foliage	656	490	235	72	81	88	(87)
Field Crops	57,890	42,298	8,683	8,458	15,985	11,147	(81)
<b>Average Change:</b>							<b>(57)</b>
<sup>a</sup> Current at time the NOP was released in 2004. <sup>b</sup> Most current information available in January 2017. <sup>c</sup> Numbers in parentheses denote negative numbers. Sources: LACFB 2014, 2010; LACAC 2000, 1990, 1980, 1970.							

As shown in Table 5.5-1, the total acreage in production for all crop types has varied over time, with an approximate average net reduction in acreage of 57 percent of these crops since 1970 as shown in the last column. The 2014 value of agricultural commodities in Los Angeles County was \$229,686,760, which includes all the crop types listed above as well as livestock production, forest products, and apiary that are not measured in acreages (LACFB 2014). However, according to the AVAP Draft EIR, agricultural production has increased in the Antelope Valley since the mid-1990s due to the increase in production of vegetable crops (mainly onions and carrots) and fruit crops (mainly peaches)—28 percent and 15 percent, respectively (DRP 2014).

In addition to considering agricultural production, the following discussion considers the coverage of FMMP-designated farmlands, which does not account for the type or amount of crops on that land. Table 5.5-2, Farmland Mapping and Monitoring Program Resources in Los Angeles County 2000–2014, provides an overview of the amount of FMMP-designated lands present in the County and the percent change in each category over that period. The 2012–2014 period is the most recent FMMP data published by the California Department of Conservation.

**TABLE 5.5-2  
FARMLAND MAPPING AND MONITORING PROGRAM RESOURCES  
IN LOS ANGELES COUNTY 2000-2014**

Category	Acreage				2002- 2014 % Change <sup>c</sup>
	2002 <sup>a</sup>	2006	2012	2014 <sup>b</sup>	
Prime Farmland	32,187	32,611	27,733	25,427	(21)
Farmland of Statewide Importance	939	1,024	841	826	(12)
Unique Farmland	1,155	1,024	1,088	1,066	(8)
Farmland of Local Importance	8,171	8,975	5,671	3,964	(51)
<i>Subtotal Important Farmland</i>	<i>42,452</i>	<i>43,634</i>	<i>35,333</i>	<i>31,283</i>	<i>(26)</i>
Grazing Land	233,399	228,729	235,829	237,069	2
<b>Total FMMP Lands</b>	<b>275,851</b>	<b>272,363</b>	<b>271,162</b>	<b>268,352</b>	<b>(3)</b>

FMMP: Farmland Mapping and Monitoring Program; NOP: Notice of Preparation

<sup>a</sup> Current at time the NOP was released in 2004. Acreage was calculated in 2002 using the rectified imagery, which resulted in significant boundary adjustments, particularly in areas with terrain. A large reclassification from Farmland of Local Importance to Grazing Land is due to these factors and an analysis of the long-term idling of dryland farming areas.

<sup>b</sup> Most current information available in January 2017.

<sup>c</sup> Numbers in parentheses denote negative numbers.

Source: DOC 2017.

As shown in Table 5.5-2, the acreage of Important Farmland collectively decreased approximately 26 percent and Grazing Land remained stable (approximate 2 percent increase). For additional context, historic land use conversion data for Los Angeles County available for the past 20 years, from 1984 through 2014, shows a decrease in Important Farmland of 29,594 acres (49 percent) and an increase in Grazing Land of 7,306 acres (3 percent) over this period (DOC 2017). The AVAP Draft EIR identifies a total of 24,443 acres of Important Farmland within the AVAP planning area, which includes only unincorporated portions of the Antelope Valley (LACDRP 2014).

The FMMP also tracks the acres of “Land Committed to Nonagricultural Use” as an optional category and is defined as existing farmland, grazing land, and vacant areas that have a permanent commitment for development. Table 5.5-3, Lands Committed to Non-Agricultural Use in Los Angeles County 2002-2010, summarizes the lands placed in this category in each two-year mapping cycle. The land committed to non-agricultural use is not reported in the 2010-2012 or 2012-2014 data, the most recent FMMP data.

**TABLE 5.5-3  
AGRICULTURAL LANDS COMMITTED TO NON-AGRICULTURAL USE  
IN LOS ANGELES COUNTY 2002-2010**

FMMP Category	Acreage			
	2002-2004	2004-2006	2006-2008	2008-2010
Prime Farmland	46	46	46	44
Farmland of Statewide Importance	0	0	0	0
Unique Farmland	0	0	0	0
Farmland of Local Importance	0	0	0	0
<i>Subtotal Important Farmland</i>	46	46	46	44
Grazing Land	2,278	2,258	2,246	2,212
<b>Totals</b>	<b>2,324</b>	<b>2,304</b>	<b>2,292</b>	<b>2,256</b>
FMMP: Farmland Mapping and Monitoring Program Source: DOC 2017.				

As shown in Table 5.5-3, in 2010, 44 acres of Prime Farmland and slightly more than 2,200 acres of Grazing Land were developed as non-agricultural uses in Los Angeles County, which is a slight reduction when compared to previous 2-year mapping periods.

#### ***On-Site Farmland Mapping and Monitoring Program Designations and Agricultural Production***

Table 5.5-4 below summarizes the acres of FMMP-designated lands on the Project site, based on the most recent FMMP data publicly available. The Centennial Project site contains approximately 642 acres of land designated as Prime Farmland, with the majority of the site (approximately 11,616 acres) designated as Grazing Land (2016a). These acreages represent approximately 2.5 percent of the Prime Farmland and approximately 4.9 percent of the Grazing Land, respectively, designated under the FMMP in the County of Los Angeles in 2014 (DOC 2017). The Project site includes no lands that are designated as Farmland of Statewide Importance, Unique Farmland, or Farmland of Local Importance. The on-site Prime Farmland represents approximately 10.4 percent of the Important Farmland in the AVAP planning area (6,169 acres).

**TABLE 5.5-4  
FARMLAND MAPPING AND MONITORING PROGRAM DESIGNATIONS  
AND ACREAGES ON THE CENTENNIAL PROJECT SITE**

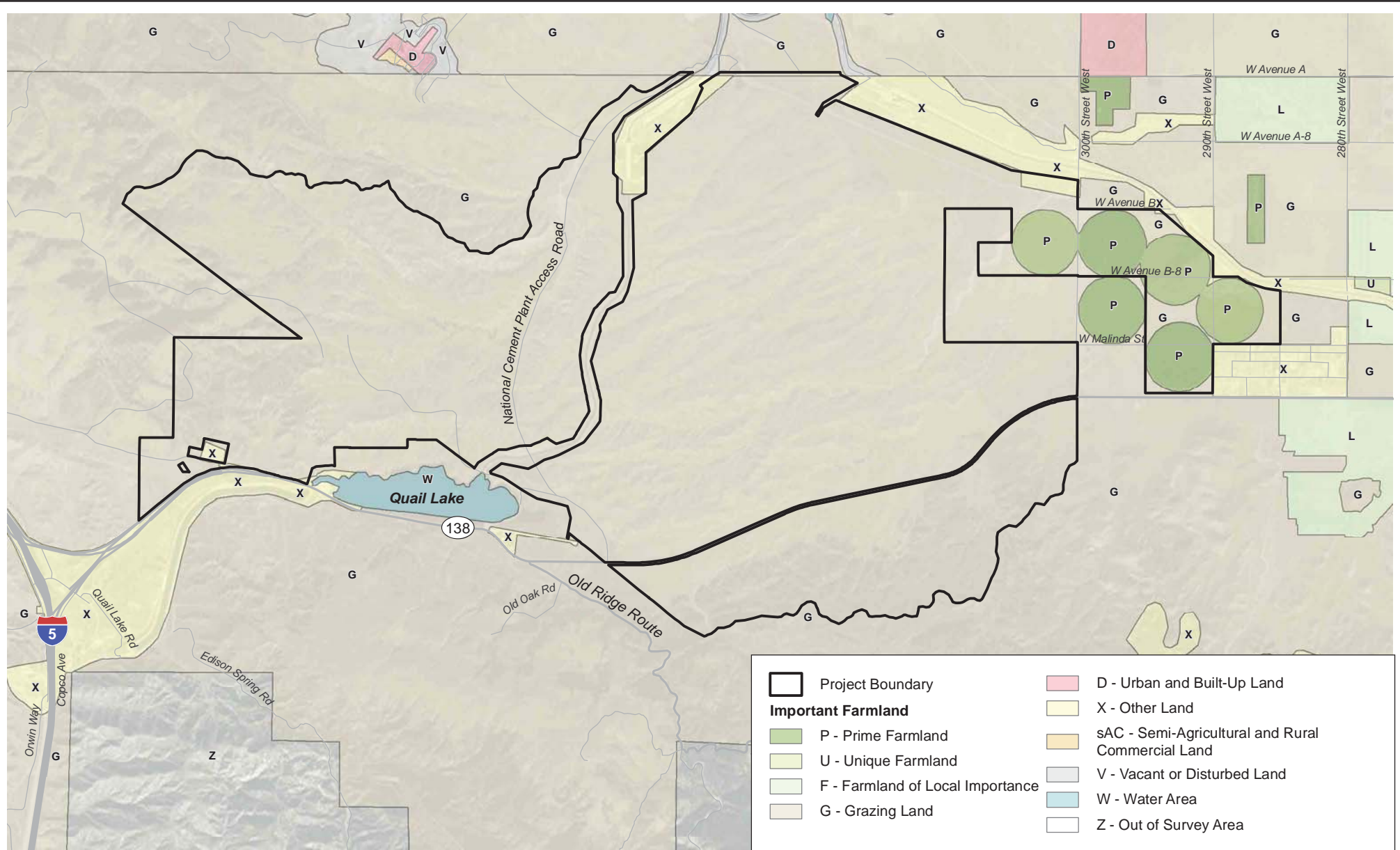
FMMP Category	Acreage
Prime Farmland	642
Grazing Land	11,616
Other Land, and Vacant and Disturbed Land	65
<b>Total</b>	<b>12,323</b>
FMMP: Farmland Mapping and Monitoring Program	
Source: DOC 2016a.	

The distribution of classified farmland on the Project site is illustrated on Exhibit 5.5-1, Important Farmland (FMMP Designations). As shown, the majority of the surrounding lands are designated as Grazing Land, and there are two small, discrete areas of Prime Farmland located off site to the northeast of the site.

Land in agricultural production is defined as either being farmed for crop production or as being used for rangeland cattle grazing. Exhibit 5.5-2, Current On-Site Agricultural Uses, shows the current agricultural uses on the Project site. The Project site has been used for open grazing for over 150 years. The Tejon Ranch Company currently leases the Project site to an independent company for grazing and agricultural uses. Approximately 10,950 acres (89 percent) of the Project site are currently used for grazing. This is somewhat less than the area designated as Grazing Land, pursuant to the FMMP, as described in Table 5.5-4. The grazing area is spread almost entirely across the site, and grazing occurs in the spring. The total area of grazing acreage on the Project site represents approximately 5 percent of the 237,069 acres of grazing land in Los Angeles County in the year 2014. To date, the grazing on site is not managed for biological resources. Cattle can graze on any portion of the site regardless of sensitive habitats or plant species that may be present.

In addition to grazing, the Tejon Ranch Company owns and cultivates approximately 1,000 acres in the eastern portion of the Project site as pivot fields.<sup>4</sup> These 1,000 acres include 5 separate pivot fields that correlate with the approximate 642 acres of Prime Farmland on the site (see Table 5.5-4 and Exhibit 5.5-1). Each pivot field is a circle within a square parcel. Therefore, each pivot field has adjacent lands in each parcel that are indirectly involved in the production activities (e.g., equipment access, water infrastructure) but do not directly produce crops. These “edge” lands outside the pivot circles comprise the difference between the 642 acres of Prime Farmland and the total of approximately 1,000 acres of land (i.e., approximately 348 acres) under cultivation Tejon Ranch Company. The pivot fields are managed for the production of either alfalfa or a three-way forage mix (e.g., barley, oats, sedan grass). The total 1,000-acre area has been cultivated by the Tejon Ranch Company since 1998. Prior to 1998, the land was used primarily for grazing.

<sup>4</sup> A “pivot field” is a circular agricultural field with a centralized “pivot” irrigation system.

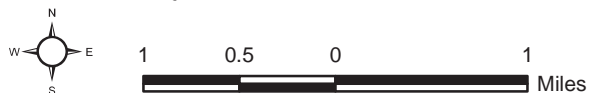


	Project Boundary		D - Urban and Built-Up Land
<b>Important Farmland</b>			X - Other Land
	P - Prime Farmland		sAC - Semi-Agricultural and Rural Commercial Land
	U - Unique Farmland		V - Vacant or Disturbed Land
	F - Farmland of Local Importance		W - Water Area
	G - Grazing Land		Z - Out of Survey Area

# Important Farmland (Farmland Mapping and Monitoring Program Designations)

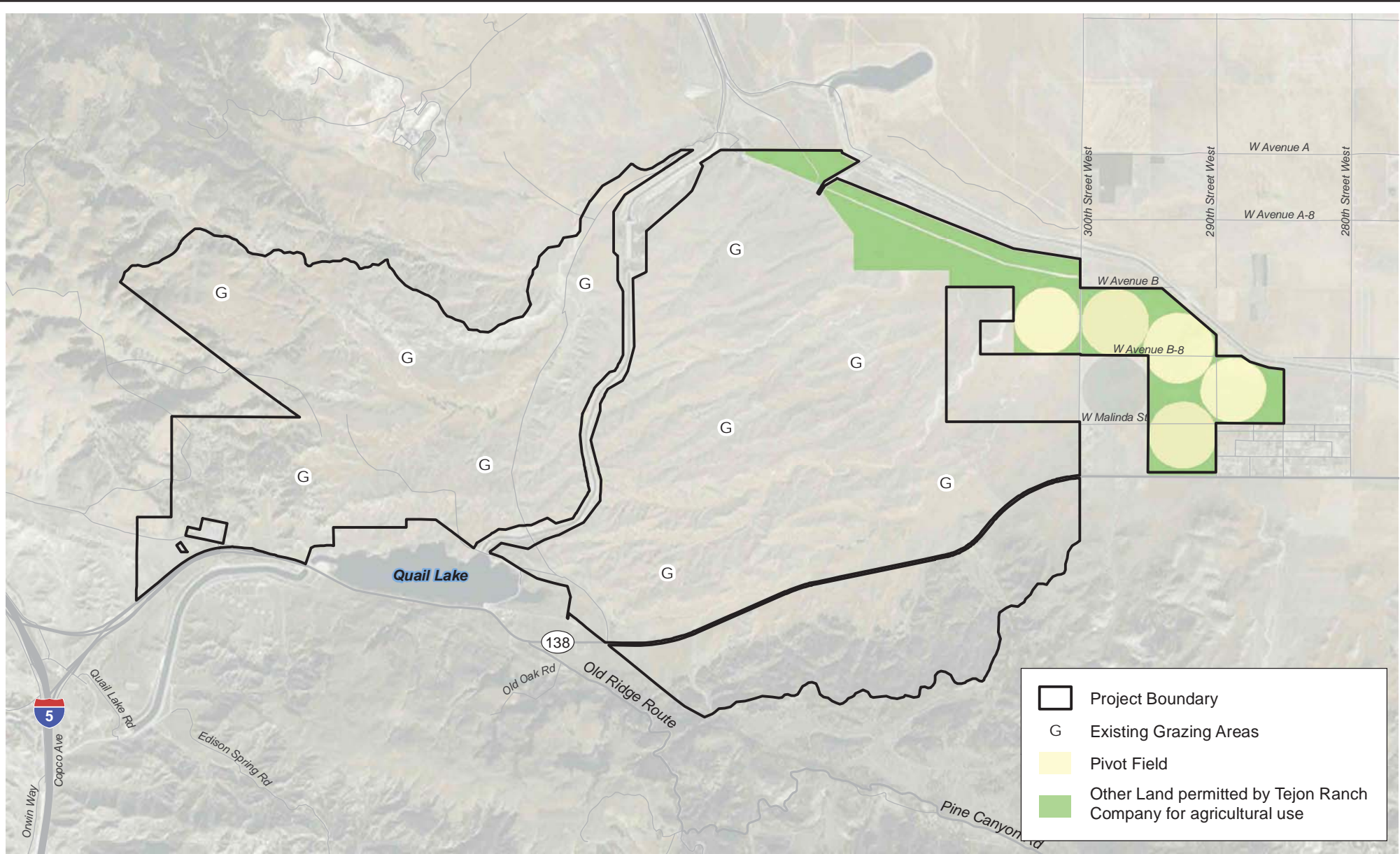
# Exhibit 5.5-1

Centennial Project





D:\Projects\3CEN\Centennial\MXD\IE\Ex\_current\_ag\_20150512.mxd



# Current On-Site Agricultural Uses

# Exhibit 5.5-2

Centennial Project



### ***Agricultural Pesticide Use***

Various pesticides, some herbicides, and nitrogen fertilizers are currently used and stored on the Project site. These materials are used in the pivot fields in the eastern portion of the Project site. As agricultural activities on the site are phased out, the use of these chemicals would decline. For a more detailed discussion of current and historical on-site pesticide use, please refer to Section 5.3, Hazards and Fire Safety.

### **Project Design Features**

**PDF 5-1** Project development would allow for continued grazing operations on portions of the Open Space preserve areas as a management tool for grassland conservation, subject to the specifications of the Native Perennial Grassland and Wildflower Field Mitigation Plan to be prepared as part of the Project implementation. Additionally, the Project would accommodate a total of 50 acres of small-scale agriculture and agriculture-related uses (e.g., community gardens, farmers markets/fresh fruit and vegetable stands, growing and sales of nursery stock, commercial greenhouses).

### **Threshold Criteria**

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist that was in place when the Notice of Preparation (NOP) was released. The Project will result in a significant impact if it would:

- Threshold 5-1** Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.
- Threshold 5-2** Conflict with existing zoning for agricultural use, with a designated Agricultural Opportunity Area, or with a Williamson Act contract.
- Threshold 5-3** Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code, Section 12220[g]), timberland (as defined by Public Resources Code, Section 4526), or timberland zoned Timberland Production (as defined by Government Code, Section 51104[g]).
- Threshold 5-4** Result in the loss of forest land or conversion of forest land to non-forest use.
- Threshold 5-5** Involve other changes in the existing environment, which due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest land use.



## Environmental Impacts

**Threshold 5-1**      **Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?**

### *On-Site Impacts*

As shown on Exhibit 5.5-1, the lands designated as Prime Farmland are located in the easternmost portion of the site. As shown on Exhibit 4-1, Centennial Project – Conceptual Land Use Plan, this land is proposed to be developed as residential, commercial, and business park uses. Therefore, Project implementation would result in the conversion of approximately 642 acres of Prime Farmland to urban and other land uses, which is a significant impact under CEQA. Lands that the California Department of Conservation has designated as Farmland of Statewide Importance or Unique Farmland are not present on the Project site. Conversion of Other Land or Grazing Land to non-agricultural uses is not considered a significant impact under CEQA. As described in PDF 5-1, the Project would allow for continued grazing operations on selected open space areas as a management tool for grassland conservation. While to date, grazing has not been specifically managed throughout the site for habitat or biological resources, once the Project is approved, all future grazing activities would be managed in an effort to protect sensitive species present on the site while providing a beneficial impact to native grassland and wildflower fields, as described in PDF 5-1.

Also, the Project would accommodate a total of 50 acres of small-scale agriculture and agriculture-related uses, including, but not limited to community gardens, farmers markets/fresh fruit and vegetable stands, growing and sales of nursery stock, and commercial greenhouses (PDF 5-1). However, these activities may or may not occur within the 642 acres of the site currently designated as Prime Farmland. In addition, Tejon Ranch will put an agricultural preservation easement of not less than 489 acres of Prime and Unique farmland outside of the Project site, but on the Tejon Ranch property.

The AVAP EIR considered the impacts of converting a total of 6,169 acres of Important Farmland based on the proposed land use designations considered incompatible with continued agricultural use, and maintaining 17,855 acres (or approximately 74 percent of the AVAP planning area), in land use designations considered compatible with agricultural use. By focusing future urban development in the EOAs and, to a lesser extent, the Rural Town Center Areas and Rural Town Areas, the AVAP EIR concluded that the overall rural character and agricultural uses within Antelope Valley would be preserved. However, the AVAP EIR concluded that the conversion of 6,169 acres of Important Farmland within the Antelope Valley was a significant and unavoidable impact, with no feasible mitigation measures available to reduce the impact based on current court decisions regarding agricultural mitigation as well as limited availability of land outside the AVAP planning area suitable for cultivation as Farmland in Los Angeles County (DRP 2014a).

The Project is consistent with the intent of the AVAP's land use policy that anticipates conversion of Farmland on and proximate to the site, among other areas, and the Project would not result in any new impacts to agricultural lands not previously considered in the AVAP EIR. However, Project implementation would result in the conversion of 642 acres of Prime Farmland, which is considered a direct, significant impact of the Project. Potential mitigation in the form of establishing 642 acres of new farming areas on Tejon Ranch has been investigated and determined to be infeasible with implementation of the Tejon Ranch Conservation and Land Use Agreement and other existing and proposed development on Tejon Ranch due to insufficient available land that could be cultivated to meet Prime Farmland standards.

For the same reasons as described in the AVAP EIR as well as lack of available land within Tejon Ranch that would equate to 642 acres of Prime Farmland, there is no feasible mitigation to reduce this impact to a less than significant level. Therefore, this would remain a significant unavoidable impact of the Project.

### ***Off-Site Impacts***

With the exception of isolated parcels of designated Prime Farmland areas to the northeast of the site (see Exhibit 5.5-1), all surrounding lands have been designated by the FMMP as Grazing Land and Other Land, which are both designations indicating that the land is unsuitable for agricultural cultivation. A significant impact due to conversion of Important Farmland would occur only if off-site features were to encroach on these Prime Farmland areas and convert them to non-agricultural uses. There are no lands designated as Important Farmland within any off-site Project feature sites. Therefore, a less than significant impact would occur and no mitigation is required.

***Impact Summary:*** The Project will result in the conversion of approximately 642 acres of on-site Prime Farmland, for which there is no feasible mitigation to reduce this impact to a less than significant level. Therefore, this would be significant and unavoidable impact related to conversion of farmland.

**Threshold 5-2      Would the project conflict with existing zoning for agricultural use, with a designated Agricultural Opportunity Area, or with a Williamson Act contract?**

### ***On-Site Impacts***

The AVAP land use designations on the Project site include: H5: Residential 5 (0-5 dwelling units [du]/gross acre); OS-C: Open Space Conservation; CR: Rural Commercial; RL1: Rural Land 1 (1 du/1 gross acre); IL: Light Industrial; and RL2: Rural Land 2 (1 du/2 gross acres). The AVAP zoning on the Project site includes A-1-2: Light Agriculture; OS: Open Space; RPD: Residential Planned Development; CPD-DP: Commercial Planned Development; and MPD-DP: Manufacturing industrial planned development. The A-1-2 zone is located on the lands to the east of 300<sup>th</sup> Street West. The Project site is designated on the AVAP zoning map as within the West EOA (DRP 2015a).

In its Resolution approving the AVAP, the County Board of Supervisors directed staff to prepare amendments to the Zoning Code that were consistent with, and implement, the AVAP. The AVAP also removed the Agricultural Resource Area designations on the Project site. The Zoning designations for the Project site were amended to be consistent with the AVAP as part of the routine Zoning Code update process for the AVAP.

Because the Project site is not currently zoned to support development of the specific uses proposed in the Project, a zone change is required upon adoption of the Project. The *California Government Code* establishes the authority for Cities and Counties to adopt specific plans either by resolution as policy, or by ordinance as regulation. The *Centennial Specific Plan* is a regulatory plan that would be considered for adoption by ordinance by the County of Los Angeles Board of Supervisors.

The purpose of this EIR is to assess the environmental effects from implementing the proposed land uses if the Project were adopted. As such, the adoption of the *Centennial Specific Plan* would require a discretionary zone change to be made by the County that is consistent with, and would help implement, the AVAP—specifically the Rural Preservation Strategy and associated Policy LU 1.1—as it applies to the Project site. Specifically, implementation of the Project would focus residential, employment-generating, and civic land uses (e.g., library, post office, schools) within a designated Economic Opportunity Area, thereby facilitating preservation of agricultural and other rural development. Project consistency with the AVAP and zoning code is addressed in greater detail in Section 5.8, Land Use, Planning, and Entitlements.

Also, there are no Williamson Act contracts on site, or within Los Angeles County (outside of Catalina Island). Therefore, there would be no conflict with applicable agricultural land use policies if the County adopts the Project. There would be a less than significant impact and no mitigation is required.

### ***Off-Site Impacts***

There are no lands zoned as, or being used for, agriculture, nor are there any Williamson Act contracts within any off-site Project features (intersections with SR-138, utility connections, water wells, and California Aqueduct crossings). Therefore, a less than significant impact would occur and no mitigation is required.

***Impact Summary:*** The adoption of the Project will be a discretionary zone change to be made by the County that is consistent with, and would help implement, the AVAP—specifically the Rural Preservation Strategy and associated Policy LU 1.1—as it applies to the Project site. The Project is consistent with the AVAP, and would not conflict with any local land use plans, policies, or zoning designations for agricultural use. The Project site is not subject to a Williamson Act contract. There would be a less than significant impact, and no mitigation is required.

**Threshold 5-3**      **Would the project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code, Section 12220[g]), timberland (as defined by Public Resources**

**Code, Section 4526), or timberland zoned Timberland Production (as defined by Government Code, Section 51104[g])?**

***On-Site Impacts***

According to the *California Public Resources Code* (Section 12220[g]), “forest land” is defined as “land that can support 10 percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits”.

The *California Public Resources Code* (Section 4526) defines “timberland” as follows:

land, other than land owned by the federal government and land designated by the board<sup>5</sup> as experimental forest land, which is available for, and capable of, growing a crop of trees of any commercial species used to produce lumber and other forest products, including Christmas trees. Commercial tree species shall be determined by the board on a district basis after consultation with the district committees and others.

The *California Government Code* (Section 51104[g]) defines “Timberland Production Zone” as an area that “is zoned pursuant to Section 51112 or 51113 and is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses”. As discussed above, the only agricultural zoning on the Project site is the A-1-2: Light Agriculture zone located on the lands to the east of 300<sup>th</sup> Street West. This zoning allows tree crops as a permitted use. Although the remainder of the Project site is not zoned for agricultural uses under the AVAP, an approximate 13-acre area in the northwestern corner of the site is identified as containing montane hardwood resources, and approximately 883 acres in the southwestern and southeastern portions of the site are identified as containing primarily mixed chaparral (approximately 553 acres) as well as blue oak woodland, blue oak-foothill pine, juniper, and pinyon-juniper resources (approximately 330 acres) on maps prepared by the California Department of Fire and Forestry Protection’s Fire and Resource Assessment Program (FRAP 2006). It is noted that the statewide mapping of forest and timber resources as part of the FRAP is separate from the vegetation mapping performed for the Project site, and is used herein solely for the determination of potential forest and timber resources. Finally, no part of the Project site is zoned as a Timberland Production Zone.

As discussed further in Section 5.7, Biological Resources, the proposed development areas of Project site have been used for open grazing for over 150 years and, as a result the majority of the on-site acreage consists of grasslands that do not support a large number of tree species. While the existing zoning in the easternmost portion of the site allows for tree crop production, these lands have never been managed for forest resources including for timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, or for other public benefits. Further, the Department of Forestry and Fire Protection regulations (Section 895.1) define commercial species of trees for each forest district. The Project site does not contain

<sup>5</sup> “Board” is further defined as the State Board of Forestry and Fire Protection.

any trees listed as a “commercial species” for the applicable Southern Forest District as defined in the applicable regulations.

While the Project will not allow for tree crop production as a permitted use as in the existing condition, it would allow some agricultural uses (including growth and sale of nursery stock as well as crop production for crops such as Christmas trees) as interim uses. Regardless, implementation of the Project would not conflict with zoning for forest land or timberland as the Project site is not used for forest land or timberland resources and is not considered forest land or timberland by the County or the State. Finally, the Project will not conflict with zoning for timberland or a Timberland Production Zone, as the site has not been designated as such. There would be no impact to forest land and no mitigation is required.

### ***Off-Site Impacts***

Like the Project site, the locations of off-site Project features (intersections with SR-138, utility connections, water wells, and California Aqueduct crossings) have never been managed for forest land or timberland resources. The off-site Project features are not zoned for forest, timberland, or as a Timberland Production Zone. There would be no impact to forest land and no mitigation is required.

***Impact Summary:*** While the Project will not allow for tree crop production as a permitted use as in the existing condition, it would allow some agricultural uses (including growth and sale of nursery stock as well as crop production for crops such as Christmas trees) as interim uses. Regardless, implementation of the Project would not conflict with zoning for forest land or timberland as the Project site is not used for forest land or timberland resources and is not considered forest land or timberland by the County or the State. Finally, the Project will not conflict with zoning for timberland or a Timberland Production Zone, as the site has not been designated as such. There would be no impact and no mitigation is required.

### **Threshold 5-4      Would the project result in the loss of forest land or conversion of forest land to non-forest use?**

#### ***On-Site Impacts***

As discussed above under Threshold 5-3, the Project site is not used for forest land or timberland resources, and it is not considered forest land or timberland by the County or the State. There is no forest land on or near the site that would be directly or indirectly converted as a result of the Project. There would be no impact to forest land and no mitigation is required.

While there are no forest lands, there are trees and woodland areas on the Project site and the impacts to these are addressed in Section 5.7, Biological Resources. Further information on carbon sequestration and how it relates to impacts to vegetation is discussed in Section 5.21, Climate Change.

### ***Off-Site Impacts***

Like the Project site, the off-site Project features (intersections with SR 138, utility connections, water wells, and California Aqueduct crossings) are not considered forest land or timberland. There would be no impact and no mitigation is required.

***Impact Summary:*** There is no forest land or timberland on or near the site that would be directly or indirectly converted as a result of the Project. There would be no impact to forest land and no mitigation is required.

**Threshold 5-5**      **Would the project involve other changes in the existing environment, which due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest land?**

### ***On-Site and Off-Site Impacts***

Threshold 5-5 refers to the potential for Farmland or forest land to be converted as an indirect impact (i.e., either in another location/off-site or in the future) due to implementation of the Project. As such, both on-site and off-site impacts are addressed together. Indirect conversion of agricultural uses or forest land can occur where a Project provides infrastructure (e.g., roads, utilities) or another change in land use that provides incentive for other agricultural or forest land landowners to convert their lands to non-agricultural or non-forest land uses. All physical direct and indirect impacts of Project implementation, both on-site and off-site, are addressed under Thresholds 5-1 and 5-4 above. There would be no other changes in the environment not addressed under Thresholds 5-1 and 5-4 that would indirectly result in conversion of Farmland to non-agricultural use or forest land to non-forest land use. The potential growth-inducing impacts of the Project are discussed in Section 6.0, Growth-Inducing Impacts.

***Impact Summary:*** There would be no other changes in the environment not addressed under Thresholds 5-1 and 5-4 that would indirectly result in conversion of Farmland to non-agricultural use or forest land to non-forest land use. The potential growth-inducing impacts of the Project are discussed in Section 6.0, Growth-Inducing Impacts.

### **Mitigation Measures**

There is no feasible mitigation available to reduce significant impacts from the direct conversion of 642 acres of Prime Farmland. Potential mitigation in the form of establishing 642 acres of new farming areas on Tejon Ranch has been investigated and determined to be infeasible due to insufficient available land that could be cultivated to meet Prime Farmland standards with limitations imposed by the implementation of the Tejon Ranch Conservation and Land Use Agreement and other existing and proposed development on Tejon Ranch, as previously discussed. Therefore the conversion of Prime Farmland to non-agricultural use would be a significant and unavoidable impact.

## Level of Significance after Mitigation

The conversion of 642 acres of on-site Prime Farmland to urban uses would remain a significant and unavoidable impact.

### 5.5.3 MINERAL RESOURCES

#### Relevant Plans, Policies, and Regulations

##### *Federal*

There are no applicable federal plans, policies or regulations regarding mineral resources.

##### *State*

##### Mineral Resources and Mineral Hazards Mapping Program

The California Geological Survey (CGS) provides geologic expertise and information about California's diverse non-fuel mineral resources. As required by the Surface Mining and Reclamation Act (SMARA) of 1975, the State Geologist classifies these resources in an effort to locate economically significant mineral deposits and potential areas of deposits based on scientific data. Information relating to California's non-fuel resources, naturally occurring mineral hazards, and active and historic mining activities are collected to classify land under the Mineral Resources and Mineral Hazards Mapping Program. To date, the CGS has completed 97 mineral land classification studies that cover about 34 percent of the state. Of these, only 32 classification studies (covering approximately 25 percent of the state) include the resource areas that provide construction aggregate to over 90 percent of California's population. Construction aggregate is California's primary mineral resource (CGS 2015a).

The CGS defines several geographic areas that collectively cover a single mineral classification study as "Production-Consumption Regions" (P-C Regions). The CGS identifies Mineral Resource Zones for each P-C Region, mine/quarry, or other geographic area included in a mineral classification study. Mineral Resource Zones (MRZs) are areas classified by the presence or absence of significant sand, gravel, or stone deposits that are suitable as sources of aggregate, as described below.

- **MRZ-1:** Mineral Resource Zone where adequate information indicates that no significant mineral deposits are present or likely to be present.
- **MRZ-2:** Mineral Resource Zone where adequate information indicates that several mineral deposits are present or that there is a high likelihood of their presence so development should be controlled.
- **MRZ-3:** Mineral Resource Zone where the significance of mineral deposits cannot be determined from the available data.
- **MRZ-4:** Mineral Resource Zone where there is insufficient data to assign any other MRZ designation.

Lands not addressed by the CGS regarding their mineral content, either within a P-C Region or outside a mineral classification area, are defined as “unclassified”.

### **County**

#### Los Angeles County General Plan and Antelope Valley Area Plan

The *Los Angeles County General Plan* and the AVAP, part of the County General Plan, address mineral resource issues that affect the County. There are no goals and policies related to mineral resources applicable to the Project, as there are no County- or State-designated mineral resource areas on or near the site, as discussed further below.

### **Environmental Setting**

The Project site is not known to contain mineral deposits of any economic importance or any otherwise “classified” mineral deposits. It is known that the National Cement Plant, located in Kern County approximately one mile north of the Project site, quarries aggregate on site as part of their operations. However, there are no records or other evidence of aggregate being located on the Project site.

According to the CGS, the Project site is within an “unclassified” area of both the Saugus-Newhall and Palmdale Production-Consumption Regions (CGS 2015b). The County General Plan and the AVAP do not identify “Mineral Resource Zones” within or near the Project site. Moreover, these documents do not identify mineral resources of interest anywhere in the northwestern quadrant of Los Angeles County. For additional information on potential oil and gas wells on site please refer to Section 5.3, Hazards and Fire Safety.

### **Project Design Features**

There are no PDFs identified for mineral resources.

### **Threshold Criteria**

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist that was in place when the NOP was released. The Project will result in a significant impact if it would:

**Threshold 5-6** Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

**Threshold 5-7** Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

### **Environmental Impacts**

**Threshold 5-6** **Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?**



**Threshold 5-7**      **Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?**

### ***On-Site Impacts***

As discussed above, based on consultation with CGS regarding MRZ in the Project vicinity and review of the County General Plan and AVAP, the Project site is not known to contain mineral deposits of any economic importance or any otherwise “classified” mineral deposits. As discussed above, while it is known that the Cement Plant, located north of the Project site, quarries aggregate, there is no evidence of aggregate or other mineral resources being located on the Project site itself. Therefore, Project implementation would not result in the loss of availability of a known mineral resource that would be of value to the region and residents of the State, nor would it create the loss of availability of a locally important mineral resource recovery site. Therefore, there would be no impact.

### ***Off-Site Impacts***

Because there are no known mineral resources on or in the vicinity of the Project site where off-site Project features would be located, implementation of off-site Project features would not result in an impact related to loss of availability of a mineral resource of State or local value. Additionally, because there are no known mineral resources on or in the vicinity of the Project site within Caltrans right-of-way, the Project will not result in an impact related to loss of availability of a mineral resource of State or local value.

***Impact Summary:*** The Project will not result in impacts related to the loss of known mineral resources because there are no known mineral resources on the Project site.

## **Mitigation Measures**

There would be no impacts to mineral resources; therefore, no mitigation measures are required.

## **Level of Significance After Mitigation**

Due to the lack of identified mineral resources on the Project site, implementation of the proposed development would not result in impacts to mineral resources.

## **5.5.4 REFERENCES**

Cal FIRE, Fire and Resource Assessment Program (FRAP). 2006. FRAP 2006 Statewide Vegetation Mosaic. Sacramento, CA: Cal FIRE, FRAP.

California Department of Conservation, Division of Land Resources Protection (DOC). 2017 (January 27, access date). Farmland Mapping and Monitoring Program: Los Angeles County, Important Farmland Data Availability (Land Use Conversion Tables for 1984-Present, 2002–2004, 2004–2006, 2006–2008, 2008–2010, 2010–2012, 2012–

2014. Sacramento, CA: DOC.  
<http://www.conservation.ca.gov/dlrp/fmmp/Pages/LosAngeles.aspx>.
- . 2016a (April). *Los Angeles County Important Farmland 2014*. Sacramento, CA: DOC.
- . 2016b. *Los Angeles County Williamson Act FY 2015/2016*. Sacramento, CA: DOC.  
[ftp://ftp.consrv.ca.gov/pub/dlrp/wa/LA\\_15\\_16\\_WA.pdf](ftp://ftp.consrv.ca.gov/pub/dlrp/wa/LA_15_16_WA.pdf).
- . 2004. *A Guide to the Farmland Mapping and Monitoring Program*. Sacramento, CA: DOC. [http://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp\\_guide\\_2004.pdf](http://www.conservation.ca.gov/dlrp/fmmp/Documents/fmmp_guide_2004.pdf).
- . 1997. *California Agricultural Land Evaluation and Site Assessment Model; Instruction Manual*. Sacramento, CA: DOC.
- California Department of Food and Agriculture (CDFA). 2015. *California Agricultural Statistics Review 2014–2015*. Sacramento, CA: CDFA.  
<https://www.cdfa.ca.gov/statistics/PDFs/2015Report.pdf>.
- California Geological Survey (CGS). 2015a (May 6, access date). Minerals: Program Summary. Sacramento, CA: CGS. <http://www.conservation.ca.gov/cgs/minerals>.
- . 2015b (May 7). Personal communication. Email correspondence between R. Miller, Senior Geologist (California Geological Survey) and J. Neary, Assistant Project Manager (BonTerra Psomas).
- California, State of. 2015a (access date). *California Code of Regulations* (Title 14, Natural Resources; Division 1.5, Department of Forestry and Fire Protection; Chapter 4, Forest Practices; Subchapter 1, Abbreviations and Definitions; Section 895.1 Definitions). Sacramento, CA: the State.
- . 2015b (access date). *California Code of Regulations* (Title 14, Natural Resources; Division 6, Resources Agency; Chapter 3, Guidelines for Implementation of the California Environmental Quality Act). Sacramento, CA: the State.
- . 2012. *California Public Resources Code* (Division 4, Forests, Forestry and Range and Forest Lands; Part 2, Protection of Forest, Range and Forage Lands; Chapter 8, Z'berg-Nejedly Forest Practice Act of 1973; Article 2, Definitions; Section 4526). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=4.&title=&part=2.&chapter=8.&article=2](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=4.&title=&part=2.&chapter=8.&article=2).
- . 2008. *California Public Resources Code* (Division 10.5, California Forest Legacy Program Act of 2007; Chapter 1, General Provisions; Section 12200). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=10.5.&title=&part=&chapter=1.&article=1](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=10.5.&title=&part=&chapter=1.&article=1).

———. 1982. *California Government Code* (Title 5, Local Agencies; Division 1, Cities and Counties; Part 1, Powers and Duties Common to Cities and Counties; Chapter 6.7, Timberland; Section 51104). Sacramento, CA: the State.  
[http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=1.&title=5.&part=1.&chapter=6.7.&article=1](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=1.&title=5.&part=1.&chapter=6.7.&article=1).

Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.

———. 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.

———. 2015c (May 27, last accessed). Town & County—Antelope Valley Area Plan Update. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.

———. 2014a (October). *Final Environmental Impact Report, Antelope Valley Area Plan, County of Los Angeles*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc/environmental/>.

———. 2014b (August). *Antelope Valley Area Plan, Town & Country, Draft Environmental Impact Report, SCH #2014061043*. Los Angeles, CA: LACDRP.

Los Angeles County Agricultural Commissioner. (LACAC). 2000. *Year 2000 Crop and Livestock Report*. Arcadia, CA: LACAC, Weights and Measures Department.  
<http://www.lacfb.org/Crop2000.pdf>.

———. 1990. *1990 Crop and Livestock Report*. Arcadia, CA: LACAC, Weights and Measures Department. <http://www.lacfb.org/cr1990.pdf>.

———. 1980. *Crop and Livestock Los Angeles County 1980 Report*. El Monte, CA: Los Angeles County Department of Agriculture. <http://www.lacfb.org/cropreport1980.pdf>.

———. 1970. *Los Angeles County 1970 Crop and Livestock Report*. El Monte, CA: Los Angeles County Department of Agriculture. <http://www.lacfb.org/CR1970.pdf>.

Los Angeles, County of, Farm Bureau (LACFB). 2014. *2014 Los Angeles County Crop and Livestock Report*. Palmdale, CA: LACFB.  
[http://file.lacounty.gov/acwm/cms1\\_232575.pdf](http://file.lacounty.gov/acwm/cms1_232575.pdf).

———. 2010. *2010 Los Angeles County Crop and Livestock Report*. Palmdale, CA: LACFB.  
<http://www.lacfb.org/2010.pdf>.

*This page is intentionally left blank.*

## 5.6 CULTURAL AND TRIBAL RESOURCES

### 5.6.1 INTRODUCTION

#### **Purpose**

State law, as substantiated in the County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that cultural and tribal resources issues be evaluated as part of the environmental documentation process. The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively.

#### **Summary**

Both a cultural resources survey and an evaluation have been undertaken in the Project area. The survey was comprehensive, covering the entirety of the Project site. California Register of Historical Resources (CRHR) cultural resources eligibility evaluations were completed in 2012 and 2015 for sites in areas where impacts associated with development were anticipated. Also, the County of Los Angeles, as Lead Agency, completed Native American consultation under Assembly Bill (AB) 52. The Fernand o Tataviam Band of Mission Indians (Tataviam Tribe) and the Tejon Indian Tribe (Tejon Tribe) were contacted, consultation was initiated, and mitigation measures were agreed upon by all parties involved, including the Tejon Ranch Company.

There are three archaeologically significant (i.e., California Register of Historical Resources [CRHR]-eligible sites within the grading footprint (CA-LAN-3201, CA-LAN-3240 and CA-LAN-3242); therefore, grading and other construction activities, including fuel modification, would directly impact these sites. Impacts to these three sites would be mitigated through avoidance by means of monitoring by a qualified Archaeologist and a Native American monitor representing the Tejon Indian Tribe during construction, and either Project redesign, preservation through restricted access or, if that is not feasible, through a Phase III data recovery program (MM 6-1 and MM 6-3). MM 6-2 requires these three sites, and two others, to be protected by fencing during construction to ensure avoidance of the resource, and MM 6-4 provides further protective measures if necessary. Excavated finds shall be offered to the County of Los Angeles and/or its designee (i.e., the Tejon Indian Tribe) on a first refusal basis (MM 6-1 and 6-3); the Tejon Indian Tribe can then make a determination whether the find is a significant tribal cultural resource and opt to accept the resource for curation in its facility). With implementation of MMs 6-1, 6-2, 6-3, and 6-4, impacts to sites CA-LAN-3201, CA-LAN-3240, and CA-LAN-3242 would be reduced to a less than significant level.

There are a total of 30 prehistoric archaeological sites within open space areas (i.e., areas outside the grading footprint). Of these. The CRHR eligibility of 18 of the 30 total sites has been determined, and 1 site (CA-LAN-3206) has been determined eligible and 17 sites have

been determine ineligible. For the 12 remaining sites, it is assumed that the sites are historically significant until, and unless, evaluation proves otherwise. Because these 12 sites are outside the development footprint, direct impacts during grading and other construction activities are not expected. However, site CA-LAN-3227 is immediately adjacent the development footprint. Because of its proximity, the site could suffer damage during grading activities. Therefore, MMs 6-1, MM 6-2, and MM 6-4 would be implemented for this site, and potential direct impacts to site CA-LAN-3227 during construction would be reduced to a less than significant level.

Long-term operation of the Project would result in potential indirect impacts to the 12 sites with unknown eligibility and the 1 site located in the open space areas that is known to be eligible (CA-LAN-3206) due to increased access, by residents and visitors, to these areas of the site compared to the existing condition, wherein the sites are located entirely on private property. Because archaeological excavation is considered an adverse effect on an archaeological resource, avoidance and preservation of resources without excavation would be the preferred method of managing these sites. Therefore, MM 6-4 requires preparation of an Archaeological Resources Site-Protection Program aimed to protect and preserve identified archaeological resources that may be vulnerable to disturbance. The Archaeological Resources Site-Protection Program must include several alternatives to restrict access to these sites (e.g., fencing, planting, and capping), thereby protecting and preserving these sites. With implementation of MM 6-4, potential indirect impacts to site CA-LAN-3227 during grading/construction would be reduced to a less than significant level.

The Paleo Environmental Associates report (2009) has classified rock units on the Project site according to their likelihood of containing resources of paleontologic importance, and geologic evidence from adjacent areas with similar sedimentary formations indicates a high likelihood of encountering such resources during Project development. Impacts, should they occur, would be reduced to a level considered less than significant through the application of MMs 6-5 through 6-9.

There is no evidence for the presence of Native American burial sites and associated human remains within the Project area because none of the sites recorded and evaluated on the Project area were found to contain human remains, nor were there any data to suggest they were present. However, the presence of known cultural resources sites increases the likelihood that they may be present. MM 6-10 is provided to address these potential occurrences, should they be realized.

## **Section Format**

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required to reduce the significant impacts; and level of significance after mitigation, if any. This information is presented in the following format (Please refer to Section 2.0, Introduction,

and Section 5.0, Environmental Setting, Impacts, and Mitigation, for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Relevant Plans, Policies, and Regulations
- Environmental Setting
- Project Design Features
- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- References

## References

While all references cited in this analysis section are listed in Section 5.6.9, the primary technical references for this section are listed below.

1. W & S Consultants (WSC). 2002 (May). *Phase I Archaeological Survey of the Centennial Study Area, Northern Los Angeles County, California*. Simi Valley, CA: WSC (Appendix 5.6-A).
2. W & S Consultants. 2004 (September). *Phase II Test Excavations and Determinations of Significance at 12 Sites in the Centennial Project Area, Northern Los Angeles County, California*. Simi Valley, CA: WSC (Appendix 5.6-B).
3. W&S Consultants. 2007 (April). *Addendum Phase II Test Excavations and Determinations of Significance within the Centennial Study Area, Northern Los Angeles County, California*. Simi Valley, CA: WSC (Appendix 5.6-C).
4. ASM Affiliates. 2015 (September). *Phase I Survey of 768 Acres and Phase II Test Excavation of 20 Archaeological Sites, Centennial Project, Los Angeles County, California*. Tehachapi, CA: ASM (Appendix 5.6-D).
5. Natural History Museum of Los Angeles County. Paleontological Resources Records Search for the Centennial Project site (Appendix 5.6-E1) and the adequacy of the Paleontology portions of the EIR's Cultural Resources Section (Appendix 5.6-E2).
6. Paleo Environmental Associates (PEA) 2009 (March). *Paleontological Resource Inventory and Impact Assessment Technical Report Prepared in Support of Centennial*

*Specific Plan, Western Antelope Valley, Northern Los Angeles County, California. Altadena, CA: PEA. (Appendix 5.6-F).*

Because of the sensitivity of archaeological resources, in accordance with the State CEQA Guidelines, (14 *California Code of Regulations* [CCR] Section 15120[d]), no information about the specific location of archaeological sites is included in this Draft EIR. Qualified persons can request verifying information through the Los Angeles County Department of Regional Planning.

## 5.6.2 RELEVANT PLANS, POLICIES AND REGULATIONS

### Federal

No federal plans or policies have been identified that relate to cultural and tribal resources.

### State

#### ***Senate Bill 18***

Senate Bill (SB) 18 (*California Government Code*, Section 65352.3) incorporates the protection of California traditional tribal cultural places into land use planning for cities, counties, and agencies. It establishes responsibilities for local governments to contact, refer plans to, and consult with California Native American tribes as part of the adoption or amendment of any general or specific plan proposed on or after March 1, 2005. SB 18 requires public notice to be sent to tribes listed on the Native American Heritage Commission's (NAHC's) SB 18 Tribal Consultation List within the geographical areas affected by the proposed changes. Tribes must respond to a local government notice within 90 days (unless a shorter time frame has been agreed upon by the tribe), indicating whether or not they want to consult with the local government. Consultations are for the purpose of preserving or mitigating impacts to places, features, and objects described in Sections 5097.9 and 5097.993 of the *California Public Resources Code* that may be affected by the proposed adoption of or amendment to a general or specific plan.

While the Project does not require consultation under SB 18 because it was proposed prior to the adoption of the 2005 law, the County and the Project Applicant are committed to affording local Native American tribes and individuals an opportunity to provide information regarding previously unknown cultural resources and to express their concerns regarding the Project's potential impact on them. To that end, in a letter dated May 20, 2011, the County notified tribes and individuals listed in the NAHC letter providing tribal contacts of the Project and subsequently provided a copy of the Draft EIR to them as part of the public review process. No responses to the May 20, 2011, notification letter were received. Further consultation has occurred in conformance with AB 52, which is discussed below.

#### ***Assembly Bill 52***

This Project is subject to Assembly Bill (AB) 52. AB 52 is applicable to projects that have filed a Notice of Preparation (NOP) of an Environmental Impact Report (EIR), or notice of a Negative Declaration (ND) or Mitigated Negative Declaration (MND) on or after July 1, 2015.



AB 52 requires that the tribes ask the lead agency to be contacted for consultation. Then, the lead agency must contact the tribes to initiate consultation with California Native American Tribes that are traditionally and culturally affiliated with the geographic area of the project and have requested such consultation prior to determining the type of CEQA documentation that is applicable to the project (i.e., EIR, ND, MND). AB 52 allows Tribes 30 days after receiving notification to request consultation. The lead agency then has 30 days to initiate consultation. Significant impacts to Tribal cultural resources are considered significant impacts to the environment. A description of the County's AB 52 process for the Project is provided in the analysis below.

### ***Human Remains***

The *California Code of Regulations* (Title 14, Section 15064.5[e]) requires that, in the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the Los Angeles County Coroner must be notified of the discovery (*California Health and Safety Code*, Section 7050.5) and all activities in the immediate area of the find or in any nearby area reasonably suspected to overlie adjacent human remains must cease until appropriate and lawful measures have been implemented. If the Coroner determines that the remains are not recent, but rather of Native American origin, the Coroner must notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours to permit the NAHC to determine the Most Likely Descendent (MLD) of the deceased Native American. The designated MLD may make recommendations to the Project Applicant/Developer or the person responsible for the excavation work, for means of treating or reassignment of the human remains and any associated grave goods with appropriate dignity, as provided in *California Public Resources Code*, Section 5097.98. If any of the following occurs, the Project Applicant/Developer shall rebury the Native American remains and the associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance: (A) the NAHC is unable to identify an MLD or the MLD fails to make a recommendation within 24 hours of being notified of the discovery; (B) the MLD fails to make a recommendation; or (C) the Project Applicant/Developer or authorized representative rejects the s of the MLD and mediation by the NAHC fails to provide measures acceptable to the Project Applicant/Developer.

## **County**

### ***County of Los Angeles General Plan and Antelope Valley Area Plan***

The *County of Los Angeles General Plan and Antelope Valley Area Plan* (AVAP) address issues that affect the County and the Antelope Valley. The County General Plan has the following goal in Chapter 9, Section VIII. Historic, Cultural and Paleontological Resources:

**Goal C/NR 14:** Protect historic, cultural, and paleontological resources.

**Policy C/NR 14.1:** Mitigate all impacts from new development on or adjacent to historic, cultural, and paleontological resources to the greatest extent feasible. Policy C/NR 14.2: Support an inter-jurisdictional collaborative system that protects and enhances historic, cultural, and paleontological resources.

**Policy C/NR 14.3:** Support the preservation and rehabilitation of historic buildings.

**Policy C/NR 14.4:** Ensure proper notification procedures to Native American tribes in accordance with Senate Bill 18 (2004).

**Policy C/NR 14.5:** Promote public awareness of historic, cultural, and paleontological resources.

**Policy C/NR 14.6:** Ensure proper notification and recovery processes are carried out for development on or near historic, cultural, and paleontological resources.

The AVAP does not contain goals or policies pertaining to cultural resources (i.e., prehistoric and historic archaeology, the historic built environment, tribal cultural resources, and paleontological resources). A consistency analysis of the Project's specific goals and policies with the County's plans, goals, policies and regulations is provided in the Land Use, Entitlements, and Planning Section (Section 5.8) in this document.

### 5.6.3 ENVIRONMENTAL SETTING

The Project study area, for the purposes of the archaeological and paleontological analyses, is the entire Project site boundary and locations of off-site features. The study area covers portions of the U.S. Geological Survey's (USGS') Lebec and La Liebre Ranch 7.5-minute quadrangles.

## Methodology

### *Archaeological and Historical Resources*

For archaeology and historic resources, W & S Consultants (WSC), a qualified archaeological firm, prepared a Phase I Archaeological Survey Report in May 2002 that encompasses the entire Project site with the exception of the land on the east side of 300<sup>th</sup> Street West (Appendix 5.6-A). The report includes (1) the results of a records and literature search prepared by the South Central Coastal Information Center (SCCIC) located at California State University, Fullerton; (2) the results of a systematic field walkover survey; and (3) field checking of all recorded sites on or immediately adjacent to the Project boundaries, as they were defined at that time (approximately 14,000 acres).

The archaeological and historical records search and literature review was conducted in 1999 by SCCIC staff and showed that only a small portion of the Project site had been previously surveyed. Therefore, field walkover surveys were conducted from July to December 2001. Vegetative cover was sparse overall, and ground visibility was generally very good to excellent, allowing for thorough examination of the surface.

Based on the results of the Phase I survey, WSC conducted Phase II Archaeological Testing at 12 sites in 2004 (Appendix 5.6-B). All sites considered during the Phase II study were first discovered during the Phase I survey and then evaluated because of the potential to incur direct impacts to these resources from Project development (these 12 sites were located within the Project's development footprint at that time). Generally, Phase II archaeological

fieldwork is intended to establish the nature and significance of an archaeological site and to provide baseline data from which a final determination of historical significance and disposition of the resource can be made. This includes (1) the collection of a representative sample of artifacts and archaeological indicators from each cultural resource site; (2) the establishment of the vertical and horizontal boundaries of each; (3) the analysis of the recovered artifact sample; and (4) the evaluation of each site using data collected and established CEQA criteria to determine historical significance.

In 2007, WSC conducted Phase II Archaeological Testing of 12 additional sites that were identified and recorded during the original WSC survey conducted in 2002. In addition, BonTerra consulted with Dr. Thomas Taylor (Manager, Natural and Cultural Resources, Environmental, Health and Safety Division, Southern California Edison [SCE]), via email on February 12, 2007, regarding the historical significance of several SCE electrical transmission towers in the southwestern portion of the Project site.

In May 2015, an intensive Phase I survey was completed by ASM Affiliates, Inc. (ASM Principal Investigator David Whitley was formerly a Principal with WSC) for an additional approximate 728 acres of contiguous unsurveyed fields in the northeasternmost portion of the Project site (i.e., to the east of 300<sup>th</sup> Street West) and about 40 acres of off-site lands that would require utility infrastructure to implement the Project, resulting in a total survey area of approximately 768 acres. No resources were discovered as a result of this effort. Also in 2015, Phase II test excavations were completed by ASM Affiliates, Inc. on 20 archaeological sites within the Project site. These studies augment the earlier Phase I surveys and Phase II test excavations on other portions of the Project area by W&S Consultants (2002, 2004, 2007) described above. All of the sites are located east of the West Branch of the California Aqueduct, on low rolling hills and ridges. Fieldwork at these sites included Global Positioning System (GPS) mapping, hand excavation of test units (TUs), shovel test pits (STPs) and surface scrapes, and the collection of all identified surface artifacts and archaeological indicators.

### ***Paleontological Resources***

A Paleontological Letter Report was prepared by Dr. Samuel McLeod of the Vertebrate Paleontology Section of the Natural History Museum of Los Angeles County (NHMLAC) on November 2, 2006 (Appendix 5.6-E1). The Letter Report included the results of a records search and literature review of known rock formations and any fossil localities that have been identified within and directly adjacent to the Project area, which is identical to the current Project site with the exception of the area to the east of 300<sup>th</sup> Street West. Paleontological sensitivity of a given area is determined by the types of rock formations and previously identified fossil localities in that area. Next, a paleontological resource inventory and impact assessment study was undertaken by Dr. Bruce Lander of Paleo Environmental Associates (PEA 2009). The study included background research of published and unpublished paleontologic and geologic literature, a field survey of the Project area, an evaluation of the Project's potential to impact paleontologically sensitive rock formations, and development of mitigation measures that would reduce the direct and indirect adverse environmental impacts on paleontological resources to a less than significant level. PEA describes four previously recorded localities and nine newly discovered localities in the

Project area (2009). This section was also reviewed by John Harris, Chief Curator of the NHMLAC. Both letters from the NHMLAC can be found in Appendix 5.6-E.

## **Cultural Resources Eligibility Criteria**

The cultural resources analysis, including that pertaining to the built environment as well as archaeological and paleontological resources, has been prepared to meet the requirements of CEQA (*California Public Resources Code*, Sections 21083.2 and 21084.1) and the State CEQA Guidelines. Specifically, the State CEQA Guidelines states “[a] project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment” (14 CCR 15064.5[b]). Substantial adverse change is defined as “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired” (14 CCR 15064.5[b][1]). CEQA has established statutory requirements for the formal review and analysis of projects that fall under its jurisdiction. The CEQA statutes maintain that any property listed in, determined, or found eligible for listing in the CRHR is considered to be a “historical resource” and shall be considered historically significant. In addition, the *California Public Resources Code* has additional statutes regarding “unique” resources and “Tribal Cultural Resources”. The criteria below are used to determine eligibility and significant effects.

### ***Prehistoric Archaeological Resources***

Section 15064.5(a)(3) the State CEQA Guidelines states that “[g]enerally, a resource shall be considered by the lead agency to be ‘historically significant’ if the resource meets the criteria for listing in the California Register of Historical Resources” (see *California Public Resources Code*, Section 5024.1; 14 CCR 4852), including if the resource:

- A. Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- B. Is associated with lives of persons important in our past;
- C. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- D. Has yielded, or may be likely to yield, information important in prehistory or history.

Using the information outlined above, the first level of evaluation was to determine whether an archaeological resource within a development area is considered eligible for the CRHR and is, therefore, historically significant.

A significant impact would occur if grading and construction activities would result in a substantial adverse change to archaeological resources determined to be “unique” or “historical”. “Unique” resources are defined in *California Public Resources Code*, Section 21083.2(g):

As used in this section, ‘unique archaeological resource’ means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

### ***Tribal Cultural Resources***

Pursuant to Section 21074 of the *California Public Resources Code*:

- (a) Tribal Cultural Resources are either of the following:
- (1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
    - (A) Included or determined to be eligible for inclusion in the California Register of Historical Resources.
    - (B) Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
  - (2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.
- (b) A cultural landscape that meets the criteria of subdivision (a) is a tribal cultural resource to the extent that the landscape is geographically defined in terms of the size and scope of the landscape.
- (c) A historical resource described in Section 21084.1, a unique archaeological resource as defined in subdivision (g) of Section 21083.2, or a “nonunique archaeological resource” as defined in subdivision (h) of Section 21083.2 may also be a tribal cultural resource if it conforms with the criteria of subdivision (a).

### **Historical Resources**

“Historical” resources are defined in *California Public Resources Code*, Section 21084.1 and the State CEQA Guidelines (14 CCR 15064.5), Section 21084.1 states:

A project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. For purposes of this section, an historical resource is a resource listed in, or determined to be eligible for listing in, the California Register of Historical Resources. Historical resources included in a local register of historical resources, as defined in subdivision (k) of Section 5020.1, or deemed significant pursuant to criteria set forth in subdivision (g) of Section 5024.1, are presumed to be historically or culturally significant for purposes of this section, unless the preponderance of the evidence demonstrates that the resource is not historically or culturally significant. The fact that a resource is not listed in, or determined to be eligible for listing in, the California Register of Historical Resources, not included in a local register of historical resources, or not deemed significant pursuant to criteria set forth in subdivision (g) of Section 5024.1 shall not preclude a lead agency from determining whether the resource may be an historical resource for purposes of this section.

Section 15064.5(b) of the State CEQA Guidelines (14 CCR) states:

- (b) A project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment.
  - (1) Substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.
  - (2) The significance of an historical resource is materially impaired when a project:
    - (A) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
    - (B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources. . . unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
    - (C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in

the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

A “Unique” resource is defined in *California Public Resources Code*, Section 21083.2(g) and is noted above under prehistoric archaeological resources.

### ***Paleontological Resources***

Paleontological resources are nonrenewable scientific and educational resources. As discussed previously, in compliance with State law, the County’s Environmental Checklist Form requires analysis of cultural resources, which includes paleontological resources under the general heading “Cultural Resources”. Projects subject to CEQA must determine whether a project would “directly or indirectly destroy a unique paleontological resource”.

An impact to paleontological resources would be considered a significant impact if a project results in the direct or indirect destruction of a unique or important paleontological resource or site. A resource is deemed unique or important if (1) it has fossils that have previously been recovered from a particular geologic unit; (2) there are recorded fossil localities within the same geologic units as occur within the project area; and (3) the types of fossil materials that have been recovered from the geologic unit are unique or important.

The goal of CEQA relative to prehistoric and historic cultural resources as well as paleontological resources is to facilitate their identification, evaluation, cataloging, preservation (if feasible), and curation in perpetuity. No significant impact to these resources will occur as a result of a project if the goal of CEQA is followed and the studies completed.

### **Existing Setting**

The Project site is located in northern Los Angeles County, California, at the westernmost edge of the Antelope Valley. It is north of State Route (SR) 138; it is bisected by the West Branch of the California Aqueduct, and is located south of the Tehachapi Mountains and the East Branch of the California Aqueduct. Oso Canyon Wash forms the northern limit of the Project site.

The portion of the Project site generally to the west of the Aqueduct consists of dissected topography comprising broad and relatively low east-west-trending ridge systems with small intervening drainages. Elevation ranges in this portion of the site are roughly from 3,100 to 3,400 feet (ft) above mean sea level (msl). Importantly, low ridges are typically capped by cobble lens. These lens are predominated by quartzite and igneous cobbles and gravels, but they are polygenetic in origin and they also contain small but potentially significant quantities of cryptocrystalline (CCS) and metavolcanic specimens. These are usually smaller than the quartzite and igneous cobbles. These lens appear to have an important factor in the location and nature of the studied sites. The portion of the site generally to the east of the Aqueduct consists of the open flats of the Antelope Valley. The average elevation in this portion of the Project site is about 3,000 ft above msl.

Grasslands cover most of the west side of the Project site, which has been used for many years as range land, while the flatter (east) side includes farmland in addition to grazing. It is uncertain for this reason what the environmental setting may have been prehistorically, and this is almost certain to have changed at various times in the ancient past due to paleoclimatic shifts. Prior to the introduction of livestock in the 19<sup>th</sup> century, the Project site may have been covered by a desert chaparral plant community. This is an open community predominated by chamise and bunch grasses (ASM 2015). It is also possible that Joshua Tree Woodlands may have been present; however, inasmuch as this plant community is present east of the site while a small remnant stand still occurs a few miles to the west, near the Interstate (I) 5 and SR-138 interchange.

### ***Archaeological Setting***

Initial occupation of the Tehachapi Mountains region occurred at least as early as the Paleoindian Period, which occurred prior to about 10,000 years before present (BP). The term “before present” assumes that 1950 is “present”, so in this case 10,000 years BP would be 8,050 B.C. Evidence of this early use of the region has been revealed by the discovery of characteristic fluted (grooved or furrowed) and stemmed projectile points found around the margins of Tulare and Buena Vista Lakes (both of which are in the southern San Joaquin Valley, approximately 100 miles northwest and 40 miles northwest of the Project site, respectively), in the foothills of the Sierra Nevada, and in the Mojave Desert. Archaeologists use the general term “projectile point” to refer to an object affixed to a pole or stick of some kind, which has been fashioned for use as a weapon, out of stone, metal, bone, or other material (Crow Canyon 2017). Both fluted and stemmed projectile points are particularly common around the lake margins, suggesting a terminal Pleistocene or early Holocene lakeshore adaptation similar to that found in other portions of the Far West at this same time, although little else is known about these earliest people (WSC 2002: 13–14).

Additional finds include a Clovis-like projectile point discovered in a flash-flood cut-bank near White Oak Lodge in 1953, northeast of the site. In the 1980s, a similar fluted point was found near Bakersfield, while a number are known from Edwards Air Force Base (50 miles to the east of the Project site) and the Boron area of the western Mojave Desert. Although it is now well-established that human occupation of California occurred during the Late Pleistocene Era, interpretations are, thus far, limited to the subsistence focus on large fauna found in and around terminal Pleistocene or early Holocene lakeshores (WSC 2002:14).

Substantial evidence for human occupation of California first occurs during the middle Holocene era, from roughly 7,500 to 3,500 BP. This period is known as the “Early Horizon”, and is sometimes alternatively referred to as the “Early Millingstone” along the Santa Barbara Channel and La Jolla in the San Diego region. In this southern area, populations were concentrated along the coast, with limited use of inland areas. Based on the archaeological assemblages recovered, adaptation appears to have emphasized hard seeds and nuts, with tool-kits dominated by mullers and grinding stones (manos and metates). An assemblage is a collection of items from a single database component of an archaeological site. A muller is an implement of stone or other substance with a flat base for grinding paints, powders, and other materials on a slab of stone or similar surface; a mano is the upper or hand-held stone used when grinding maize or other grains on a metate, or a flat stone that has a shallow



depression in the upper surface for holding maize or other grains to be ground with a mano. Minimal evidence of Early Horizon occupation has been found in most inland portions of the state. In part, this is due to a severe cold and dry paleoclimatic (relating to climate of some former period of geologic time) period which occurred at this time (WSC 2002:14).

Evidence for an Early Millingstone occupation of the Tehachapi Mountains region is very limited and has been found at only two sites, both located in the Santa Clara River Valley to the south. Both sites are located near Vasquez Rocks, with temporal attribution, or the assessment of time, based on the presence of a small number of *Olivella* barrel beads. This version of the bead is an *Olivella biplicata* shell from which the spire and base have been removed, leaving the middle or “barrel” portion of the shell. This bead type has subsequently proven to be an unreliable indicator of age, throwing doubt on human inhabitation of this region before about 4,000 BP. Furthermore, recent excavations at one of these presumed early locales, the Escondido Canyon Site, failed to uncover evidence for occupation prior to about 2,700 BP. Regardless, it is clear that Early Horizon population density was quite low and, if any kind of specialized adaptation existed, it was probably tied to plant food gathering rather than hunting (WSC 2002:14).

Environmental conditions conducive to human occupation improved dramatically after about 3,500 BP during the “Middle Horizon” or “Intermediate Period”. This period is known climatically as the “Holocene Maximum” and was characterized by significantly warmer and wetter conditions than were experienced previously. Archaeologically, it was marked by a large population increase and movement into new environments along the south-central California coast and the Mojave Desert. In the Delta region to the north, this same period of favorable environmental conditions was marked by the appearance of the Windmill culture, which exhibited a high degree of ritual elaboration (especially in burial practices) and perhaps even a rudimentary mound-building tradition. Along with ritual elaboration, Middle Horizon times saw increasing subsistence specialization, perhaps correlating with the appearance of acorn-processing technology. Penutian-speaking peoples (including ancestors of the Yokuts) are also believed to have entered the state roughly at the beginning of this period and, perhaps, to have brought this technology with them. Likewise, it is hypothesized that the so-called “Shoshonean Wedge” in Southern California (that is, the Takic-speaking groups that came to include the Gabrielino/Fernandeño, Tataviam, and Kitanemuk) may have moved into this region at this time, rather than at about 1,500 BP as was first thought (WSC 2002:14–15).

Evidence for the Middle Horizon occupation of the Upper Santa Clara/Agua Dulce region, located in Tataviam territory south of the Project site, has been found at a number of sites and has been based on radiocarbon, obsidian hydration, and typological dating. The Agua Dulce village complex, for example, includes occupation extending back to the Intermediate Period, at which time the population of the village may have been 50 or more people. Similarly, occupation of the Hathaway Ranch area near Lake Piru and Newhall Ranch near Valencia appears to have begun during the Intermediate Period. To the northwest, there is limited evidence for pre-Middle Horizon occupation in the upper Sisquoc and Cuyama River drainages (WSC 2002:15).

Assuming that the Tejon Ranch/Tehachapi Mountains region was first significantly occupied during the Middle Horizon, as existing evidence suggests, a parallel can be drawn to the inland Ventura County region, where a similar pattern has been identified, and possibly also to the Antelope Valley and western Mojave Desert, southern Sierra Nevada, and Coso Range. In all these areas, a major expansion in settlement, the establishment of large site complexes, and an increase in the range of exploited environments appear to have occurred around 3,500 BP. Although most efforts to explain this expansion have focused on very local circumstances and events, it is increasingly clear that this was a major Southern California-wide occurrence, and therefore any explanation of it must be sought at a regional level of analysis (WSC 2002:15).

The beginning of the “Late Horizon” is set variously at 1,500 and 800 BP, although a consensus seems to be growing in support of the more recent date. As such, the appearance of the Late Horizon correlates with another major drought (circa A.D. 1200), which decimated major portions of western North America. Known climatically as the “Little Ice Age”, it extended from about A.D. 1280 to 1860. In much of inland south-central California and the Mojave Desert, a large-scale abandonment of sites appears to have occurred at the approximate start of this period. It is not yet clear whether the abandonment was accompanied by a true reduction in population or an agglomeration (jumbled cluster or mass of varied parts) of the same numbers of people into fewer but larger villages. In either case, the Late Horizon presents a series of regional archaeological cultures that are the precursors to ethnographic Native California tribes. The Mojave Desert and Antelope Valley, however, appear to have been all but abandoned during this period. Given extreme drought-like conditions, Late Prehistoric villages tended to be firmly tied to permanent water sources (WSC 2002:15–16).

### ***Ethnographic Setting***

Ethnography is a cultural anthropologic research method that strives to answer anthropological questions about different cultures’ ways of life (University of Pennsylvania 2008), and the following described the ethnographic setting of the Project site. The Tejon Ranch region, including the Project site, was a contact point between five separate ethnolinguistic groups immediately prior to the arrival of Euro-Americans in California. Considerable confusion has existed concerning aboriginal landholdings in this area because almost no ethnographic research was conducted in this area until well after the period of Spanish missionization and, therefore, long after the original inhabitants had been removed from their traditional homelands. However, recent ethnohistorical studies have done much to clarify this situation. It is now apparent that the general Tejon region was occupied by the Kitanemuk, Interior Chumash, Tataviam, Southern Valley Yokuts, and Kawaiisu, with the first three of these groups likely to have lived in and/or used the lands comprising the Project site (WSC 2002:3). Ethnolinguistics is the study of language as an aspect or part of culture, especially the study of the influence of language on culture and of culture on language; ethnohistory is a branch of anthropology dealing with the development of cultures through the analysis of archaeological findings.

The Kitanemuk occupied the southern and central areas of the Tehachapi Mountains and the adjacent northwestern end of the Antelope Valley. As speakers of the Serran branch of the

Takic (Uto-Aztecan) language stock, they were closely related to other Serran Takic groups such as the Serrano and Vanyume, who lived along the northern front of the transverse ranges. Kitanemuk territory probably did not extend into the San Joaquin Valley, which was occupied by the Yokuts. The western edge of Kitanemuk territory appears to have fallen between Tunas and Poso Creeks, according to known village locations. The Kitanemuk may have occupied the northeastern portions of the Project site near the open flats of the Antelope Valley (WSC 2002:3-4).

The Interior Chumash (speakers of Ventureño Chumash, a Hokan language) occupied upper Piru Creek, Grapevine Canyon, and the Gorman area; the latter area is between one and two miles west of the Project site's western boundary. Their domain extended eastward beyond Castac Lake on the Tejon Ranch, where the historic village of *Kashtiq* was located; their territory then reached to the southeast to Quail Lake, which was known in Chumash as *Shraqang*. They also occupied a village at the mouth of Grapevine Canyon, *Mat'apxwelxwel*, and another at the mouth of Tecuya Creek west of Tejon Ranch. These two villages represent the only known occupation of the Chumash of the San Joaquin Valley (both of which are outside the Project boundaries). The Interior Chumash either occupied or lived very close to the western limits of the Project site, perhaps including the area immediately around Quail Lake (WSC 2002:3).

The Tataviam are believed to have primarily inhabited the upper Santa Clara River drainage from about Piru eastward to the Agua Dulce/Vasquez Rocks area; southward as far as Newhall; and northward to include the middle reaches of Piru Creek (on the west) and the Liebre Mountains and the westernmost fringe of the Antelope Valley (on the east). Their northeastern boundary most likely ran along the southern foothills of the Tehachapi Mountains (within the Project site) and then crossed to the southern slopes of the Sawmill Mountains and Sierra Pelona, extending as far east as Soledad Pass. The Tataviam also controlled Quail Lake and La Liebre Ranch. They do not appear to have controlled the San Andreas rift zone of Elizabeth Lake, Lake Hughes, or the Leona Valley, which was occupied by the Kitanemuk, who also inhabited the western side of the Antelope Valley (i.e., from about Neenach through the Fairmont Buttes area to the mouth of Soledad Pass) (WSC 2002:4).

A wedge of Tataviam speakers is thought to have extended north into the Tehachapi Mountains, separating the Chumash from the Kitanemuk, perhaps by controlling the headwaters of Pastoria Creek. Information concerning the Tataviam is very limited; however, based on a few existing word lists, the descriptions of early travelers, mission place-names, and the recollections of other native informants, Tataviam is generally accepted as a Uto-Aztecan Takic language, making it related to other Takic languages in the Los Angeles County region such as Gabrielino/Fernandeño (or Tongva) and Kitanemuk (WSC 2002:4).

Although no ethnographic fieldwork was conducted in the Tejon Ranch region until the end of the 19<sup>th</sup> century, the Tejon Ranch area became a multi-ethnic, post-Mission Period refuge for many Native Americans. Substantial Native American use of the Tejon Ranch region continued into the American Period. This reflected a number of circumstances, probably the first of which was the relative remoteness of the region from most Euro-American activities.

The multi-ethnic nature of this refuge was likewise partly a function of mission conditions, where different tribal groups lived together, which resulted in an increase in interaction and inter-marriage, as well as of the original status of this particular area, where a number of ethnolinguistic boundaries intersected. Equally important, Tejon Ranch was the location of the first Native American reservation in the United States, the Sebastian Reserve, which was created in 1853. The creation of this reservation resulted in the formal establishment of a multi-ethnic Native American enclave (WSC 2002:6).

### ***Historic Setting***

Because of its remote location in relation to the Pacific coast, the Tejon Ranch/Tehachapi Mountains area saw little Euro-American development until about the 1850s. Early explorers crossing the area included the Spaniards Pedro Fages in 1772, Friar Francisco Garcés in 1776, and Friar José María de Zaldivea in 1806 and Americans Jedediah Smith in 1827 and John C. Fremont in 1830 and 1844 (WSC 2002:16).

Four large Mexican Period land grants in this region occurred during the 1840s that would eventually be united as Tejon Ranch. The first of these grants, *Rancho Los Alamos y Agua Caliente* (“cottonwoods and hot water”), was awarded to Pedro Carrillo by Mexican Governor Manuel Micheltoarena in 1843. Less than two months later, the original *Rancho El Tejon* (“the badger”) was awarded to José Antonio Aguirre and Ignacio del Valle as a grant of nearly 100,000 acres. Also in 1843, the nearly 22,000-acre *Rancho Castac* (Chumash for “spring eye”, in Spanish “*ojo de agua*”) was acquired by José María Covarrubias. In 1846, *Rancho La Liebre* (“the hare”) was granted to José María Flores and contained nearly 49,000 acres. The Project site lies primarily within the historic borders of *Rancho La Liebre* (WSC 2002:16).

With the political upheavals associated with the transfer of California from Mexican to American control during the late 1840s, these lands went largely unused by their grantees, resulting in encroachment or “squatting” by incoming settlers who disregarded their ownership or assumed that the lands were unclaimed and therefore open to settlement. These included Dr. Darwin French who, in 1850, built an adobe on *Rancho El Tejon*; Samuel A. Bishop who, in about 1852, settled on *Rancho Castac*; and Edward F. Beale who, in 1853, created the Sebastian Indian Reservation on what he thought was unclaimed land available for government use (WSC 2002:16–17).

Between 1855 and 1865, Beale acquired all four of the former Mexican ranchos and united them as “El Tejon Ranch”. Because the original areas for these ranchos did not represent a contiguous holding, Beale realigned the boundaries of *Los Alamos y Agua Caliente* so that a unified property was formed, resulting in a ranch encompassing about 265,000 acres. Shortly after acquiring *Rancho La Liebre* in 1855, Beale built an adobe on the ranch and moved his family there. A small silver mine was discovered on the ranch in 1859, but did not experience significant production. Beale was an important figure in Southern California history, emerging as a military hero in the Battle of San Pasqual against Mexico in 1846; as a messenger to Washington, D.C. of news of the discovery of gold at Sutter’s Fort in 1848; as an accomplished businessman for Commodore Stockton and Aspinwall’s steamship company in 1851; and for his appointment as Commissioner of Indian Affairs by President Fillmore in 1852 (WSC 2002:17–18).

In the latter role, Beale established the Sebastian Reserve (as it was officially known) in 1853. The 25,000-acre reserve was located on the floor of the southern San Joaquin Valley from the mouth of Grapevine Canyon east to about the mouth of Chanac Creek, an area located some distance north of the Project site. In 1854, Beale established Fort Tejon in Grapevine Canyon about three miles north of the modern community of Lebec. As a facility for the U.S. Army, Fort Tejon acted to both protect the Indians on the Sebastian Reserve from exploitation by outsiders and to prevent raids into the Los Angeles Basin by hostile Indians from the San Joaquin Valley and desert areas to the east. The fort was abandoned after ten years of operation (WSC 2002:18).

The adobe that Beale constructed as his residence and headquarters for the ranch still stands (used by a private hunting club) and is the oldest building in the Antelope Valley. (The adobe is located south of the southeastern Project site boundary.) Eventually, Beale moved his residence to the earlier El Tejon headquarters along El Paso Creek to the north, but a fire in 1917 destroyed his adobe structure there (WSC 2002:19).

Beale went on to be appointed the first Surveyor-General of California and Nevada by President Lincoln; a Brigadier General for the State of California militia; and Minister to the Austro-Hungarian Empire by President Grant. In addition, he was instrumental in creating the U.S. Army Camel Corps under Jefferson Davis, then Secretary of War. With this appointment, Beale brought camels into the Tejon region, where they were used as pack animals (WSC 2002:19).

In 1858, the Butterfield Overland Mail stage route crossed the Tejon area, stopping at Lake Elizabeth, Cow Springs, Fort Tejon, and the “Sinks of the Tejon” (or “*Los Alamitos*”, below the confluence of Tejon and Chanac Creeks). The stage drew attacks from outlaws such as Joaquin Murrieta and Tiburcio Vasquez, who haunted the vast acreage of Tejon Ranch. The Butterfield route crossed the Project site, skirting Quail Lake before heading to Gorman Station. Quail Lake was originally known as *La Laguna Seca* (“dry lake”) and, since it presumably did not hold perennial or potable water, no stage stop was established. Gorman Station was built by Charles Johnson and his wife Isabel in 1863, who built a log cabin “public house” at that spot. When Johnson died, his wife continued to run the establishment, which became known as *Rancho La Viuda* (“widow’s ranch”). It was eventually acquired by James Gorman, Sr., a veteran of the Mexican War who worked as a meat hunter for Fort Tejon (WSC 2002:19–20).

The Southern Pacific Railroad came only as close as 50 miles to the east when the route was taken through Antelope Valley in 1876, keeping the Tejon area relatively isolated (WSC 2002:19).

The economic emphasis of the Tejon Ranch initially was sheep, with over 125,000 sheep that grazed on the ranch at its peak. Even though Beale had recorded the Tejon cattle brand—the crescent and the cross—in 1865, years of drought did not permit the introduction of cattle to the Ranch until the 1880s. By 1891, there were roughly 25,000 head of cattle and 7,500 sheep on the Ranch. Following Beale’s death in 1893, his son Truxton inherited Tejon Ranch and completed the transition to cattle. Truxton Beale sold the ranch in 1912 to a syndicate of wealthy Los Angeles businessman and developers, which formed the beginning

of what has evolved into the modern Tejon Ranch Company. Through a series of purchases, the syndicate increased the Ranch's holdings to 281,000 acres. Sales of various rights-of-way to public utilities initially aided the company's cash flow. More recently, the ranch has leased acreage to various farming, oil, and cattle interests. By 1957, approximately 70 percent of the ranch was operated under lease (WSC 2002:20).

Commercial oil exploration within the greater Tejon Ranch began in 1937; the first fields were abandoned by 1943. Shortly thereafter, the Richfield Oil Corporation discovered the "Grapevine Oil Field", now more commonly known as the "Tejon Oil Field", located on the floor of the southern San Joaquin Valley far to the north of the Project site. Oil exploration within the La Liebre Ranch area was restricted to six shallow test wells that were drilled in 1953 and 1954. The wells were abandoned as non-producers and no commercial oil production occurred on the Project site (WSC 2002:20).

Although large-scale farming, oil and gas production, and cattle operations continue on the Tejon Ranch, the primary use of the Project site has been livestock (cattle) grazing and recreational (hunting) activities (WSC 2002:20–21).

Two Southern California electrical transmission lines cross the southwestern portion of the Project site: the Big Creek lines and the Pastoria-Pardee line. The Big Creek Transmission lines are part of the Big Creek Hydroelectric Project (BCHP), (located 60 miles north of Fresno) which has a period of significance of 1911–1929; the BCHP is considered one of the world's most important engineering and technological achievements during the early portion of the 20<sup>th</sup> Century. The BCHP has been determined by consensus to be eligible for the National Register of Historic Places as a Historic District because of its contributions to the overall development of the Los Angeles metropolitan area. The Big Creek lines traverse the Los Angeles basin from Long Beach to the foothills of the San Gabriel Mountains and then over the Transverse Mountain Range into the Central Valley to the western Sierra Nevada. Over the years, many of the historically significant towers have been replaced by modern type MS and type MA lattice towers as part of ongoing maintenance of the lines, which is the case with the four lattice towers located on the Project site (Taylor 2007).

## **Cultural Resource Descriptions**

### ***Archaeological and Historic-Period Structural Resources***

The discussion below summarizes the findings of the Phase I Archaeological Survey conducted in 2002; the subsurface Phase II Archaeological Testing Program conducted in 2004; the Supplemental Phase II Archaeological Testing Program conducted in 2007 (all by WSC); the Phase I Archaeological Survey and Phase II Archaeological Testing Program conducted in 2015 by ASM Affiliates; and consultation with SCE regarding the historical significance of the electrical transmission towers in the southwestern portion of the Project site.

According to the SCCIC records search dated July 19, 1999, 36 archaeological sites and 6 isolated artifacts had been recorded within 8 miles of the Project site on the USGS Lebec 7.5-minute quadrangle, but no sites or isolated artifacts were reported for the La Liebre Ranch Quadrangle (WSC 2002). Review of historical documents indicates that one historic

building, the La Liebre/Beale Adobe, and the historical aboriginal village of *hwi'tahovea*, are known to be present south of the Project site. The two commingled sites share the trinomial designation CA-LAN-3254/H since there are both prehistoric and historic elements. The figure “#/H” denotes the presence of both prehistoric and historic site elements.

WSC conducted an archaeological field survey of the Project in 2002; the survey resulted in the identification of 57 archaeological sites within the boundaries of the Project site. Of these, 2 (CA-LAN-3218H and CA-LAN-3219H) were considered not significant based on the Phase I survey (WSC 2002:39) and an additional site (CA-LAN-3985) was discovered later. In 2004, WSC conducted Phase II Archaeological Testing at 12 sites identified during the Phase I survey. None of these 12 resources were found to contain sufficient data or integrity to qualify them for historical significance and were found not to be eligible for the CRHR. In 2007, WSC conducted a supplemental testing of 12 additional archaeological sites that were identified and recorded during the 2002 survey. This supplemental study determined that sites CA-LAN-3201 and CA-LAN-3206 represent significant/unique cultural resources and are eligible for inclusion on the CRHR.

In 2015, ASM Affiliates conducted an archaeological field survey of 768 acres, and no resources were noted during the survey. ASM Affiliates also conducted test excavations at 20 sites east of the California Aqueduct. Two of these sites were determined to include small, low-density subsurface archaeological deposits. These are CA-LAN-3240 and CA-LAN-3242, both of which are camps or small seasonal habitations, most likely occupied by single families. Both of these sites have the potential to yield information useful for understanding prehistory, and they are recommended as significant and potentially eligible for the CRHR. It is recommended that they be preserved in place or that Phase III data recovery be conducted at these sites. Two of the remaining 18 sites addressed in the 2015 study, that had been originally recorded as possible cairns, were determined to be surface exposures of decomposing bedrock cobbles and, as natural features, do not constitute cultural resources and are not significant or eligible for the CRHR. The remaining 16 sites were all determined to consist exclusively of surface scatters of tools and stone tool manufacturing waste. They are all small quarry workshops associated with natural cobbles lenses with one suggesting plant processing activities. Phase II studies resulted in the recovery of all archaeological specimens at these locations, thereby constituting scientifically consequential information from and about these resources. None of these sites contains temporally diagnostic artifacts. Based on this last fact, they are recommended as not significant or eligible for the CRHR.

Two aboveground electrical transmission lines consisting of four steel lattice towers cross the southwestern portion of the site. Consultation with SCE indicates that all of the towers are modern MS or MA type towers and are not, therefore, contributors to the historically significant Big Creek Hydroelectric District.

## Summary of Findings

### Archaeological Study Findings

As a result of the Phase II testing at the Project site in 2004, 2007, and 2015, a total of four archaeological sites (CA-LAN-3201, CA-LAN-3206, CA-LAN-3240, and CA-LAN-3242) appear eligible for listing in the CRHR.

The sites identified during the surveys conducted on the Project site are summarized in Table 5.6-1, and include the site's trinomial identifier; temporary field number; type of site; whether the site was evaluated and, if so, if it is CRHR eligible; whether the site is within the development footprint or in open space; and an impact significance finding. The cultural resource site location and significance finding is summarized in the setting to streamline the presentation of the data by including all relevant data in one place. The significance findings presented in Table 5.6-1 are discussed further later in this section. Aside from their listing in Table 5.6-1, the temporary site numbers assigned to resources as they were discovered in the field will not be used further. Brief descriptions of each resource and discussions regarding the assessment of CRHR eligibility are also provided in greater detail below and following Table 5.6-1.

**TABLE 5.6-1  
ARCHAEOLOGICAL AND HISTORIC RESOURCES WITHIN  
THE PROJECT SITE BOUNDARIES**

<b>Trinomial</b>	<b>Temporary Field Number<sup>a</sup></b>	<b>Site Type</b>	<b>CRHR Eligibility</b>	<b>Location</b>	<b>Potential Impact to "Historical Resource"<sup>?b</sup></b>
CA-LAN-3195	CT-2	Lithic scatter and midden	Not evaluated <sup>c</sup>	Open Space Area	None
CA-LAN-3196	CT-3	Lithics, hearth feature, 2 meter deep midden	Not evaluated <sup>c</sup>	Open Space Area	None
CA-LAN-3197	CT-4	Bedrock mortar	Not evaluated <sup>c</sup>	Open Space Area	None
CA-LAN-3198	CT-5	Lithic scatter, bedrock mortar, midden	Not evaluated <sup>c</sup>	Open Space Area	None
CA-LAN-3199	CT-6	Bedrock mortar	Ineligible	Open Space Area	None
CA-LAN-3200	CT-7	Lithic scatter, midden	Not evaluated <sup>c</sup>	Open Space Area	None
CA-LAN-3201	CT-10	Bedrock cupules	Eligible	Development Footprint	None with mitigation
CA-LAN-3202H	CT-11H	Homestead site	Ineligible	Development Footprint	None
CA-LAN-3203	CT-12	Bedrock mortar, lithic scatter, midden	Not evaluated <sup>c</sup>	Open Space Area	None



**TABLE 5.6-1  
ARCHAEOLOGICAL AND HISTORIC RESOURCES WITHIN  
THE PROJECT SITE BOUNDARIES**

<b>Trinomial</b>	<b>Temporary Field Number<sup>a</sup></b>	<b>Site Type</b>	<b>CRHR Eligibility</b>	<b>Location</b>	<b>Potential Impact to "Historical Resource"<sup>?b</sup></b>
CA-LAN-3204H	CT-13H	Historic trash dump	Ineligible	Open Space Area	None
CA-LAN-3205	CT-14	Bedrock mortars	Ineligible	Open Space Area	None
CA-LAN-3206	CT-15	Lithic scatter, midden	Eligible	Open Space Area	None with mitigation
CA-LAN-3207	CT-16	Bedrock mortar	Not evaluated <sup>c</sup>	Open Space Area	None
CA-LAN-3208	CT-17	Bedrock mortar	Not evaluated <sup>c</sup>	Open Space Area	None
CA-LAN-3209	CT-18	Bedrock mortar	Ineligible	Open Space Area	None
CA-LAN-3210	CT-19	Bedrock mortar	Not evaluated <sup>c</sup>	Open Space Area	None
CA-LAN-3211	CT-20	Lithic scatter	Ineligible	Open Space Area	None
CA-LAN-3212	CT-26	Cobble quarry	Ineligible	Open Space Area	None
CA-LAN-3213	CT-27	Cobble quarry	Ineligible	Open Space Area	None
CA-LAN-3214	CT-28	Cobble quarry	Not evaluated <sup>c</sup>	Open Space Area	None
CA-LAN-3215	CT-32	Cobble quarry	Ineligible	Open Space Area	None
CA-LAN-3216H	CT-45H	Aircraft crash site	Ineligible	Open Space Area	None
CA-LAN-3217	CT-63	Cobble quarry	Not evaluated <sup>c</sup>	Open Space Area	None
CA-LAN-3218H	CT-8H	Reservoir and spillway	Ineligible	Open Space Area	None
CA-LAN-3219H	CT-9H	Oil drilling site	Ineligible	Development Footprint	None
CA-LAN-3220	CT-21	Cobble quarry, Lithic scatter	Ineligible	Open Space Area	None
CA-LAN-3223	CT-24	Cobble quarry	Ineligible	Open Space Area	None
CA-LAN-3224	CT-25	Cobble quarry	Ineligible	Open Space Area	None
CA-LAN-3225	CT-29	Cobble quarry	Ineligible	Open Space Area	None

**TABLE 5.6-1  
ARCHAEOLOGICAL AND HISTORIC RESOURCES WITHIN  
THE PROJECT SITE BOUNDARIES**

<b>Trinomial</b>	<b>Temporary Field Number<sup>a</sup></b>	<b>Site Type</b>	<b>CRHR Eligibility</b>	<b>Location</b>	<b>Potential Impact to "Historical Resource"<sup>?b</sup></b>
CA-LAN-3226	CT-30	Cobble quarry	Ineligible	Open Space Area	None
CA-LAN-3227	CT-31	Cobble quarry	Not evaluated <sup>c</sup>	Open Space Area	None with mitigation
CA-LAN-3229	CT-34	Cobble quarry	Ineligible	Open Space Area	None
CA-LAN-3230	CT-35	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3231	CT-36	Cobble quarry	Ineligible	Open Space Area	None
CA-LAN-3232	CT-37	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3233	CT-38	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3234	CT-39	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3235	CT-40	Possible Cairn	Not a cultural resource	Development Footprint	None
CA-LAN-3236	CT-41	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3237	CT-42	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3238	CT-43	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3239	CT-44	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3240	CT-46	Lithic scatter	Eligible	Development Footprint	None with mitigation
CA-LAN-3241	CT-47	Lithic scatter	Ineligible	Development Footprint	None
CA-LAN-3242	CT-48	Cobble quarry	Eligible	Development Footprint	None with mitigation
CA-LAN-3243	CT-49	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3244	CT-50	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3245	CT-51	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3246	CT-52	Cobble quarry	Ineligible	Development Footprint	None

**TABLE 5.6-1  
ARCHAEOLOGICAL AND HISTORIC RESOURCES WITHIN  
THE PROJECT SITE BOUNDARIES**

<b>Trinomial</b>	<b>Temporary Field Number<sup>a</sup></b>	<b>Site Type</b>	<b>CRHR Eligibility</b>	<b>Location</b>	<b>Potential Impact to "Historical Resource"<sup>?b</sup></b>
CA-LAN-3247	CT-53	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3248	CT-54	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3249	CT-55	Possible Cairn	Not a cultural resource	Development Footprint	None
CA-LAN-3250	CT-56	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3251	CT-57	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3252	CT-58	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3253	CT-59	Cobble quarry	Ineligible	Development Footprint	None
CA-LAN-3985H	CT-64H	Oil drilling site	Ineligible	Development Footprint	None
<p>CRHR: California Register of Historic Resources</p> <p>Note: In accordance with the <i>California Code of Regulations</i> (Title 14, Section 15120[d]), no information about the location of archaeological sites is included in this Program EIR.</p> <p><sup>a</sup> Temporary site numbers are included in this table in the event that comparison between trinomials and field numbers in earlier reports is necessary.</p> <p><sup>b</sup> Mitigation measures for potential impacts identified are listed in Section 5.6.7.</p> <p><sup>c</sup> Eligibility of these sites for listing in the CRHR has not yet been determined. Therefore, any impacts to these sites are assumed to be significant until proven otherwise. See Mitigation Measure 6-4.</p> <p>Source: WSC 2002, 2004, 2007; ASM 2015.</p>					

### Description of Known Archaeological Resources within the Project Site

**CA-LAN-3195:** This site is characterized by a possible prehistoric midden deposit on a stream bench associated with a spring. A midden is a mound or deposit containing shells, animal bones, and other refuse that indicates the site of a human settlement. Materials observed included a flaked stone tool, fire-cracked rock, and possible midden soil. This site is estimated to be approximately 75 by 15 meters (m, 246 by 49 ft) in size. The age of the site is unknown, and the site appears to be in good condition. CA-LAN-3195 has not been archaeologically tested or evaluated for significance under CEQA as of the preparation of this EIR.

**CA-LAN-3196:** This site is characterized by a buried prehistoric midden deposit evident at the confluence of two seasonal drainages. The midden is as much as 2 meters (6.5 ft) deep and is visible in both sides of a steep arroyo cut. The midden is overlain by about 40 centimeters (cm, 16 inches [in]) of non-cultural soil. Materials observed included lithics,

fire-cracked rock, and a possible hearth feature that is eroding from the cut. This site is estimated to be approximately 25 by 75 m (82 by 246 ft) in size. The age of the site is unknown, and the site appears to be in good condition. CA-LAN-3196 has not been archaeologically tested or evaluated for significance under CEQA as of the preparation of this EIR.

**CA-LAN-3197:** This site is marked by a single shallow prehistoric bedrock mortar on a low granodiorite (course-grained igneous rock) boulder measuring approximately one m (three ft) in diameter. The age of the site is unknown, and the site appears to be in good condition. CA-LAN-3197 has not been archaeologically tested or evaluated for significance under CEQA as of the preparation of this EIR.

**CA-LAN-3198:** This site is characterized by a large prehistoric midden deposit in a canyon area. The midden is covered in some areas by about 40 cm (16 in) of colluvium. Materials observed include a high density of fire-cracked rock, flaked stone artifacts, and a “broken” small boulder containing a bedrock mortar. This site is estimated to be approximately 150 by 50 m (492 by 164 ft) in size. The age of the site is unknown, and the site appears to be in good condition. CA-LAN-3198 has not been archaeologically tested or evaluated for significance under CEQA as of the preparation of this EIR.

**CA-LAN-3199:** This site is marked by a single shallow prehistoric bedrock mortar on a low granodiorite boulder measuring approximately one m (three ft) in diameter. The age of the site is unknown, and the site appears to be in good condition. WSC conducted subsurface testing of this site in 2007. Evaluation of the recovered artifacts indicates that the site is not significant. The site is not considered a unique resource or eligible for listing in the CRHR

**CA-LAN-3200:** This site is characterized by a small prehistoric midden deposit with a low density of artifacts. Materials observed included midden soil, fire-cracked rock, and flaked stone artifacts. This site is estimated to measure approximately 100 m (328 ft) in diameter. The age of the site is unknown, and the site appears to be in good condition. CA-LAN-3200 has not been archaeologically tested or evaluated for significance under CEQA as of the preparation of this EIR.

**CA-LAN-3201:** This site is marked by a large sandstone outcrop that contains 11 prehistoric cupule petroglyphs (small abraded pits) arranged in short lines. Cupule sites in this region appear to have been used ethnographically in rituals for adolescent girls. This site is estimated to measure approximately 10 m (33 ft) in diameter. A broken white quartz cobble was observed nearby on the ground. The age of the site is unknown and, aside from natural erosion of the sandstone, the site appears to be in good condition. Test excavations of this site were conducted by WSC in 2007; these excavations failed to identify a subsurface component associated with the petroglyphs. However, the significance of the site, due to its association with Native American religious rites, has since been established. The site is considered a unique resource and is eligible for listing in the CRHR.

**CA-LAN-3202H:** Results of the Phase I survey characterized the site as a historic ranch homestead within a side canyon. Materials observed include the remnants of a fallen water tower and at least 2 wood-framed structures along with framing timber; wire nails; 55-gallon

drums; sheet and galvanized metal; wire mattress springs and coils; car seat coil springs; fragments of purple glass; metal stove pipe; electrical parts; iron hay rake; and a sheet metal brooder box, which is a heated box where chicks or other baby birds are kept. A small associated trash pit was observed to contain tire rubber, two enamel pots, a stove top, and broken glass. This site was estimated to be approximately 100 by 50 m (328 by 164 ft) in size, dates from the Depression era, and is in fair condition.

Phase II testing was conducted at CA-LAN-3202H in 2004. The site was divided into two loci: Locus A (containing eight discrete features) and Locus B (comprised of one discrete feature). Mapping of the site's components expanded the overall dimensions to 125 by 86 m (410 by 282 ft). A systematic surface collection of diagnostic artifacts was followed by the excavation of four 1-m by 1-m (3-ft by 3-ft) subsurface units. All recovered materials (684 specimens) date to the 20<sup>th</sup> century and were found in disturbed contexts. Therefore, the site does not contain an intact subsurface component from which to derive reliable data. The site is thought to be the seasonally occupied headquarters for the Pyramid Ranch, an operation that was not part of Tejon Ranch. CA-LAN-3202H is not significant in local history and is therefore not eligible for listing in the CRHR. The Phase II assessment resulted in the mapping and recording of all extant surface features. This action resulted in the collection of all scientific information from and about the site; therefore, the site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3203:** This site is characterized by a small prehistoric midden deposit, lithic scatter, and bedrock mortar feature. A large sandstone outcrop was observed to contain 11 mortar holes and an unshaped pestle. Midden soil was observed and included two hammerstones, calcined (heated to a high temperature so that it is oxidized, reduces, or loses water) animal bone, fire-cracked rock, and a *Haliotis* (abalone) shell. Possible hearth features eroding from a low ridge along one edge of the site were also observed. This site is estimated to measure approximately 75 m by 100 m (246 ft by 328 ft) in size. The age of the site is unknown, and the site appears to be in good condition. CA-LAN-3203 has not been archaeologically tested or evaluated for significance under CEQA as of the preparation of this EIR.

**CA-LAN-3204H:** Results of the Phase I survey characterize the site as a historic rubbish dump at the foot of a steep slope. Materials observed include a dense concentration of glass bottles (e.g., Clorox, vinegar, ketchup, ginger ale, club soda, and whiskey); a chipped beef jar; cone-top and church-key beer cans; an early car engine cover and headlight reflector pans; sanitary seal cans; AA batteries; one-gallon kerosene cans; sardine cans; boot soles; pots; galvanized roofing; tire rubber; wire and sheet metal; and car seat springs. This site was estimated to be approximately 10 m by 25 m (33 by 82 ft) in size and may be associated with site CA-LAN-3202H as it is located approximately 250 m (820 ft) away. The site appeared to date from the Depression Era and was in good condition.

CA-LAN-3204H was archaeologically tested in 2004 (Phase II testing). The site was divided into three discrete surface features. Site mapping expanded the overall dimensions slightly to 10 m by 28 m (33 ft by 92 ft). A systematic surface collection of diagnostic artifacts was followed by the excavation of one 1-m by 1-m (3-ft by 3-ft) subsurface unit in an area most conducive to the accumulation of buried remains. The recovered materials (87 specimens)

date primarily to the late Depression/post-Depression time frame. The site does not have an intact subsurface deposit. The site is likely a trash dump associated with the Pyramid Ranch site (CA-LAN-3202H, described above). As with CA-LAN-3202H, CA-LAN-3204H is not a significant or unique resource and is not eligible for listing in the CRHR. The Phase II assessment resulted in the mapping and recording of all extant surface features. This action resulted in the collection of all scientific information from and about the site; therefore, the site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3205:** This site is marked by a prehistoric bedrock mortar feature within a wide canyon. A low sandstone outcrop was observed to contain five mortar holes of variable depths. This site is estimated to be approximately 1 m by 4 m (3 ft by 13 ft) in size. The age of the site is unknown, and the site appears to be in good condition. WSC conducted subsurface testing of this site in 2007. Evaluation of the recovered artifacts indicates the site does not constitute a significant/unique cultural resource; therefore, the site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3206:** This site is characterized by a buried prehistoric midden deposit evident in the sidewall of a deeply cut arroyo. The midden is as much as one m (three ft) deep and is overlain by about one m (three ft) of colluvium. Materials observed include ground and flaked stone artifacts and fire-cracked rock. This site is estimated to be approximately 20 m by 75 m (66 ft by 246 ft) in size. The age of the site is unknown, and the site appears to be in good condition, despite the presence of an erosional gully. WSC conducted subsurface testing of this site in 2007. Testing established the vertical and horizontal extent of the buried deposit. Based on the site's integrity, its deep midden, and evaluation of the recovered artifact assemblage indicates the site represents a significant/unique cultural resource.

**CA-LAN-3207:** This site is marked by a single prehistoric bedrock mortar on a large sandstone boulder measuring approximately 2 m by 3 m (6.5 ft by 10 ft) in size. The boulder is situated in a streambed. The age of the site is unknown and the site appears to be in good condition. CA-LAN-3207 has not been archaeologically tested or evaluated for significance under CEQA as of the preparation of this EIR.

**CA-LAN-3208:** This site is marked by a single prehistoric bedrock mortar on a low sandstone boulder measuring approximately one m (three ft) in diameter. The boulder is situated within a drainage bottom. The age of the site is unknown, and the site appears to be in good condition. CA-LAN-3208 has not been archaeologically tested or evaluated for significance under CEQA as of the preparation of this EIR.

**CA-LAN-3209:** This site is marked by a large prehistoric bedrock mortar location within a drainage. Four separate granodiorite boulders were observed to contain nine mortar holes in total. No midden or artifacts were observed, but the concentration of mortars indicates that they may be present. This site is estimated to be approximately 75 m (246 ft) in diameter overall. The age of the site is unknown and the site appears to be in good condition. WSC conducted subsurface testing of this site in 2007. Evaluation of the recovered artifacts indicates the site is not significant. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3210:** This site is marked by a single shallow prehistoric bedrock mortar on a low sandstone boulder that measures approximately one m (three ft) in diameter. The boulder is along the edge of a small channel. The age of the site is unknown, and the site appears to be in good condition. CA-LAN-3210 has not been archaeologically tested or evaluated for significance under CEQA as of the preparation of this EIR.

**CA-LAN-3211:** Results of the Phase I survey characterize the site as a low density deposit of prehistoric flaked stone artifacts. Materials observed include angular chert (compact rock comprised of microcrystalline quartz) shatter, a quartzite flake, and two quartzite cobble tools. The deposit was estimated to measure approximately 30 m (98.5 ft) in diameter. The age of the site was unknown and appeared to be in good condition. CA-LAN-3211 was archaeologically tested (Phase II) in 2004 as a single continuous feature. A systematic surface collection of artifacts (three lithic artifacts) shows that the site area is much smaller than originally estimated. Three 1-m by 1-m (3-ft by 3-ft) subsurface units were excavated, but none yielded any cultural materials. The site does not contain a subsurface component from which to derive informative data. All extant archaeological materials were collected as a part of Phase II testing. This action has resulted in the collection of all scientific information from and about the site; therefore, the site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3212:** This site is a prehistoric cobble quarry and workshop location characterized by a low-density deposit of flaked stone artifacts on a small knoll. Materials observed include quartzite angular shatter and cobble cores. The deposit is estimated to measure approximately 30 m by 60 m (98.5 ft by 197 ft) in size. The age of the site is unknown and the site appears to be in good condition. WSC conducted subsurface testing of this site in 2007. Evaluation of the recovered artifacts indicates the site is not significant. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3213:** This site is a prehistoric cobble quarry and workshop location characterized by a medium-density deposit of flaked stone artifacts along a small ridge line. Materials observed include angular shatter, cores, and cobble tools made primarily of quartzite. The deposit is estimated to measure approximately 30 m by 50 m (98.5 ft by 164 ft) in size. The age of the site is unknown and the site appears to be in good condition. WSC conducted subsurface testing of this site in 2007. Evaluation of the recovered artifacts indicates the site is not significant. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3214:** This site is a prehistoric cobble quarry and workshop location characterized by a medium-density deposit of flaked stone artifacts along a small ridgeline. Materials observed included quartzite angular shatter, cores and cobble tools, and two chert flakes. The deposit is estimated to measure approximately 90 m by 125 m (295 ft by 410 ft) in size. The age of the site is unknown and the site appears to be in good condition. CA-LAN-3214 has not been archaeologically tested or evaluated for significance under CEQA as of the preparation of this EIR.

**CA-LAN-3215:** This site is a large prehistoric cobble quarry and workshop location and is characterized by a low-density deposit of flaked stone artifacts occurring in discontinuous

concentrations on a long, narrow ridgeline. Materials observed included quartzite cobble cores, flakes, and angular shatter. The deposit is estimated to measure approximately 60 m by 450 m (197 ft by 1,476 ft) in size. The age of the site is unknown and the site appears to be in good condition. WSC conducted subsurface testing of this site in 2007. Evaluation of the recovered artifacts indicates the site is not significant. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3216H:** This site represents the location of a jet aircraft crash that is known to have occurred in 1949. The site is situated along one boundary of the Project site and appears to extend outside the site. Crash debris observed in the study area consists of jet engine turbine blades, a fuel line connector with safety wire, and aluminum airframe structural fragments. Military records obtained during preliminary research shows that the crash involved two F-86 Sabre jets representing the second generation of jet fighters made for the U.S. Air Force immediately after World War II. The jets involved in the crash were stationed at March Air Force Base and were participating in a bomber-intercept training exercise. The area of the site within the Project site is estimated to measure approximately 75 m by 175 m (246 ft by 574 ft) in size, but no preliminary assessment of its condition was made. WSC conducted subsurface testing of this site in 2007. Evaluation of the recovered artifacts indicates the site is not significant. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3217:** This site is a prehistoric cobble quarry and workshop location characterized by a low-density deposit of flaked stone artifacts on a low ridge. Materials observed included quartzite debitage (i.e., flakes and lithic waste), angular shatter, cores, and cobble tools. The deposit is estimated to measure approximately 125 m (410 ft) in diameter. The age of the site is unknown and the site appears to be in good condition. CA-LAN-3217 has not been archaeologically tested or evaluated for significance under CEQA as of the preparation of this EIR.

**CA-LAN-3218H:** This site is a silted-in reservoir (i.e., a destroyed dam) with a concrete spillway and water intake structure. The dam and spillway appear to have been destroyed by flooding. Large trees are growing in the spillway bottom, suggesting that some time has passed since the feature was constructed. This site is estimated to measure approximately 50 m (164 ft) in diameter overall. Its age is uncertain and its condition is very poor. Based on the site's poor condition and low data potential, the site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3219H:** This site is characterized as an oil-drilling location in an open valley bottom. Materials observed include a low-to-moderate density scatter of fire bricks, a sanitary seal can, a glass condiment bottle, sheet metal, wire nails, a metal pipe, wooden beams, a large metal bolt, wire cable, three asphalt concentrations, a small concrete foundation, a capped two-inch metal pipe, and a low earthen berm. Fire bricks are embossed with "LAPCO" over three stars. This site is estimated to be approximately 150 m by 50 m (492 ft by 164 ft) in size. The site dates from 1953–1954 (the period of oil exploration on La Liebre Ranch) and is in poor condition. Preliminary examination indicated that the site has low data potential. At the time of the Phase I survey, the site was less than 50 years old and did not meet the minimum-age threshold for historical significance and was not considered



to be historically significant. WSC conducted subsurface testing of this site in 2007. Evaluation of the recovered artifacts indicates the site is not significant. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3220:** Results of the Phase I survey characterize the site as a low density deposit of prehistoric flaked stone artifacts on a low saddle and was described as a cobble quarry and workshop location. Materials observed included angular shatter, cores, and cobble tools made primarily of quartzite. The deposit was estimated to measure approximately 75 m by 300 m (246 ft by 984 ft) in size. The age of the site was unknown, and the site appeared to be in good condition.

CA-LAN-3220 was archaeologically tested (Phase II) in 2004 as a single continuous feature. A systematic surface collection of artifacts (four specimens including a biface chopper, a cobble hammerstone, a multiplatform core, and one piece of angular shatter debitage) shows that the site area is much smaller than originally estimated. Six 1-m by 1-m (3-ft by 3-ft) subsurface units were excavated, but none yielded any cultural materials. The site does not contain a subsurface component from which to derive informative data. All extant (existing) archaeological materials were collected as a part of Phase II testing. This action has resulted in the collection of all scientific information from and about the site. CA-LAN-3220 is not considered a unique resource or eligible for listing in the CRHR, as the site no longer retains any historical significance.

**CA-LAN-3223:** Results of the Phase I survey characterize the site as a prehistoric cobble quarry and workshop location with a medium-density deposit of flaked stone artifacts occurring in discontinuous concentrations. Materials observed include angular shatter, cores, and cobble tools made primarily of quartzite. The deposit was estimated to measure approximately 100 m by 150 m (328 ft by 492 ft) in size. The age of the site was unknown and the site appeared to be in good condition.

CA-LAN-3223 was archaeologically tested (Phase II) in 2004 as a single continuous feature. A systematic surface collection of artifacts (12 specimens, including 3 multi-platform cores, 4 flakes, 3 uniface flake tools, 1 core/hammerstone, and 1 uniface chopper) shows that the site area is much smaller than originally estimated. Five 1-m by 1-m (3-ft by 3-ft) subsurface units were excavated, but none yielded any cultural materials. The site does not contain a subsurface component from which to derive informative data. The Phase II assessment has resulted in the mapping and recording of all extant surface features. This action has resulted in the collection of all scientific information from and about the site. CA-LAN-3223 is not considered a unique resource or eligible for listing in the CRHR, as the site no longer retains any historical significance.

**CA-LAN-3224:** Results of the Phase I survey characterize the site as a prehistoric cobble quarry and workshop location with a medium-density deposit of flaked stone artifacts occurring in discontinuous concentrations on a broad knoll. Materials observed include angular shatter, cores, and cobble tools made primarily of quartzite. The deposit was estimated to measure approximately 150 m by 200 m (492 ft by 656 ft) in size. The age of the site was unknown and the site appeared to be in good condition.

CA-LAN-3224 was archaeologically tested (Phase II) in 2004 as a single continuous feature. A systematic surface collection of artifacts (12 surface specimens, including 6 flakes, 2 biface choppers, 2 scraper planes, and 1 multiplatform core) shows that the site area is much smaller than originally estimated. Five 1-m by 1-m (3-ft by 3-ft) subsurface units were excavated, but none yielded any cultural materials. The site does not contain a subsurface component from which to derive informative data. The Phase II assessment resulted in the mapping and recording of all extant surface features. This action has resulted in the collection of all scientific information from and about the site. CA-LAN-3224 is not considered a unique resource or eligible for listing in the CRHR, as the site no longer retains any historical significance.

**CA-LAN-3225:** Results of the Phase I survey characterize the site as a prehistoric cobble quarry and workshop location characterized by a low-density deposit of flaked stone artifacts along a narrow ridgeline. Materials observed included quartzite angular shatter and cobble cores. The deposit is estimated to measure approximately 30 m by 150 m (98.5 ft by 492 ft) in size. The site area has been impacted by an underground communication cable that was placed in the center of the site. The age of the site is unknown. WSC conducted subsurface testing of this site in 2007. Evaluation of the recovered artifacts indicates the site is not significant. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3226:** Results of the Phase I survey characterize it as a prehistoric cobble quarry and workshop area marked by a low-density deposit of flaked stone artifacts on a small ridge line. Materials observed include quartzite angular shatter and a hammerstone. The deposit was estimated to measure approximately 30 m (98.5 ft) in diameter. The age of the site was unknown and the site appeared to be in good condition.

CA-LAN-3226 was archaeologically tested (Phase II) in 2004 as a single continuous feature. A systematic surface collection of artifacts (three archaeological specimens, including one multi-platform core, one cobble hammerstone, and one flake) shows that the site area is much smaller than originally estimated. Two 1-m by 1-m (3-ft by 3-ft) subsurface units were excavated, but neither yielded any cultural materials. The site does not contain a subsurface component from which to derive informative data. All extant archaeological materials were collected as a part of Phase II testing. This action resulted in the collection of all scientific information from and about the site. CA-LAN-3226 is not considered a unique resource or eligible for listing in the CRHR, as the site no longer retains any historical significance.

**CA-LAN-3227:** This site is a large prehistoric cobble quarry and workshop location and is characterized by a medium-density deposit of flaked stone artifacts occurring in discontinuous concentrations on a large knoll. Materials observed include angular shatter, cores, flakes, and cobble tools made primarily of quartzite. The deposit is estimated to measure approximately 125 m by 215 m (410 ft by 705 ft) in size. The age of the site is unknown and the site appears to be in good condition. CA-LAN-3227 has not been archaeologically tested or evaluated for significance under CEQA as of the preparation of this EIR. Although the site lies in the preserved open space area, it is very close to the development area; therefore, it is assumed significant unless later proven otherwise.

**CA-LAN-3229:** Results of the Phase I survey characterize the site as a prehistoric cobble quarry and workshop location with a low-density deposit of flaked stone artifacts along one edge of a large broad ridgeline. Materials observed include quartzite cobble cores and a flake. The deposit was estimated to measure approximately 30 m (98.5 ft) in diameter. The age of the site was unknown, and the site appeared to be in good condition.

CA-LAN-3229 was archaeologically tested (Phase II) in 2004 as a single continuous feature. A systematic surface collection of artifacts (four surface specimens, including one multiplatform core, one flaked hammerstone, one cobble hammerstone, and one core scraper plane) shows that the site area is much smaller than originally estimated. Three 1-m by 1-m (3-ft by 3-ft) subsurface units were excavated, but none yielded any cultural materials. The site does not contain a subsurface component from which to derive informative data. The Phase II assessment resulted in the mapping and recording of all extant surface features. This action resulted in the collection of all scientific information from and about the site. CA-LAN-3229 is not considered a unique resource or eligible for listing in the CRHR, as the site no longer retains any historical significance.

**CA-LAN-3230:** The Phase I survey characterizes the site as a small prehistoric cobble quarry and workshop location with a medium-density deposit of flaked stone artifacts that occurred along one edge of a large broad knoll. Materials observed include quartzite angular shatter, cores, and cobble tools. The deposit was estimated to measure approximately 15 m (49 ft) in diameter. The age of the site was unknown, and the site appeared to be in good condition.

CA-LAN-3230 was archaeologically tested (Phase II) in 2004 as a single continuous feature. A systematic surface collection of artifacts (13 archaeological specimens including 6 flakes, 4 multi-platform cores, 2 hammerstones, and 1 cobble chopper) shows that the site area is comparable to what was originally estimated. Two 1-m by 1-m (3-ft by 3-ft) subsurface units were excavated, but none yielded any cultural materials. The site does not contain a subsurface component from which to derive informative data. The Phase II assessment resulted in the mapping and recording of all extant surface features. This action resulted in the collection of all scientific information from and about the site. CA-LAN-3230 is not considered a unique resource or eligible for listing in the CRHR, as the site no longer retains any historical significance.

**CA-LAN-3231:** The Phase I survey characterized this site as a prehistoric cobble quarry and workshop location with a low-density deposit of flaked stone artifacts occurring along one edge of a ridge line. Materials observed included quartzite cores, a cobble tool, and a hammerstone. The deposit was estimated to measure approximately 60 m (197 ft) in diameter. The age of the site was unknown and the site appeared to be in good condition.

CA-LAN-3231 was archaeologically tested (Phase II) in 2004 as a single continuous feature. A systematic surface collection of artifacts (ten surface specimens including six hammerstones, three flakes, and one multi-platform core) shows that the site area is much smaller than originally estimated. Three 1-m by 1-m (3-ft by 3-ft) subsurface units were excavated, but none yielded any cultural materials. The site does not contain a subsurface component from which to derive informative data. The Phase II assessment resulted in the

mapping and recording of all extant surface features. This action resulted in the collection of all scientific information from and about the site. CA-LAN-3231 is not considered a unique resource or eligible for listing in the CRHR, as the site no longer retains any historical significance.

**CA-LAN-3232:** The Phase I survey noted that the site was a prehistoric cobble quarry and workshop location characterized by a low-density deposit of flaked stone artifacts occurring in discontinuous concentrations on a narrow ridgeline. Materials observed include quartzite cobble cores. The deposit was estimated to measure approximately 30 m by 150 m (98.5 by 492 ft) in size. The age of the site was unknown and the site appeared to be in good condition.

CA-LAN-3232 was archaeologically tested (Phase II) in 2004 as a single continuous feature. A systematic surface collection of artifacts (six surface artifacts, including four multi-platform cores and two flakes) shows that the site area is much smaller than originally estimated. Five 1-m by 1-m (3-ft by 3-ft) subsurface units were excavated, but none yielded any cultural materials. The site does not contain a subsurface component from which to derive informative data. The Phase II assessment resulted in the mapping and recording of all extant surface features. This action resulted in the collection of all scientific information from and about the site. CA-LAN-3232 is not considered a unique resource or eligible for listing in the CRHR, as the site no longer retains any historical significance.

**CA-LAN-3233:** This site is a low-density cobble quarry/workshop measuring about 30 m in diameter that is associated with a small cobble concentration. Two quartzite cobble tools, two quartzite cores, two quartzite flakes, and one igneous flake were observed at this location, which is of unknown age. The site is located approximately 300 m east of the paved two-lane National Cement Road along the southern toe slope of an east-west-trending ridgeline.

CA-LAN-3233 was archaeologically tested in 2015. A systematic surface collection of artifacts (four surface artifacts, including a cobble core and three flakes) was completed. Based on the distribution of these artifacts, the site area is oriented 21 m southeast/northwest by 13 m southwest/northeast. One subsurface TU, two subsurface STPs, and one surface shovel scrape were excavated on the site. No cultural material was recovered from any of the excavation units or the scrape. The site is a small, low-density surface lithic scatter that lacks a subsurface component. All identified artifacts are quartzite, which occurs naturally in an exposed cobble lens on the site surface. The site is best interpreted as an expedient quarry/workshop, used sporadically or, perhaps, on only one occasion. Its age is unknown. CA-LAN-3233 is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3234:** This site was recorded in 2002 as a low-density cobble quarry/workshop associated with a small cobble concentration. Its size was estimated at 30 m in diameter. When recorded, it contained four quartzite cores, and it is of unknown age. The site is located roughly 300 m east of the paved two-lane National Cement Road along the southern toe slope of an east-west trending ridgeline that is 300-m north of SR-138.

CA-LAN-3234 was archaeologically tested in 2015. A systematic surface collection of artifacts (three surface artifacts including two cobble cores and one flake) was completed. The artifact distribution indicates that the site area is oriented 27 m southeast/northwest by 11 m southwest/northeast. One subsurface TU, two subsurface STPs, and one surface shovel scrape were excavated on the site. No cultural material was recovered from any of the excavation units or the scrape. Site CA-LAN-3234 is a small, low-density surface lithic scatter that is associated with a small cobble concentration. It represents quarry/workshop activities, perhaps from a single use. The site does not contain a subsurface deposit and its age is unknown. CA-LAN-3234 is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3235:** This site was described in 2002 as a rock cairn containing mixed igneous clasts ranging from fist to boulder size, measuring 2 m by 3 m in overall area. The site is located approximately 490 m east of the Aqueduct on the west side of a north/south trending drainage. It was in good condition, but of unknown age and function. At the time of its recording, it was uncertain whether the site represented a prehistoric (Native American) or historic (Euro-American) feature or a natural (non-cultural) concentration of cobbles.

CA-LAN-3235 was archaeologically tested in 2015. A systematic surface collection of artifacts was completed. No surface artifacts were identified. One subsurface TU was excavated on the site. No cultural material was recovered and decomposing granite sediments were encountered within the first ten centimeters of excavation. CA-LAN-3235 appears to represent a natural concentration of exposed, but heavily decomposing bedrock cobbles, not a cairn resulting from human actions. It does not constitute a cultural resource.

**CA-LAN-3236:** This site was described in 2002 as a low-density cobble quarry/workshop associated with a small cobble concentration. Its size was estimated at about 30 m east/west by 100 m north/south orientation. At the time of recording, five quartzite cores were noted at this location. Its age is unknown. It is located approximately 60 m southeast of CA-LAN-3237 and 360 m north of SR-138 on the same east/west-trending ridgeline that contains sites CA-LAN-3237 and CA-LAN-3235.

CA-LAN-3236 was archaeologically tested in 2015. A systematic surface collection of artifacts (three cobble cores were collected) was completed. One subsurface TU, four subsurface STPs, and two surface shovel scrapes were excavated at the site. No cultural material was encountered in the subsurface. CA-LAN-3236 is a surface lithic quarry workshop associated with a cobble exposure. It does not contain a subsurface component. Its age is unknown, and it represents ephemeral exploitation, perhaps only a single use of this location. The age of the site is unknown. CA-LAN-3236 is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3237:** This site was described in 2002 as a small, low-density cobble quarry/workshop associated with small cobble concentration. Three quartzite cores and one quartzite flake were observed at this location. The site is located approximately 60 m northwest of CA-LAN-3236 and 480 m north of SR-138, on the same east/west-trending ridgeline that contains sites CA-LAN-3235 and CA-LAN-3236.

CA-LAN-3237 was archaeologically tested in 2015. A systematic surface collection of artifacts (three cobble cores, one flake) was completed. One subsurface TU, two subsurface STPs, and two surface shovel scrapes were excavated at the site. No cultural material was encountered in the subsurface. Site CA-LAN-3237 consists of a small, low-density surface quarry/workshop associated with an exposed cobble lens. It does not contain a subsurface deposit. Its age is unknown, but it appears to represent ephemeral use of the cobble resource, perhaps consisting of only a single quarrying event. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3238:** This site was recorded in 2002 as a medium density cobble quarry/workshop consisting of lithic scatter and associated cobble concentration. It measured approximately 20 m east/west by 40 m north/south orientation. Approximately 30 archaeological specimens were noted at this location, consisting of quartzite angular shatter, cores, cobble tools, one quartzite flake, and four jasper flakes. The site is located about 450 m north of SR-138 and 250 m north of CA-LAN-3235, along the southern edge of a long east-west trending saddle.

CA-LAN-3238 was archaeologically tested in 2015. A systematic surface collection of artifacts (one cobble cores, five flake) was completed. One subsurface TU, two subsurface STPs, and two surface shovel scrapes were excavated at the site. No cultural material was encountered in the subsurface. The TU resulted in the recovery of one flake. This originated in the first few centimeters (i.e., topsoil) of the unit, essentially in the first shovel scrape layer. Rodent disturbance was noted in the excavation. Site CA-LAN-3238 is a small surface lithic scatter. The presence of angular shatter, a core, and a primary flake indicate its use as a quarry/workshop. This appears to have the exploitation of both quartzite and CCS in the cobble lens that is present on the site surface. The single piece of debitage recovered in TU-1 is essentially a surface specimen that was covered by a thin coating of soil, and the site lacks a subsurface archaeological deposit. The age of the site is unknown. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3239:** This site was identified in 2002 as a medium density cobble quarry/workshop consisting of discontinuous lithic scatters and associated cobble concentrations. Its size was estimated at 60 m east/west by 300 m north/south orientation. About 30 archaeological specimens were observed on the site, including quartzite angular shatter, cores, cobble tools, and three flakes. It is located about 600 m north of SR-138 and 900 m northeast of CA-LAN-3238, along the top of a large east-west-trending ridgeline.

CA-LAN-3239 was archaeologically tested in 2015. A systematic surface collection of 17 artifacts (6 flakes, 2 flake tools, 4 cobble cores, 3 cobble tools, and 2 hammerstones) was completed. One subsurface TU, six subsurface STPs, and four surface shovel scrapes were excavated at the site. No cultural material was encountered in the subsurface. Site CA-LAN-3239 is a surface lithic scatter containing a variety of materials. These include rhyolite, metavolcanic (perhaps also basalt), CCS, and, predominantly, locally available quartzite. The site appears to have served as an occasionally employed quartzite quarry as well as a more general workshop, based on the presence of cobble tools (potentially used for plant pulping or other heavy chopping tasks). No subsurface deposit is present at the site. The age of the

site is unknown. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3240:** This site was recorded in 2002 as a low-density lithic scatter measuring about 90 m east/west by 350 m north/south orientation. It contained 12 jasper flakes and a granitic metate at the time of recording, thereby contrasting with the cobble/quarry workshops that represent the majority of the study area sites. The site was also noted as sitting on a well-oxidized sandy loam, suggesting that this location may differ in age from the other sites, potentially being older. The site is located on a north-south-trending bluff that is situated on the southern edge of the Oso Creek Wash, near the northern limit of the 2015 study area.

CA-LAN-3240 was archaeologically tested in 2015. A systematic surface collection of 6 formal artifacts (4 flake tools, 1 cobble core, 1 biface fragment) and 37 flakes was completed. Five subsurface TUs, ten subsurface STPs, and six surface shovel scrapes were excavated at the site. A total of eight flakes were recovered from the TUs; no artifacts were recovered from the STPs; and four flakes were recovered from the shovel scrapes.

Site CA-LAN-3240 appears to represent a small campsite with a small, low-density subsurface deposit. A metate, used for grinding plant foods (probably seeds) had been observed on the site when originally recorded, but could not be relocated during the Phase II test. Along with the other artifacts, this nonetheless suggests that a wide range of activities may have occurred at this location, including plant processing and tool maintenance and manufacture as well as quarrying, and that the site may have served as a small camp. The wide range of lithic materials, some of which are not local to the study area, support the interpretation of the site as a camp; obsidian almost certainly originated in the Coso source, 130 miles to the northeast. The low density and shallow subsurface deposit (maximum depth, approximately 20 cm) likewise suggests periodic but low intensity use of this site. No temporally diagnostic artifacts were recovered and the site's age is unknown. The presence of a single obsidian flake, however, may indicate that the site pre-dates roughly AD 1200, when the obsidian trade from eastern California collapsed. Ongoing hydration analysis of this specimen will allow an evaluation of this interpretation. The site is considered a unique resource and is eligible for listing in the CRHR.

**CA-LAN-3241:** This site was recorded in 2002 as a plant processing station associated with a small cobble concentration. Two bifacial igneous manos, three quartzite cobble cores, one hammerstone, one granitic metate, one jasper uniface flake tool, and one piece of jasper angular shatter were observed on the site. As at nearby CA-LAN-3240, soils here comprised of well-oxidized sandy loam, suggesting that the site may be the same (potentially early) age as this previous locality. This site is located 200 m east of CA-LAN-3240, on the northern end of a broad northeast-southwest-trending ridge that is situated on the southern edge of, and overlooking, the Oso Creek wash.

CA-LAN-3241 was archaeologically tested in 2015. A systematic surface collection of 11 artifacts (2 metates, 2 cobble cores, 2 manos, a core, a flake tool, a biface, and 2 flakes) was completed. Four subsurface TUs, five STPs, and four surface shovel scrapes were excavated at the site. A total of two flakes were recovered from the Tus; no artifacts were recovered

from the STPs; and two flakes were recovered from the shovel scrapes. CA-LAN-3241 yielded a surface artifact assemblage that includes a small number of groundstone tools (manos and metates) used for plant processing; cores, flakes, and shatter resulting from tool manufacture; and flake tools used for a variety of cutting and piercing tasks. No subsurface deposit is, however, present at the site. The nature of the artifacts suggests that the site jointly served as a plant processing station and quarry/workshop. Given its proximity to CA-LAN-3240, it is likely that CA-LAN-3421 served as a special activity area associated with that nearby campsite. Assuming this is correct, the two sites would be the same age, although this has not yet been fully established. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3242:** This site was described in 2002 as a low-density cobble quarry/workshop associated with a small cobble concentration. It measured about 90 m east/west by 150 m north/south orientation. Artifacts noted at the time of recording included one rhyolite uniface cobble tool, one quartzite hammerstone fragment, one jasper core, and one jasper flake. The site is located approximately 30 m northeast of benchmark Pipe-3062, along the northeastern toeslope of the same northeast-southwest-trending ridgeline that contains sites CA-LAN-3243 and CA-LAN-3244 (below). This places it immediately overlooking the open flats of the western Antelope Valley, to the east.

CA-LAN-3242 was archaeologically tested in 2015. A systematic surface collection of eight artifacts (two cores, two core tools, a cobble tool, and three flakes) was completed. One subsurface TU, five STPs, and two surface shovel scrapes were excavated at the site. A total of four flakes were recovered from the TUs; no artifacts were recovered from the STPs; and no artifacts were recovered from the shovel scrapes. CA-LAN-3242 appears to be represent a small and very low density subsurface deposit extended to approximately 20 cm bd. Artifacts on the site surface, though limited in number, are indicative of quarrying and primary reduction (cores and angular shatter), while the core tools are most likely the result of heavy pounding activities, perhaps plant processing. The artifact assemblage, in general terms, is similar to many of the other quarry workshops tested for this Project, which lack subsurface deposits. The presence of such a deposit in this case appears to represent a unique geomorphological context, at the toeslope of a low ridgeline, which would provide an upslope source of soil for the slow burial of artifacts below the ground. The small assemblage, furthermore, includes 30 percent core/cobble complex tools, and three of the five pieces of debitage are obsidian tertiary flakes, suggesting that at least some habitation occurred at this locale inasmuch as tertiary flakes are typically associated with tool maintenance rather than production.

The variety of kinds of lithic materials, including obsidian, almost certainly originating at the Coso source, over 130 miles to the northeast, is indicative of trade. The low density of subsurface materials suggests that the site was sporadically used, but potentially over a long period of time. The age of the site is unknown. Based on the presence of obsidian, it is believed to pre-date roughly AD 1200; this hypothesis may be clarified by obsidian hydration dating. The site is considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3243:** This site was recorded in 2002 as a medium-density cobble quarry/workshop associated with a large continuous cobble concentration. It was thought



to cover an area measuring 60 m east/west by 180 m north/south orientation. About 35 archaeological specimens were noted, including quartzite cobble cores, hammerstones, flakes, and 1 jasper flake. It is located about 180 m southwest of benchmark Pipe-3062, along the top of the same northeast-southwest-trending ridgeline that contains site CA-LAN-3244. The site was in good condition, but is of unknown age.

CA-LAN-3243 was archaeologically tested in 2015. A systematic surface collection of 17 artifacts (1 mano, 8 cobble cores, 1 cobble core tool, 3 cores, 5 flakes, and a hammerstone) was completed. One subsurface TU, six STPs, and four surface shovel scrapes were excavated at the site. No artifacts were recovered from any of the TUs, STPs, or shovel scrapes. Site CA-LAN-3243 is a moderate-density surface lithic scatter exhibiting two primary activities: quarrying the quartzite and other cobbles available on-site and, to a lesser extent, plant processing. No subsurface deposit is present at this site. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3244:** This site was recorded in 2002 as a low-density cobble quarry/workshop associated with a large discontinuous cobble concentration. It was measured at approximately 60 m north/south by 700 m east/west orientation, and about 50 specimens were observed on it, including quartzite cobble cores, hammerstones, flakes and jasper cores. It is located about 450 m southwest of benchmark Pipe-3062, on the same northeast-southwest-trending ridge line that contains site CA-LAN-3243.

CA-LAN-3244 was archaeologically tested in 2015. A systematic surface collection of 23 artifacts (6 flakes, 3 cores, 1 core tool, 1 flake tool, 9 cobble cores, 2 cobble tools, and 1 hammerstone) was completed. One subsurface TU, eight STPs, and four surface shovel scrapes were excavated at the site. No artifacts were recovered from any of the TUs, STPs, or shovel scrapes. Site CA-LAN-3244 is a moderate density surface lithic scatter consisting of a quarry/workshop associated with a natural quartzite cobble lens. The site lacks a subsurface deposit and its age is unknown. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3245:** This site was described in 2002 as a medium-density cobble quarry/workshop associated with a large continuous cobble concentration. It measures about 32 m northwest/southeast by 151 m northeast-southwest orientation. In 2002, about 35 archaeological specimens were noted, including quartzite cobble cores, hammerstones, and flakes. The site is located about 800 m southwest of benchmark Pipe-3062 and 95 m south of site CA-LAN-3244.

CA-LAN-3245 was archaeologically tested in 2015. A systematic surface collection of 9 artifacts (4 cobble cores, 1 cobble tool, 1 core, and 3 flakes) was completed. One subsurface TU, six STPs, and four surface shovel scrapes were excavated at the site. No artifacts were recovered from any of the TUs, STPs, or shovel scrapes. Site CA-LAN-3245 is a surface lithic scatter consisting of a quarry/workshop. This primarily involved the exploitation of a lens of natural quartzite cobbles, but the presence of CCS cores and flakes demonstrate that imported lithic materials were also worked at the site. No subsurface deposit is present and the age of the site is unknown. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3246:** This site was recorded in 2002 as another low-density cobble quarry/workshop associated with a small cobble concentration. It covers an area estimated at about 30 m in diameter. Two quartzite hammerstones and two quartzite flakes were observed on the site, which is located approximately 135-m northeast of Quail Lake along the southwestern edge of a large broad bluff that is immediately west of the paved two-lane National Cement access road.

CA-LAN-3246 was archaeologically tested in 2015. A systematic surface collection of two artifacts (two cobble cores) was completed. One subsurface TU, two STPs, and one surface shovel scrape were excavated at the site. One flake was recovered from the TU, and no artifacts were recovered from the STPs or shovel scrape. Site CA-LAN-3246 is a very small, low density surface lithic scatter, probably resulting from a single prehistoric visit. No subsurface deposit is present at this site and its age is unknown. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3247:** This site was recorded in 2002 as a low-density cobble quarry/workshop associated with a small cobble concentration. It measures about 15 m north/south by 45 m east/west orientation. Two cores, one uniface cobble tool, and one piece of angular shatter, all made of quartzite, were observed at this site. This site is located in a saddle at the top of a large knoll (map elevation 3,154 ft above msl) approximately 350 m south of site CA-LAN-3245, and thus towards the eastern side of the study area.

CA-LAN-3247 was archaeologically tested in 2015. A systematic surface collection of four artifacts (one cobble core, one core, and two flakes) was completed. One subsurface TU, two STPs, and one surface shovel scrape were excavated at the site. No artifacts were recovered from any of the TUs, STPs, or shovel scrapes. Site CA-LAN-3247 is a very small, low-density surface lithic scatter resulting from quarrying the locally available quartzite cobble lens. No subsurface deposit is present and the site age is unknown. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3248:** The Phase I survey noted the site as a large prehistoric cobble quarry and workshop location that is characterized by a medium-density deposit of flaked stone artifacts that occur in a continuous concentration. Materials observed include quartzite cobble cores, tools, and angular shatter. The deposit was estimated to measure approximately 60 m by 200 m (197 ft by 656 ft) in size. The age of the site was unknown and the site appeared to be in good condition.

CA-LAN-3248 was archaeologically tested (Phase II) in 2004 as a single continuous feature. A systematic surface collection of artifacts (20 specimens) shows that the site area is much smaller than originally estimated. Five 1-m by 1-m (3-ft by 3-ft) subsurface units were excavated, but none yielded any cultural materials. The site does not contain a subsurface component from which to derive informative data. The Phase II assessment resulted in the mapping and recording of all extant surface features. This action resulted in the collection of all scientific information from and about the site. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3249:** This is the second possible rock cairn discovered during the 2002 Phase I survey. It measured about 1 m by 2 m in size and contained mixed igneous clasts ranging from fist to boulder size. The cairn is located about 490 m east of the East Branch of the California Aqueduct canal and 350 m north of site CA-LAN-3250. CA-LAN-3249 was archaeologically tested in 2015. A systematic surface collection was not completed as no surface artifacts were observed. One subsurface TU was excavated at the site. No artifacts were recovered, and it is determined that the site is natural in origin and does not constitute a cultural resource.

**CA-LAN-3250:** This was described in 2002 as a low-density cobble quarry/workshop associated with a small cobble concentration. It covered an area estimated at 30 m in diameter. Three artifacts, including one core, one hammerstone, and one uniface cobble tool, all made of quartzite, were noted on the site. It is located approximately 380 m east of the East Branch of the California Aqueduct on the north side of an east/west drainage north of a spring.

CA-LAN-3250 was archaeologically tested in 2015. A systematic surface collection of two artifacts (one cobble core, one biface/projectile point) was completed. One subsurface TU, two STPs, and one surface shovel scrape were excavated at the site. No artifacts were recovered from any of the TUs, STPs, or shovel scrapes. Site CA-LAN-3250 is a very low-density surface lithic scatter with a limited artifact assemblage consisting of an assayed quartzite cobble/core and an obsidian biface fragment. The paucity of artifacts is indicative of ephemeral site use, perhaps a single episode. No subsurface deposit is present, and the site age is unknown, though the obsidian is suggestive of a roughly pre-AD 1200 date. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3251:** This is another recorded low-density cobble quarry/workshop associated with a large discontinuous cobble concentration. In 2002, it measured about 150 m north/south by 350 m east/west orientation and contained a total of about 30 specimens, including quartzite cobble cores, cobble tools, and angular shatter. It is located 80 m east of the East Branch of the California Aqueduct.

CA-LAN-3251 was archaeologically tested in 2015. A systematic surface collection of 11 artifacts (5 cobble cores, 4 flakes, 1 assayed cobble, and 1 core tool) was completed. One subsurface TU, six STPs, and four surface shovel scrapes were excavated at the site. No artifacts were recovered from any of the TUs, STPs, or shovel scrapes. Site CA-LAN-3251 is a large but low-density quarry/workshop associated with a natural quartzite cobble lens. The site lacks a subsurface archaeological deposit and its age is unknown. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3252:** This was described in 2002 as a low-density cobble quarry/workshop associated with a large discontinuous cobble concentration. It measured about 35 m north/south by 96 m east/west orientation. About two dozen archaeological specimens were noted on the site, including quartzite cobble cores, cobble tools, and angular shatter. It is located 120 m east of the East Branch of the California Aqueduct canal.

CA-LAN-3252 was archaeologically tested in 2015. A systematic surface collection of six artifacts (two cobble cores, two core tools, and two flakes) was completed. One subsurface TU, four STPs, and two surface shovel scrapes were excavated at the site. No artifacts were recovered from any of the TUs, STPs, or shovel scrapes. Site CA-LAN-3252 is a low-density surface lithic scatter/quarry workshop. It lacks a subsurface archaeological deposit and its age is unknown. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3253:** This site was recorded in 2002 as a low-density cobble quarry/workshop associated with a small cobble concentration. It was estimated to be about 60 m north/south by 90 m east/west orientation in size. At the time of recording, one basalt flake, one basalt uniface cobble tool, and one quartzite uniface cobble tool were noted on the site. It is located on a long narrow east-west-trending ridgeline that is approximately 340 m northeast of the paved, two-lane National Cement access road. CA-LAN-3253 was archaeologically tested in 2015. A systematic surface collection of two artifacts (one flake and one flake tool) was completed. One subsurface TU, four STPs, and two surface shovel scrapes were excavated at the site. No artifacts were recovered from any of the TUs, STPs, or shovel scrapes. The site is not considered a unique resource or eligible for listing in the CRHR.

**CA-LAN-3985H:** This site is characterized as an oil drilling location similar to the previously identified CA-LAN-3219H. This site is estimated to be approximately 42 m by 22 m (138 ft by 72 ft) in size. According to California Division of Oil, Gas, and Geothermal Resources' records, the well was operated by Alexander N. Campbell. It was drilled to 3,756 feet in 1956, plugged, and abandoned due to the absence of oil or gas. At the time of the Phase I survey, the site was less than 50 years old and did not meet the minimum-age threshold for historical significance and therefore was not considered to be historically significant.

WSC conducted an evaluation of the site in 2007. Materials observed include a low-density scatter of sheet metal, mesh screening, a ring bearing, 1-inch wire cable, a few galvanized bolts, and a 55-gallon drum. Non-metal artifacts include milled lumber, a two-inch rubber hose, a rubber gasket, and three cement concentrations as a result of abandoned cement sacks. The site is not considered a unique resource or eligible for listing in the CRHR.

### ***Paleontological Resources Findings***

#### Literature Review

According to the paleontological records search and literature review conducted by the NHMLAC in November 2006, there was no record of any previously identified vertebrate fossil localities within the Project site (McLeod 2006), nor had any vertebrate fossil localities been discovered in the general vicinity within the same rock formations that occur on the Project site.

The NHMLAC literature review reveals that two of the three rock formations identified on the Project site are sensitive for the presence of fossil resources. They include (1) the marine Late Miocene Quail Lake Formation, exposed in the elevated parts of the southwestern portion of the Project site (north of SR-138 and northwest of Quail Lake) and in part of the elevated areas of the southeastern portion of the Project site (south of SR-138) and (2) the

terrestrial Late Miocene Oso Canyon Formation that grades into the Quail Lake Formation. The third formation, the Neenach Volcanic Formation, exposed in the southeastern portion of the Project site (on the west side of Tentrock Canyon) and northeast of La Liebre Ranch is expected to lack fossils. Older Quaternary terrace deposits, of Pleistocene age, occurring around the exposures of the Oso Canyon Formation may contain significant fossils, probably similar to those from the famous Rancho La Brea asphalt deposits in Los Angeles (i.e., La Brea Tar Pits). Younger Quaternary Alluvium in the drainages in the lower lying areas is unlikely to contain any fossil deposits.

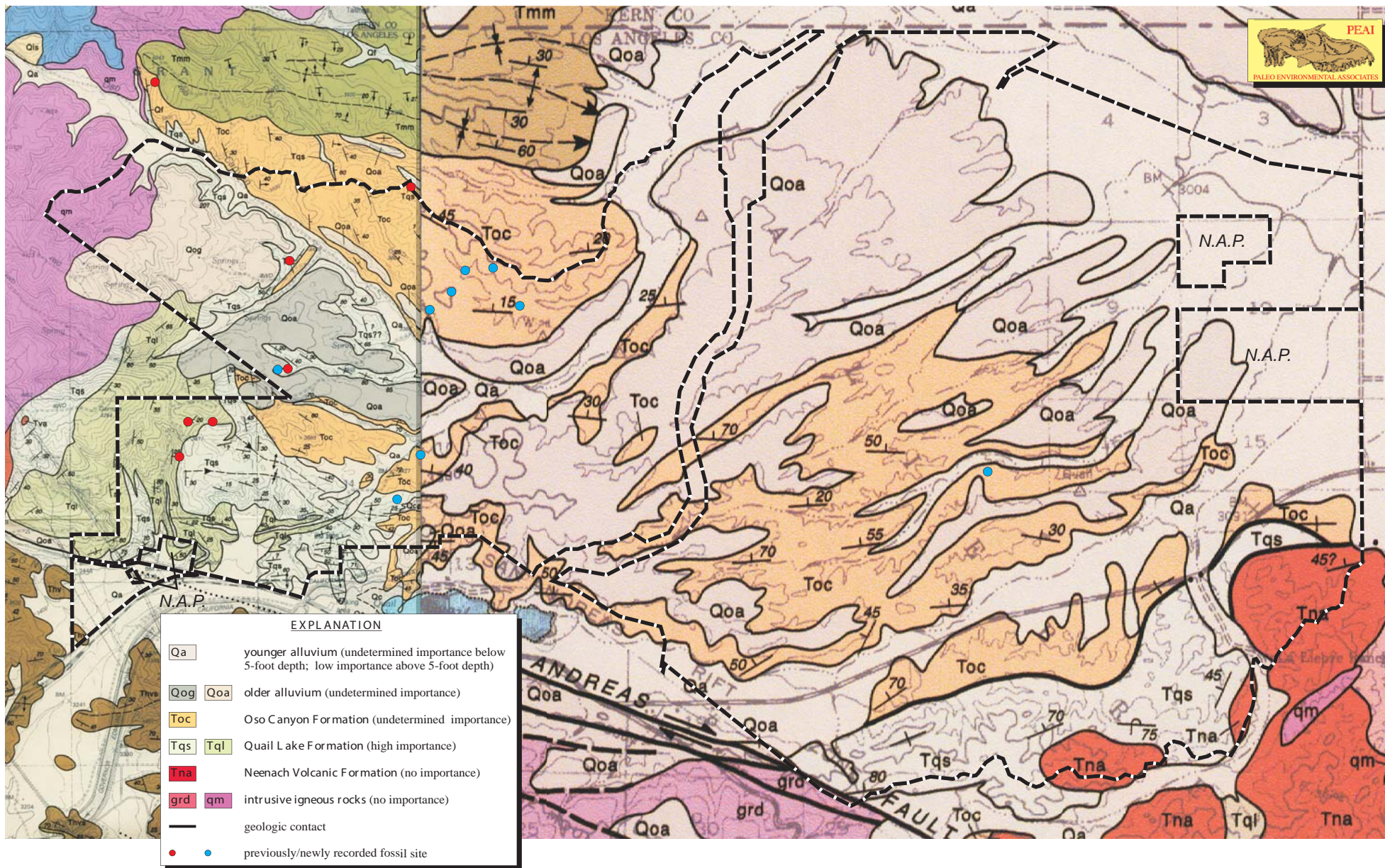
The 2006 investigation did not include a search for invertebrate species. The records search and literature review do not contain information that indicates that the Project site had been subjected to a comprehensive paleontological field survey. Therefore, a paleontological survey was conducted for the Project (PEA 2009) and is described below.

### Survey

A paleontological resource inventory and impact assessments study was undertaken by Dr. Bruce Lander of Paleo Environmental Associates (PEA 2009). The study included background research of published and unpublished paleontologic and geologic literature; examination of geologic maps; a field survey of the Project site; an evaluation of the Project's potential to impact paleontologically sensitive rock formations; and development of mitigation measures that would reduce the direct and indirect adverse environmental impacts on paleontological resources to a less than significant level.

This study is in general agreement with McLeod (2006) in the description and evaluation of the relative sensitivity of the rock units in the Project area. PEA goes further by assigning each unit a level of paleontological importance; identifying potential fossil localities; and evaluating the Project's potential to adversely affect fossils in them. These are presented in Table 5.6-2, Geologic Formations and Paleontological Sensitivity within the Project Site Boundaries, and are described below. As with the discussion of archeological and historical resources above, the significance finding for each geologic unit is provided here in the setting discussion to streamline the presentation of data. The significance findings are discussed further in the impact analysis later in this section. Exhibit 5.6-1, Geological Formations, depicts the distribution of geologic formations within the Project site.





Source: Paleo Environmental Associates 2009

# Geologic Formations

# Exhibit 5.6-1

Centennial Project



**TABLE 5.6-2  
GEOLOGIC FORMATIONS AND PALEONTOLOGICAL SENSITIVITY WITHIN THE  
PROJECT SITE BOUNDARIES**

<b>Geologic Formation</b>	<b>Importance</b>	<b>Impact</b>
Intrusive Igneous Rocks	No paleontologic importance	No Project impacts
Neenach Volcanic Formation	No paleontologic importance	No Project impacts
Quail Lake Formation	High paleontologic importance	Highly significant development-related impacts without mitigation
Oso Canyon Formation	Undetermined, but potentially high paleontologic importance	Undetermined, but potentially highly significant development-related impacts without mitigation
Older Quaternary Alluvium	Undetermined (but likely moderate) paleontologic importance	Undetermined development-related impacts without mitigation
Younger Quaternary Alluvium	Undetermined (but likely moderate) paleontologic importance at depths more than 5 feet from the current ground surface. Low paleontological importance at depths less than 5 feet below the current ground surface	Undetermined development-related impacts without mitigation. Above 5 feet: low potential of significant impacts above 5 feet
Note: Mitigation measures for the potential impacts identified above are listed in Section 5.6.7. Source: PEA 2009.		

### *Intrusive Igneous Rocks*

Intrusive igneous rocks are exposed only at the northwestern corner of the Project site. These igneous rocks consist of plutonic rocks that do not contain fossils because of their origin from a molten state deep within the Earth's crust (PEA 2009). Consequently, there is no potential for any previously unrecorded fossil site or remains occurring where this rock unit underlies the Project site. Therefore, the igneous rocks are of no paleontologic importance.

### *Neenach Volcanic Formation*

The Neenach Volcanic Formation is exposed only at the southeastern corner of the Project site. The formation consists of extrusive igneous rocks, primarily andesitic lava flows; because of their origin from a molten state, this formation does not contain fossils (PEA 2009). Consequently, there is no potential for any previously unrecorded fossil site or remains occurring where the Project site is underlain by this rock unit. Therefore, the Neenach Volcanic Formation is of no paleontologic importance.



### *Quail Lake Formation*

The Quail Lake Formation comprises intervals of light gray to tan, massive to bedded, medium- to coarse-grained sandstone that commonly are conglomeratic at the base and silty siliceous shale (PEA 2009). It is exposed only in the western half of the western portion of the Project site. The literature review and field survey conducted in support of this inventory documented the occurrence of a number of previously recorded sites and one previously unrecorded fossil site in exposures of the Quail Lake Formation in the Project area. Six such sites are mapped in the Project site, several of which were relocated as a result of the field survey and still found to be productive, and a seventh just outside the northwestern corner of the Project site (Exhibit 5.6-1). These sites produced fossilized remains representing extinct species of calcareous marine algae, bryozoans (moss animals), sand dollars, and marine snails and clams (PEA 2009). Petrified wood was found at the one previously unrecorded site discovered during the survey.

These fossil occurrences indicate that there is a high potential for additional similar fossil remains being encountered at previously recorded sites and at currently unrecorded fossil sites where the Project site is underlain by this rock unit. Therefore, the Quail lake Formation is potentially of high paleontologic importance.

### *Oso Canyon Formation*

The Oso Canyon Formation comprises layers of pebble and cobble conglomerate; gray to red, fine- to coarse-grained or conglomeratic sandstone; and greenish-gray to red sandy or pebbly siltstone (PEA 2009). This formation is exposed in much of the Project site. The archival search conducted in support of this inventory did not document the occurrence of any previously recorded fossil site in the Oso Canyon Formation. However, a fossil-bearing limestone bed near the base of the Oso Canyon Formation yielded the remains of fresh-water snails and ostracods (bivalved crustaceans) near La Liebre Ranch, which lies at the southeastern corner of the Project site. The fossil remains and the species they represent have been critical in determining the fresh-water origin of the fossil-bearing strata. Petrified wood was documented at a number of newly recorded fossil sites discovered as a result of the field survey conducted in support of the inventory.

Pending further investigation, occurrences indicate that there is an undetermined (but possibly high) potential for additional similar fossil remains being encountered at previously recorded and currently unrecorded fossil sites where the Project site is underlain by this rock unit. Therefore, the Oso Canyon Formation is of undetermined (but possibly high) paleontological importance.

### *Older Quaternary Alluvium*

The Older Quaternary Alluvium comprises dissected and unconsolidated to weakly consolidated alluvial deposits, including alluvial fan gravel and poorly bedded, alluvial gravel and sand (PEA 2009). This rock unit is exposed in much of the Project site. The literature review, archival search, and field survey conducted in support of this inventory did not document the occurrence of any previously recorded fossil site in the Older Quaternary Alluvium in the Project site or its immediate vicinity. However, several sites in the Older



Alluvium near Barrel Springs in Palmdale have yielded fossilized bones and teeth representing a taxonomically diverse faunal assemblage that includes mostly extinct species of early to middle Pleistocene (Ice Age) land mammals. The remains from the Older Quaternary Alluvium are scientifically highly important because of their taxonomic diversity and, particularly with regard to those of the packrat, have allowed the determination of the age of the formation.

Pending further investigation, the occurrence of several previously recorded fossil sites in the Project region indicates that there is an undetermined (but probably no more than a moderate) potential for additional similar fossil remains being encountered at unrecorded fossil sites where the Project site is underlain by this rock unit. Therefore, the Older Quaternary Alluvium is of undetermined (but likely no more than moderate) paleontological importance.

#### *Younger Quaternary Alluvium*

The Younger Quaternary Alluvium comprises undissected and unconsolidated layers of alluvial gravel, sand, and silt of valley areas (PEA 2009). This rock unit is exposed within much of the Project site. The literature review, archival search, and field survey conducted in support of this inventory did not document the occurrence of any previously recorded fossil site in the Younger Quaternary Alluvium within the Project site or the immediate vicinity. However, several sites—including fossils of a leopard lizard, gopher, and a large land mammal—lie east of Little Rock Wash in Palmdale and near General William J. Fox Airfield in Lancaster, from 0 to 10 feet below the surface and, like the Project site, are at elevations above 2,325 feet above msl, which is the highstand of ancient Lake Thompson (including Rosamond Lake).

Pending further investigation, the occurrence of several previously recorded fossil sites in the Project region indicates that there is an undetermined (but probably no more than a moderate) potential for additional similar fossil remains being encountered at unrecorded fossil sites where the Project site is underlain by this rock unit and at depths greater than five feet below the current ground surface. Therefore, the Younger Quaternary Alluvium is of undetermined (but likely no more than moderate) paleontological importance at such depths (more than five feet below ground surface).

On the other hand, at depths less than five feet below the current ground surface, any remains probably would be too young to be considered fossilized. Therefore, the Younger Quaternary Alluvium is of low paleontological importance at such shallow depths.

### **5.6.1 PROJECT DESIGN FEATURES**

No project design features for cultural resources have been identified. However, design of the Project incorporated data from the archaeological and paleontological evaluations performed on the site. Specifically, identified archaeological and historical sites are known to be, or are assumed to be, eligible for the CRHR and were avoided wherever feasible, and are outside the development footprint in open space areas. Sites were assumed CRHR-eligible without evaluation to provide a conservative assessment. Sites within the 50-foot construction buffer zone were also evaluated for CRHR eligibility. The specific

locations of these sites cannot be disclosed in the EIR because of confidentiality issues associated with archaeological sites.

### 5.6.2 THRESHOLD CRITERIA

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact related to cultural resources if it would:

- Threshold 6-1** Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines.
- Threshold 6-2** Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines.
- Threshold 6-3** Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature, or contain rock formations indicating potential paleontological resources.
- Threshold 6-4** Disturb any human remains, including those interred outside of dedicated cemeteries.
- Threshold 6-5** Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k).
- Threshold 6-6** Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

### 5.6.3 ENVIRONMENTAL IMPACTS

- Threshold 6-1** Would the project cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines?
- Threshold 6-2** Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines?
- Threshold 6-5** Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k)?
- Threshold 6-6** Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

#### **On-Site Impacts**

As discussed previously, archaeological field surveys resulted in the identification of 57 archaeological sites (see Table 5.6-1, Archaeological and Historic Resources within the Project Boundaries). As noted in Table 5.6-1, sites are distinguished by location either within the development footprint or within open space areas, as discussed further below.

#### ***Sites Located within the Development Footprint***

As identified in Table 5.6-1 above, there are a total of 26 prehistoric and historic archaeological sites within the development footprint. The archaeological testing of these sites concluded that three prehistoric sites (CA-LAN-3201, CA-LAN-3240 and CA-LAN-3242) are eligible for CRHR listing. As such, these sites are considered to be significant archeological resources pursuant to Section 15064.5(a)(3) of the State CEQA Guidelines. Each of these three sites is discussed further below.

Sites CA-LAN-3240 and CA-LAN-3242 both have archaeological deposits that extend to about 20 cm in depth. Site CA-LAN-3240 had the largest artifact assemblage recovered, including 5 flake tools, used for small cutting and scraping tasks; 27 secondary and tertiary waste flakes, resulting from lithic tool manufacture and maintenance; and 1 core. The predominance of smaller (secondary and tertiary as opposed to larger primary) waste flakes, the limited number of cores, and the absence of angular shatter indicate that quarrying and primary lithic reduction were not significant activities at this site. Although it could not be relocated in 2015, a metate was present when this site was originally recorded in 2002, indicating that some amount of plant processing also occurred at this location.

Site CA-LAN-3201 is marked by a large sandstone outcrop that contains 11 prehistoric cupule petroglyphs arranged in short lines. Cupule sites in this region appear to have been used ethnographically in rituals for adolescent girls. Test excavations of this site were conducted by WSC in 2007; these excavations failed to identify a subsurface component associated with the petroglyphs; however, due to its association with Native American religious rites, the site is considered significant.

Lithic materials present at CA-LAN-3240 were diverse. Many of these are locally available, though not necessarily on the site per se, but one obsidian flake was recovered. The closest obsidian source to the Project site is in the Coso Mountains, roughly 130 miles to the northeast, making this the most likely source for this material and, in any case, indicating that the site's occupants were involved in some degree of long-distance trade. No temporal diagnostics were recovered from the site. The Coso obsidian trade in this portion of California primarily occurred between about 4000 to 800 Years Before Present (YBP), or mostly during the Middle Horizon, however. This suggests (but does not prove) that this site may be 800 years old or more. The low subsurface artifact density of this site, regardless of its age, suggests occasional but non-intensive occupation, probably by a small group (such as a single family). Site CA-LAN-3240 can be interpreted as a dispersal phase campsite based on this fact, most likely associated with the Spring-season exploitation of locally available plant resources.

Site CA-LAN-3242, had a small artifact assemblage, limited to ten specimens, including two cores, five secondary and tertiary flakes, two pieces of angular shatter, and three core/cobble complex tools. Despite the limited size of this assemblage, it contains a high diversity of kinds of artifacts relative to many of the other sites. The cores and angular shatter are indicative of quarrying and primary lithic reduction, whereas the three obsidian tertiary flakes are more characteristic of tool maintenance, found at occupation sites. This suggests that the site served as a campsite, with the subsurface deposition of lithic materials resulting from the site's location, at the toeslope of a ridge, providing a natural upslope source for soil deposition. As noted above in reference to CA-LAN-3240, the presence of obsidian at CA-LAN-3242 is indicative of long distance trade, and suggests that the site may have been occupied sometime between roughly 4000 and 800 YBP.

#### Tribal Cultural Resources (AB 52 Consultation)

Consistent with AB 52 requirements, the County, as lead agency, initiated the offer of consultation to the tribes that have submitted to the County of Los Angeles a request to be consulted. Subsequently, the County received correspondence from both the Fernandeño

Tataviam Band of Mission Indians (Tataviam Tribe) dated November 17, 2016 and the Tejon Indian Tribe (Tejon Tribe) dated October 25, 2016 regarding consultation concerning topics such as the assessment of tribal resources, Project impact to tribal resources, mitigation measures, and access to surveys and reports related to the assessment. Prior to submittal of these written correspondences, both Tribes communicated with the County via email regarding the status of their responses to the consultation request and the communications between the two Tribes regarding the Project. In addition, the Tejon Ranch Company (TRC) has coordinated extensively with the Tejon Tribe separate from, and prior to, the consultation required by CEQA. Based on this and the associated review by the Tejon Tribe of the Project cultural resources studies, the written correspondence from the Tejon Tribe states that the Tataviam Tribe has “deferred to the Tejon Tribe’s support of the adequacy of the cultural resource studies...”. The Tataviam Tribe has recommended the Tejon Tribe be the lead tribal consultants, and that the Tataviam will provide future comments through the Tejon (Tataviam Tribe 2016). The Tejon Tribe reports that current considerations to protect tribal resources include, but are not limited to, employing Native American monitors from the Tejon Tribe and the permanent curation of any prehistoric artifacts/Tribal Cultural Resources collected during construction of the Project (Tejon Tribe 2016). Consistent with the expectations of the Tejon Tribe through coordination with the TRC, the MMs for the Project incorporate Native American monitoring by the Tejon Tribe and recovered archaeological resources shall be offered on a first refusal basis to the County (as Lead Agency) and/or its designee, which shall be the Tejon Indian Tribe.

### Conclusion

Because these three archaeologically significant sites are within the grading footprint, grading and other construction activities, including fuel modification, would directly impact these sites. This represents a significant environmental impact and mitigation would be required. Impacts to these three sites would be mitigated through avoidance by means of monitoring by a qualified Archaeologist and a Native American monitor representing the Tejon Indian Tribe during construction, and either Project redesign, preservation through restricted access or, if that is not feasible, through a Phase III data recovery program (MM 6-1 and MM 6-3). MM 6-2 requires these three sites, and two others, to be protected by fencing during construction to ensure avoidance of the resource, and MM 6-4 provides further protective measures if necessary. Excavated finds shall be offered to the County of Los Angeles and/or its designee (i.e., the Tejon Indian Tribe) on a first refusal basis (MM 6-1 and 6-3); the Tejon Indian Tribe can then make a determination whether the find is a significant tribal cultural resource and opt to accept the resource for curation in its facility). With implementation of MMs 6-1, 6-2, 6-3, and 6-4, impacts to sites CA-LAN-3201, CA-LAN-3240, and CA-LAN-3242 would be reduced to a less than significant level.

Implementation of the Project would result in a less than significant impact to the 24 sites within the development footprint that have been determined ineligible for CRHR or are not cultural resources, and no mitigation is required; however, as testing may not have recovered all significant materials, these sites and a reasonable radius around them will be monitored during grading.

Table 5.6-3 lists the mitigation measures that will reduce all impacts to resources within the development footprint to a less than significant level.

**TABLE 5.6-3  
MITIGATION MEASURES FOR RESOURCES IN  
DEVELOPMENT FOOTPRINT**

<b>Trinomial</b>	<b>CRHR Eligibility</b>	<b>Mitigation Measures</b>
CA-LAN-3201	Eligible	MM 6-1; MM 6-2; MM 6-3;MM 6-4
CA-LAN-3202H	Ineligible	MM 6-1
CA-LAN-3219H	Ineligible	MM 6-1
CA-LAN-3230	Ineligible	MM 6-1
CA-LAN-3232	Ineligible	MM 6-1
CA-LAN-3233	Ineligible	MM 6-1
CA-LAN-3234	Ineligible	MM 6-1
CA-LAN-3235	Ineligible	None
CA-LAN-3236	Ineligible	MM 6-1
CA-LAN-3237	Ineligible	MM 6-1
CA-LAN-3238	Ineligible	MM 6-1
CA-LAN-3239	Ineligible	MM 6-1
CA-LAN-3240	Eligible	MM 6-1; MM 6-2; MM 6-3; MM 6-4
CA-LAN-3241	Ineligible	MM 6-1
CA-LAN-3242	Eligible	MM 6-1; MM 6-2; MM 6-3; MM 6-4
CA-LAN-3243	Ineligible	MM 6-1
CA-LAN-3244	Ineligible	MM 6-1
CA-LAN-3245	Ineligible	MM 6-1
CA-LAN-3246	Ineligible	MM 6-1
CA-LAN-3247	Ineligible	MM 6-1
CA-LAN-3248	Ineligible	MM 6-1
CA-LAN-3249	Ineligible	None
CA-LAN-3250	Ineligible	MM 6-1
CA-LAN-3251	Ineligible	MM 6-1
CA-LAN-3252	Ineligible	MM 6-1
CA-LAN-3253	Ineligible	MM 6-1
CA-LAN-3985H	Ineligible	MM 6-1

### ***Sites Located within the Open Space Areas***

As identified in Table 5.6-1 above, there are a total of 30 prehistoric archaeological sites within open space areas (i.e., areas outside the development footprint), including 27 prehistoric archaeological sites and 3 historic-period sites. The CRHR eligibility of 18 of the 30 total sites located within Open Space-designated areas has been determined through archaeological testing. Of the 18 sites evaluated, 1 site (CA-LAN-3206) has been determined eligible and 17 sites have been determine ineligible. The CRHR eligibility of the remaining 12 sites has not been evaluated to date, as these sites have never been within an anticipated

development (i.e., grading) footprint during the evolution of the Project design. For the 12 sites whose eligibility for the CRHR is unknown, because these resources have not yet been formally evaluated, it is assumed that the sites are historically significant until, and unless, evaluation proves otherwise. Because these 12 sites are outside the development footprint, direct impacts during grading and other construction activities are not expected. However, site CA-LAN-3227 is immediately adjacent the development footprint. Because of its proximity, the site could suffer damage during grading activities. Because site CA-LAN-3227 is assumed CRHR-eligible, this would be considered a potential significant direct impact. Therefore, MM 6-1 requires monitoring by a qualified Archaeologist and a Native American monitor representing the Tejon Indian Tribe (pursuant to AB 52 consultation as described above) when grading is in the vicinity of these sites (MM 6-1); MM 6-2 requires the sites to be fenced off during construction to ensure avoidance of the resource; and MM 6-4 provides further protective measures if necessary. Excavated finds shall be offered to the County of Los Angeles and/or its designee (i.e., the Tejon Indian Tribe) on a first refusal basis (MM 6-1); the Tejon Indian Tribe can then make a determination whether the find is a significant tribal cultural resource and opt to accept the resource for curation in the Tejon Tribe's facility. With implementation of MM 6-1, MM 6-2, and MM 6-4, potential direct impacts to site CA-LAN-3227 during construction would be reduced to a less than significant level.

Long-term operation of the Project would result in potential indirect impacts to the 12 sites with unknown eligibility and the 1 site located in the open space areas that is known to be eligible (CA-LAN-3206) due to increased access, by residents and visitors, to these areas of the site compared to the existing condition, wherein the sites are located entirely on private property. Because archaeological excavation is considered an adverse effect on an archaeological resource, avoidance and preservation of resources without excavation would be the preferred method of managing these sites. Therefore, MM 6-4 requires preparation of an Archaeological Resources Site-Protection Program aimed to protect and preserve identified archaeological resources that may be vulnerable to disturbance. The Archaeological Resources Site-Protection Program must include several alternatives to restrict access to these sites (e.g., fencing, planting, and capping), thereby protecting and preserving these sites. With implementation of MM 6-4, potential indirect impacts to site CA-LAN-3227 during grading/construction would be reduced to a less than significant level.

For the 17 sites determined to be ineligible, Project implementation would result in no impacts to these sites and no mitigation is required.

Table 5.6-4 lists the mitigation measures that would reduce all direct and indirect impacts to archaeological resources in open space areas to a less than significant level.

**TABLE 5.6-4  
MITIGATION MEASURES FOR RESOURCES WITHIN OPEN  
SPACE AREAS**

<b>Trinomial</b>	<b>CRHR Eligibility</b>	<b>Mitigation Measures</b>
CA-LAN-3195	Not evaluated	MM 6-4
CA-LAN-3196	Not evaluated	MM 6-4
CA-LAN-3197	Not evaluated	MM 6-4
CA-LAN-3198	Not evaluated	MM 6-4
CA-LAN-3199	Ineligible	None
CA-LAN-3200	Not evaluated	MM 6-4
CA-LAN-3203	Not evaluated	MM 6-4
CA-LAN-3204H	Ineligible	None
CA-LAN-3205	Ineligible	None
CA-LAN-3206	Eligible	MM 6-2, MM 6-4
CA-LAN-3207	Not evaluated	MM 6-4
CA-LAN-3208	Not evaluated	MM 6-4
CA-LAN-3209	Ineligible	None
CA-LAN-3210	Not evaluated	MM 6-4
CA-LAN-3211	Ineligible	None
CA-LAN-3212	Ineligible	None
CA-LAN-3213	Ineligible	None
CA-LAN-3214	Not evaluated	MM 6-4
CA-LAN-3215	Ineligible	None
CA-LAN-3216H	Ineligible	None
CA-LAN-3217	Not evaluated	MM 6-4
CA-LAN-3218H	Ineligible	None
CA-LAN-3220	Ineligible	None
CA-LAN-3223	Ineligible	None
CA-LAN-3224	Ineligible	None
CA-LAN-3225	Ineligible	None
CA-LAN-3226	Ineligible	None
CA-LAN-3227	Not evaluated	MM 6-1, MM 6-2, MM 6-4
CA-LAN-3229	Ineligible	None
CA-LAN-3231	Ineligible	None

## Off-Site Impacts

No known significant cultural resources are associated with the proposed off-site access roads, off-site utility connections, and California Aqueduct crossings; therefore, no impacts are anticipated. However, the potential for these resources to be present is the same as those for other aspects of the Project.

There are no existing structures at any of the proposed off-site well locations, and there are no known historical or archaeological resources based on cultural resources records



searches conducted for the Project site and surrounding area, including the well sites. However, construction of the proposed wells would involve rotary drilling into native soils, and would have the potential to impact unknown archeological resources if such resources were directly beneath the well site. Also, installation of the proposed pipelines would involve trenching to depths of approximately five feet. Implementation of MM 6-1, requiring a qualified Archaeologist and a Native American monitor representing the Tejon Indian Tribe to observe excavation activities for evidence of archeological resources, would reduce potential impacts to a less than significant level. Therefore, impacts would be reduced to a less than significant level with the incorporation of MM 6-1.

Off-site work requires the construction of a bridge crossing the West Branch of the California Aqueduct as well as improvements to two existing bridges. As proposed, the bridge construction and improvements will have no adverse effect on the potentially historically significant canal. The architectural design of the new bridge will be similar in character to the other bridges that already span the channel. While the Project would add a new bridge over the canal, in the context of the Aqueduct being a long linear feature, there would be no direct or indirect adverse effect and no cumulative effect due to the length of the property. Further, the footings and abutments of the new bridge will be located outside the potential National Register of Historic Places (NRHP) boundaries of the historic canal. The short bridge crossings over the canal do not diminish the historic character nor significant qualities that may qualify the West Branch of the California Aqueduct for NRHP eligibility.

***Impact Summary:*** A combination cultural resources survey/evaluation has been undertaken on the Project site. The survey was comprehensive, covering the entirety of the Project area. CRHR-eligibility evaluations were limited largely to sites in areas where impacts associated with the proposed development impact area are anticipated, although some of the sites within the preserved open space areas were also evaluated early in the Project development phase when site impacts were different. CRHR-eligible resources within the development impact area (CA-LAN-3201, CA-LAN-3240 and CA-LAN-3242) or that are within an open space area, but adjacent to the grading footprint and may be indirectly impacted by Project implementation (CA-LAN-3227) were defined and mitigation measures developed (MM 6-1, MM 6-2, MM 6-3, and MM 6-4, below), which will reduce all direct and indirect impacts to a less than significant level. Less than significant impacts are associated with those resources found not to be a “unique” or “historical resource” through Phase II testing and evaluation, and are therefore not eligible for listing in the CRHR.

Resources outside the development impact area (i.e., those contained within the preserved open space areas that have been evaluated as eligible ( CA-LAN-3206) or those not yet evaluated [CA-LAN-3195, CA-LAN-3196, CA-LAN-3197, CA-LAN-3198, CA-LAN-3200, CA-LAN-3203, CA-LA-3207, CA-LAN-3208, CA-LAN-3210, CA-LAN-3214, and CA-LAN-3217] are assumed significant and are subject to preservation until such time as formal evaluation is necessitated and completed.

Mitigation measures developed (MM 6-4) will reduce direct and indirect impacts to these resources to a less than significant level.

**Threshold 6-3**      **Would the project directly or indirectly destroy a paleontological resource or site or unique geologic feature, or contain rock formations indicating potential paleontological resources?**

### **On-Site Impacts**

As previously discussed, the Project site is underlain by four sedimentary units that potentially contain fossil resources: Older and Younger Quaternary Alluvium, the Quail Lake Formation, and the Oso Canyon Formation. The presence of fossil localities and sedimentary units known to contain fossil materials indicates that there is a potential for unidentified, significant, non-renewable paleontological resources. Damage to an important paleontological resource is a significant impact under CEQA. As such, implementation of the Project would have a potentially significant direct impact on paleontological resources during construction (i.e., brushing, grading, trenching, and other earth-moving activities) and a potentially significant indirect impact due to increased accessibility, which would result in unauthorized fossil collecting and removal. Mitigation of these potential Project impacts includes measures for salvage of presently exposed fossils prior to and during grading; for monitoring during earth-moving activities; for temporary isolation of discovered fossil resources; and for fossil recovery, preservation, reporting, and curation (see MMs 6-5, 6-6, 6-7, 6-8, and 6-9). With implementation of these mitigation measures, potential direct and indirect impacts would be reduced to a less than significant level.

### **Off-Site Impacts**

While there are no known paleontological resources at the locations of proposed off-site intersections with SR-138, utility connections, and California Aqueduct crossings, the potential for these resources to be present exists, as it does throughout much of the Project site. Construction of the proposed wells would involve rotary drilling into native soils, which would have the potential to impact unknown paleontological resources if such resources were directly beneath the well site. Also, installation of the proposed off-site pipeline would involve shallow trenching to depths of approximately five feet. Implementation of MMs 6-5, 6-6, 6-7, 6-8, and 6-9—which require a Paleontological Monitor, evaluation of significant fossils if recovered, and a museum storage agreement if fossils are discovered—are also applicable to off-site locations and their implementation would reduce potential impacts to a less than significant level.

**Impact Summary:** Direct evidence indicates the presence of paleontological resources in the Project area, and geologic evidence from adjacent areas with similar sedimentary formations indicates a high likelihood of encountering additional resources during Project development. Potential direct and indirect impacts would be reduced to a less than significant level with implementation of MM 6-5, MM 6-6, MM 6-7, MM 6-8, and MM 6-9.

**Threshold 6-4**      **Would the project disturb any human remains, including those interred outside of dedicated cemeteries?**

**On-Site Impacts**

No direct evidence of human remains has been found as a result of the Phase I survey and Phase II testing and evaluation of identified archaeological sites. Based on these data, no disturbance of human remains is anticipated as a result of the Project. However, the presence of substantial numbers of prehistoric archaeological sites within the Project site, especially those with buried deposits, increases the likelihood that human remains may be present. Implementation of MM 6-10, which ensures adherence to State regulations, would reduce potential impacts related to the discovery of unknown human remains to a less than significant level.

**Off-Site Impacts**

There are no known burial grounds or evidence of them at the locations of proposed off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings. However, there is always the potential to encounter unknown remains. As with Project implementation, MM 6-10 ensures adherence to State regulations and would reduce potential impacts to a less than significant level.

***Impact Summary:*** No direct evidence of human remains has been found as a result of archaeological surveys. However, the presence of prehistoric archaeological sites within the Project site, especially those with buried deposits, increases the likelihood that burials may be present. Implementation of MM 6-10, which ensures adherence to State regulations, would reduce potential impacts related to the discovery of unknown human remains during implementation of the Project and off-site features to a less than significant level.

**5.6.4 MITIGATION MEASURES**

**MM 6-1**      The Project Applicant/Developer shall retain a qualified Archaeologist who shall oversee archaeological monitoring of topsoil grading and removals (including clearing, grubbing, and trenching) in the immediate vicinity of the following 25 archaeological sites that are within the grading footprint and 1 site in the open space area that is immediately adjacent to the development impact area: CA-LAN-3201, CA-LAN-3202H, CA-LAN-3219H, CA-LAN-3227, CA-LAN-3230, CA-LAN-3232, CA-LAN-3233, CA-LAN-3234, CA-LAN-3236, CA-LAN-3237, CA-LAN-3238, CA-LAN-3239, CA-LAN-3240, CA-LAN-3241, CA-LAN-3242, CA-LAN-3243, CA-LAN-3244, CA-LAN-3245, CA-LAN-3246, CA-LAN-3247, CA-LAN-3248, CA-LAN-3250, CA-LAN-3251, CA-LAN-3252, CA-LAN-3253, and CA-LAN-3985H. CA-LAN-3227 is the site immediately adjacent to the grading footprint. Additionally, a Native American monitor representing the Tejon Indian Tribe shall be present during topsoil grading and removals in the vicinity of the 26 above-listed archaeological sites.

The Project Applicant/Developer shall provide written evidence to the County that a qualified Archaeologist has been retained; shall be present at the pre-grading meeting; shall establish procedures for archaeological resource surveillance, including coordination with representatives of the Tejon Indian Tribe on the location and schedule of Native American monitoring; and shall establish (in cooperation with the Project Applicant/Developer and/or County as well as the Tejon Indian Tribe) procedures for temporarily halting or redirecting work to permit the sampling, identification, and evaluation of any artifacts found, as appropriate.

The qualified Archaeologist shall develop and submit an Archaeological Resource Monitoring Plan to the County for sites in development areas. The qualified Archaeologist and a Native American monitor representing the Tejon Indian Tribe shall be retained to attend pre-grade meetings and to monitor earth-moving activities, including clearing, grubbing and trenching, in the vicinity (i.e., the area of a site reasonably expected to contain archaeological resources plus a buffer of at least 10 meters [33 feet]) of any and/or all cultural resource sites. The Archaeologist and Native American monitor shall carefully inspect these areas to assess the potential for significant prehistoric or historic remains. If potentially significant archaeological resources are uncovered, a subsurface test and/or evaluation shall be performed to assess the discovery. Further subsurface investigation or data recovery shall be undertaken if the resource is determined unique or historically significant (i.e., important for its prehistoric or historic information) and therefore eligible for the California Register of Historical Resources (CRHR).

The archaeological procedures shall be incorporated as a note on the Grading Plan cover sheet. If additional or unexpected archaeological features are discovered, the qualified Archaeologist shall report such findings in writing to the County and/or the Tejon Indian Tribe. If archaeological resources are found to be of possible significance, the qualified Archaeologist shall determine appropriate actions, in cooperation with the County and the Tejon Indian Tribe, for further exploration and/or salvage.

The Archaeologist shall submit a Follow-up Report to the County. The Follow-up Report shall include the period of inspection; an analysis of any artifacts found; and the present repository of the artifacts. Recovered finds shall be offered to the County of Los Angeles and the Tejon Indian Tribe on a first refusal basis. If the artifacts are refused, the Project Applicant/Developer may retain said finds if written assurance is provided that they will be properly preserved in Los Angeles County, unless (1) said finds are of special significance or (2) a museum in the County of Los Angeles indicates a desire to study and/or display them, in which case the items shall be donated to the County or its designee. If the Project Applicant/Developer provides no such assurance, the County shall retain the artifacts and shall be subject to the same stipulations set forth in this mitigation measure for disposition of artifacts.

These actions, as well as final mitigation and disposition of the resources, shall be subject to the approval of the County.

The Project Applicant/Developer shall retain a certified Archaeologist who will perform a Phase II subsurface test-level investigation and surface collection for archaeological resource sites of undetermined CRHR eligibility discovered during monitoring. A Phase II Test-level Report shall be completed that evaluates the sites; includes a discussion of the sites' significance (depth, nature, condition, and extent of the resources); and contains recommendations for final mitigation and cost estimates (if required) to fully mitigate significant impacts. Should the Phase II subsurface test-level investigation and surface collection determine the potential presence of significant subsurface resources, the site shall be mitigated to a less than significant level through the implementation of one of the mitigation options discussed below.

- a. Relocation of grading boundaries and fuel modification zones to completely avoid disturbance to the site(s). Should boundary relocation be infeasible, a qualified Archaeologist shall be present in the vicinity of archaeological resources during grading and fuel modification brush clearance. (**NOTE:** confidential archaeological mapping is on file at the Natural History Museum of Los Angeles County and the South Central Coastal Information Center [SCCIC] at California State University, Fullerton. Review of this material is restricted to qualified individuals and project proponents on a need to know basis.) Fencing shall be erected outside the sites to visually depict the areas to be avoided during construction.
- b. If it is determined that avoidance and/or preservation are not feasible, then prior to grading in the vicinity of archaeological resources, Phase III data recovery (salvage excavations) shall be conducted for these archaeological sites or any other sites within the potential impact area of development that cannot be avoided. (**NOTE:** confidential archaeological mapping is on file at the Natural History Museum of Los Angeles County and the SCCIC. Review of this material is restricted to qualified individuals and project proponents on a need to know basis.) The Phase III work shall provide sufficient scientific information to fully mitigate the impacts of development on these sites to a level considered less than significant and shall be performed in accordance with the standards of the State Historic Preservation Office (SHPO).

Excavated assemblages shall be offered to the County and/or the Tejon Indian Tribe on a first refusal basis. If the artifacts are refused, the Project Applicant/Developer may retain said finds if written assurance is provided that they will be properly preserved in Los Angeles County, unless (1) said finds are of special significance or (2) a museum in the County of Los Angeles indicates a desire to study and/or display them, in which case the items shall be donated to the County or its designee. If the Project Applicant/Developer

provides no such assurance, the County shall retain the artifacts and shall be subject to the same stipulations set forth in this mitigation measure for disposition of artifacts. Final mitigation shall be carried out based upon the recommendations in the Phase II Test-Level Report, and the County of Los Angeles Department of Regional Planning shall make a determination as to the site's disposition based on the recommendations of the qualified Archaeologist. Possible determinations include, but are not limited to, preservation, salvage, partial salvage, or no mitigation necessary.

**MM 6-2** Archaeological sites CA-LAN-3201, CA-LAN-3206, CA-LAN-3227, CA-LAN-3240, and CA-LAN-3242 shall be surrounded with high visibility construction fencing with a buffer of approximately 50 feet around each site to ensure that the archaeological sites are completely avoided during construction-related activities. A qualified Archaeologist shall work with surveying teams and the Construction Supervisor to fence the area to be avoided prior to the commencement of grading.

**MM 6-3** The Project Applicant/Developer shall retain a qualified Archaeologist to mitigate impacts to eligible archaeological sites within the development impact area. Additionally, and a Native American monitor representing the Tejon Indian Tribe shall be present during ground-disturbing activities (i.e, topsoil grading and removals) in the vicinity of the three below-listed archaeological sites. Impacts to these eligible sites (CA-LAN-3201, CA-LAN-3240, and CA-LAN-3242) shall be mitigated to a less than significant level through the implementation of one of the mitigation options described below.

- a. Relocation of grading boundaries and fuel modification zones to completely avoid disturbance to the site(s). Should boundary relocation be infeasible, a qualified Archaeologist and a Native American monitor representing the Tejon Indian Tribe shall be present in the vicinity of archaeological resources during grading and fuel modification brush clearance to monitor all activities and ensure that archaeological resources are not impacted. (**NOTE:** confidential archaeological mapping is on file at the Natural History Museum of Los Angeles County and the SCCIC. Review of this material is restricted to qualified individuals and project proponents on a need to know basis.) Fencing shall be erected outside the sites to visually depict the areas to be avoided during construction. Any temporary fencing materials (i.e., plastic web, chain link, etc.) placed during construction should not become permanent. Any permanent fencing erected to protect the sites should be visually pleasing and consistent with the overall aesthetic experience of the community of Centennial.
- b. If avoidance and/or preservation are not feasible, then prior to grading in the vicinity of archaeological resources, Phase III data recovery (salvage excavations) shall be conducted for these archaeological sites or any other sites within the potential impact area of development that cannot be avoided. (**NOTE:** confidential archaeological mapping is on

file at the Natural History Museum of Los Angeles County and the SCCIC. Review of this material is restricted to qualified individuals and project proponents on a need to know basis.) The Phase III work shall provide sufficient scientific information to fully mitigate the impacts of development on these sites and shall be performed in accordance with the standards of the SHPO.

Excavated finds shall be offered to the County and/or the Tejon Indian Tribe on a first refusal basis. If the artifacts are refused, the Project Applicant/Developer may retain said finds if written assurance is provided that they will be properly preserved in Los Angeles County, unless (1) said finds are of special significance or (2) a museum in the County of Los Angeles indicates a desire to study and/or display them, in which case the items shall be donated to the County or its designee. If the Project Applicant/Developer provides no such assurance, the County shall retain the artifacts and shall be subject to the same stipulations set forth in this mitigation measure for disposition of artifacts. Final mitigation shall be carried out based upon the recommendations in the Phase II Test-Level Report, and the County shall make a determination as to the site's disposition based on the recommendations of the qualified Archaeologist and the Native American monitor representing the Tejon Indian Tribe. Possible determinations include, but are not limited to, preservation, salvage, partial salvage, or no mitigation necessary.

**MM 6-4** The Project Applicant/Developer shall develop and implement an Archaeological Resources Site-Protection Program aimed to protect and preserve identified archaeological resources vulnerable to disturbance. This program shall be prepared by the qualified monitoring Archaeologist familiar with the resources present within the Project boundaries and approved by the County and shall include implementation of one or more of the following:

- a. Fencing and/or other access-restriction methods shall be placed around the archaeologically sensitive areas of the Project site to inhibit human access. This is especially applicable to site CA-LAN-3227.
- b. Non-invasive plant species with thorns (e.g., prickly pear cactus [*Opuntia* spp.]) or other deterrent characteristics shall be planted in areas close to known resources in order to discourage human presence; this is generally applicable to the majority of sites to be preserved in areas of native vegetation.
- c. Known resources shall be capped with a layer of chemically inactive soil/sediment, in consultation with a qualified Archaeologist. This is especially applicable to sites CA-LAN-3201, CA-LAN-3206, CA-LAN-3240, and CA-LAN-3242.

The above-mentioned mitigation shall be implemented prior to the completion of construction activities and shall be overseen by the County

and/or the Tejon Indian Tribe. The qualified Archaeologist shall prepare a written statement documenting appropriate site-protection measures. Additionally, a Native American monitor representing the Tejon Indian Tribe shall be present during all initial surface grubbing, initial ground surface grading, and any excavation greater than one-half foot in depth. For implementation of each tract map, if no subsurface Native American or archaeological remains are identified during that initial grading, continuous monitoring will no longer be required but the Native American monitor shall spot-check all additional subsurface excavations at least once a week for the duration of grading and excavation activities or until monitor deems site clear. The Project Archaeologist shall be responsible for coordinating the location and schedule of Native American monitors.

**MM 6-5** For the exposed paleontological resources discovered during the Paleo Environmental Associates (PEA) 2009 study (as detailed in the document entitled *Paleontologic Resource Inventory and Impact Assessment Technical Report prepared in support of Centennial Specific Plan, western Antelope Valley, northern Los Angeles County, California*) and any paleontological resources uncovered during grading or excavation activities in or out of the presence of a Monitor, grading activities will be stopped and diverted to a part of the site reasonably away from the find (highly dependent on the size and complexity of the resource), and a qualified Paleontologist shall (1) ascertain the significance of the resources; (2) establish protocol with the Project Applicant/Developer to protect (or mitigate impacts to) such resources; (3) ascertain the presence of additional resources; and (4) provide additional monitoring of the site, if the Monitor deems it appropriate.

**MM 6-6** A Paleontological Treatment and Monitoring Plan (PTMP) shall be developed by a qualified Paleontologist retained by the Project Applicant/Developer. The PTMP shall be reviewed and approved by the County. This plan shall include a protocol for examining, evaluating, and (if necessary) salvaging known fossil localities identified during the PEA (2009) study (as detailed in the document entitled *Paleontologic Resource Inventory and Impact Assessment Technical Report prepared in support of Centennial Specific Plan, western Antelope Valley, northern Los Angeles County, California*); a grading observation schedule shall be maintained when grading occurs within sedimentary rock units so that the Paleontologist may identify and evaluate fossil resources within the Project site. This qualified Paleontologist shall be retained to attend pre-grade meetings and to monitor deep earth-moving activities (including grading, cutting, and trenching) at the site. Paleontological monitoring shall be conducted by a qualified Paleontologist during grading and other excavation work. Recommended hours for monitoring activities shall be established by the qualified Paleontologist and shall be outlined in the PTMP. It shall be the responsibility of the qualified Paleontologist to demonstrate, to the satisfaction of the County, the appropriate level of monitoring necessary based on the tentative map-level grading plans. The qualified Paleontologist shall carefully inspect PTMP-identified areas in order to assess the potential for



significant fossil remains. If potential paleontological resources are uncovered, a subsurface evaluation will be performed to assess the discovery. Further subsurface investigation will be undertaken if the resource is determined unique or important for its paleontological information. Because of the potential for producing small fragments of vertebrate microfossils, the Paleontologist shall conduct reasonable, periodic screening of sands from cuts in these units. Such material may be removed in bulk and screened off site for further analysis.

**MM 6-7** The qualified Paleontologist retained by the Project Applicant/Developer shall coordinate with appropriate construction contractor personnel to provide information concerning the protection of paleontological resources. Contractor personnel shall be informed that unauthorized fossil collecting is prohibited. The contractor's heavy equipment operators shall be briefed on procedures to be followed in the event that fossil remains and a fossil site are encountered during earth-moving activities (grading or blasting). The briefing shall be presented to new contractor personnel as necessary. Names and telephone numbers of the Monitor and other appropriate mitigation program personnel shall be provided to appropriate contractor personnel and to the County.

**MM 6-8** The qualified Paleontologist shall initiate and coordinate recovery operations with the Project Applicant/Developer and the County of Los Angeles for any significant fossil localities identified in the Paleo Environmental Associates 2009 document entitled *Paleontologic Resource Inventory and Impact Assessment Technical Report prepared in support of Centennial Specific Plan, western Antelope Valley, northern Los Angeles County, California* as well as if significant fossils are exposed during any Project-related grading pursuant to the PTMP. To initiate recovery operations, the Paleontologist shall be allowed to divert or direct grading in the area of exposure to facilitate evaluation and, if identified as potentially significant, to recover significant fossils. The qualified Paleontologist shall notify the Construction Foreman of the discovery of fossil resources and shall discuss recovery methods and the timeline needed to evaluate the find. If a fossil discovery occurs during grading operations when the Paleontologist is not present, grading shall be diverted a reasonable distance away from the area until the qualified Paleontologist can survey the area, conduct recovery operations, and make an assessment on the significance of the find.

**MM 6-9** A formal museum storage agreement shall be developed between the Project Paleontologist and an accredited institution. Any fossils and their contextual stratigraphic data that are collected during development shall be prepared and identified by a qualified Paleontologist. Excavated significant fossil finds shall be donated with funding for stabilization, identification, and curation on a first right-of-refusal basis to an appropriate, accredited institution that has a retrievable collection system and an educational and research interest in the materials (e.g., the Natural History Museum of Los Angeles County). A final

report prepared by the qualified Paleontologist that details the discovery, recovery, laboratory analysis, and findings and disposition of specimens shall be submitted to the County.

- MM 6-10** In accordance with *California Code of Regulations* (Title 14, Section 15064.5[e]), in the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the Los Angeles County Coroner must be notified of the discovery (*California Health and Safety Code*, Section 7050.5) and all activities in the immediate area of the find or in any nearby area reasonably suspected to overlie adjacent human remains must cease until appropriate and lawful measures have been implemented. If the Coroner determines that the remains are not recent, but rather of Native American origin, the Coroner shall notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours to permit the NAHC to determine the Most Likely Descendent (MLD) of the deceased Native American. The designated MLD may make recommendations to the Project Applicant/Developer or the person responsible for the excavation work, for means of treating or reassignment of the human remains and any associated grave goods with appropriate dignity, as provided in *California Public Resources Code*, Section 5097.98. If any of the following occurs, the Project Applicant/Developer shall rebury the Native American remains and the associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance: (1) the NAHC is unable to identify an MLD; (2) the MLD fails to make a recommendation within 48 hours of being notified of the discovery; or (3) the Project Applicant/Developer /Landowner rejects the recommendation of the MLD and mediation by the NAHC fails to provide acceptable measures.

#### 5.6.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of specified mitigation measures, significant impacts to archaeological, tribal, historical, and paleontological resources from implementation of the Project would be reduced to a less than significant level.

#### 5.6.5 REFERENCES

ASM Affiliates. 2015 (September). *Phase I Survey of 768 Acres and Phase II Test Excavation of 20 Archaeological Sites, Centennial Project, Los Angeles County, California*. Tehachapi, CA: ASM (Appendix 5.6-D).

California, State of. 2015a (as amended). *California Code of Regulations*. (Title 14, Natural Resources; Division 6, Resources Agency; Chapter 3, Guidelines for Implementation of the California Environmental Quality Act). Sacramento, CA: the State.

———. 2015b (as amended). *California Public Resources Code* (Division 5, Parks and Monuments; Chapter 1.75, Native American Historical, Cultural, and Sacred Sites; Sections 5097.9–5097.991). Sacramento, CA: the State of California.

[http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=5.&title=&part=&chapter=1.75.&article=.](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=5.&title=&part=&chapter=1.75.&article=)

- . 2015c (January, effective date). *California Public Resources Code* (Division 13, Environmental Quality; Chapter 2.5, Definitions; Section 21074). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=13.&title=&part=&chapter=2.5.&article=.](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=13.&title=&part=&chapter=2.5.&article=)
- . 2015d (as amended). *California Public Resources Code* (Division 13, Environmental Quality; Sections 21080–21098). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=13.&title=&part=&chapter=2.6.&article=.](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=13.&title=&part=&chapter=2.6.&article=)
- . 2014 (January, as amended). *California Public Resources Code* (Division 5, Parks and Monuments; chapter 1, State Parks and Monuments; Article 2, Historic Resources; Sections 5020–5029.6). Sacramento, CA: the State of California. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=5.&title=&part=&chapter=1.&article=2.](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=5.&title=&part=&chapter=1.&article=2)
- . 2005a (as amended). *California Government Code* (Title 7, Planning and Land Use; Division 1, Planning and Zoning; Article 6, Preparation, Adoption, and Amendment of the General Plan; Section 65352.3). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=3.&article=6.](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=3.&article=6)
- . 2005b (January). *California Public Resources Code* (Division 5, Parks and Monuments; Chapter 1.76, Native American Historic Resource Protection Act; Sections 5097.993–5097.994). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=5.&title=&part=&chapter=1.76.&article=.](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=5.&title=&part=&chapter=1.76.&article=)
- . 1987. *California Health and Safety Code* (Division 7, Dead Bodies; Part 1, General Provisions; Section 7050.5). Sacramento, CA: the State of California. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=HSC&division=7.&title=&part=1.&chapter=2.&article=.](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=HSC&division=7.&title=&part=1.&chapter=2.&article=)
- Harris, J.M. 2009 (August 12). Personal communication. Letter from J.M. Harris, Chief Curator (Natural History Museum of Los Angeles County, Division of Vertebrate Studies) to J. Lemieux, Special Projects (County of Los Angeles Department of Regional Planning (Appendix 5.6-E2).
- Crow Canyon Archaeological Center (Crow Canyon). 2017 (May 5, last accessed). *What is a Projectile Point?* Cortez, CO: Crow Canyon. [https://www.crowcanyon.org/EducationProducts/peoples\\_mesa\\_verde/projectile\\_point.asp.](https://www.crowcanyon.org/EducationProducts/peoples_mesa_verde/projectile_point.asp)
- Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. [http://planning.lacounty.gov/tnc.](http://planning.lacounty.gov/tnc)

- . 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.
- McLeod, S. 2006 (November 2). Paleontological Resources for the Proposed CentFou J001: Centennial Specific Plan, Los Angeles, County, project Area (Letter Report from Samuel McLeod to Ms. Caprice D. [Kip] Harper) (Appendix 5.6-E1).
- Paleo Environmental Associates (PEA). 2009 (April). *Paleontologic Resource Inventory and Impact Assessment Technical Report prepared in support of Centennial Specific Plan, western Antelope Valley, northern Los Angeles County, California*. Altadena, CA: PEA (Appendix 5.6-F).
- Taylor, T. 2007 (February 12). Personal communication. Email from T. Taylor, Manager, Natural and Cultural Resources, Environmental, Health and Safety Division (Southern California Edison [SCE]) to C. Harper, Cultural Resources Manager (BonTerra Consulting) regarding the historical significance of several Southern SCE electrical transmission towers within the southwestern portion of the project area.
- Fernandeño Tataviam Band of Mission Indians (Tataviam Tribe). 2016 (November 17). Personal communication. Letter (sent via email) from K. Fatehi (Tataviam Tribe) to S. Dea (County of Los Angeles Department of Regional Planning). Subject: Centennial Project, Los Angeles County, CA (Project).
- Tejon Indian Tribe (Tejon Tribe). 2016 (October 25). Personal communication. Letter from K. Morgan (Tejon Tribe) to S. Dea (County of Los Angeles Department of Regional Planning). Subject: Tejon Tribal Consultation Update and Summary for the Centennial Project Proposed by the Tejon Ranch Company, Los Angeles County, California.
- University of Pennsylvania, Public Interest Anthropology Department (University of Pennsylvania). 2008 (April 21, last accessed). *Methods: What is Ethnography?* Philadelphia, PA: University of Pennsylvania, Public Interest Anthropology Department.
- W & S Consultants (WSC). 2007 (April). *Addendum Phase II Test Excavations and Determinations of Significance within the Centennial Study Area, Northern Los Angeles County, California*. Simi Valley, CA: WSC (Appendix 5.6-C).
- . 2004 (September). *Phase II Test Excavations and Determinations of Significance at 12 Sites in the Centennial Project Area, Northern Los Angeles County, California*. Simi Valley, CA: WSC (Appendix 5.6-B).
- . 2002 (May). *Phase I Archaeological Survey of the Centennial Study Area, Northern Los Angeles County, California*. Simi Valley, CA: WSC (Appendix 5.6-A).

*This page is intentionally left blank.*

## 5.7 BIOLOGICAL RESOURCES

### 5.7.1 INTRODUCTION

#### Purpose

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that biological resources issues be evaluated as part of the environmental documentation process. The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively.

#### Summary

Development and implementation of the Project would result in significant direct and indirect impacts to special status plants; special status wildlife; nesting birds; native grasslands, wildflower fields and other special status vegetation types; jurisdictional drainages, wetlands, and riparian vegetation; wildlife movement and wildlife habitat; and regulated oak trees. Some, but not all, of these impacts would be reduced to less than significant levels with implementation of the Project's mitigation measures (MMs) and Mitigation Monitoring and Reporting Program (MMRP).

Significant impacts to special status plants, special status wildlife, and nesting birds that would result from implementing the Project would be reduced to a level considered less than significant through implementation of MMs 7-1 through 7-9.

Significant impacts to native grasslands and wildflower fields and other special status vegetation types that would result from implementing the Project would be reduced to less than significant levels with implementation of MMs 7-10 and 7-11.

Significant impacts to jurisdictional drainages, wetlands, and riparian vegetation that would result from implementing the Project would be reduced to less than significant levels with implementation of MM 7-12, which states that all lost functional values shall be replaced; appropriate regulatory agency permits and/or agreements shall be obtained; and the mitigation measures stipulated in those permits/agreements shall be implemented.

Significant impacts to wildlife movement and general wildlife habitat that would result from implementing the Project would be reduced to less than significant levels with implementation of MM 7-14 through MM 7-18.

Significant impacts to oak tree resources that would result from implementing the Project would be reduced to less than significant levels with implementation of MM 7-11 and MMs 7-18 through 7-20 in accordance with the County of Los Angeles Oak Tree Ordinance and in compliance with the Los Angeles County Oak Woodlands Conservation Management Plan. For the impacts to oak woodlands, mitigation is proposed in accordance with these

County documents and California State law by creating, enhancing, and/or restoring oak habitats and by preserving existing oak woodlands.

There would be no development within (including roads and fuel modification zones), and therefore, no direct impacts on Significant Ecological Areas (SEAs), or on any lands for which a habitat conservation plan (HCP) or a natural community conservation plan (NCCP) has been adopted as there are no HCPs or NCCPs on the Project site or off-site impact areas. To further ensure SEA impact avoidance, MM 7-21 is included, which prohibits fuel modification zones from encroaching on the adjacent SEA. The Project's designation of open space in the northwest portion of the site is consistent with the Tehachapi Upland Multiple Species Habitat Conservation Plan (TU MSHCP) located immediately adjacent to the north.

## Section Format

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of a mitigation program, if required, to reduce the impacts; and level of significance after mitigation. This information is presented in the following format:

1. Introduction
  - Purpose
  - Summary
  - Section Format
  - References
2. Relevant Plans, Policies, and Regulations
3. Environmental Setting
4. Project Design Features and Standard Conditions of Approval
5. Threshold Criteria
6. Environmental Impacts—A separate analysis is provided for each of the following two categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
7. Mitigation Measures
8. Level of Significance After Mitigation
9. References

## References

Plant and wildlife compendia for the Project site, including the off-site component and a glossary of all plant and wildlife names used in the document are included in Appendix 5.7-A. Although all references cited for preparation of this analysis are listed in Section 5.7.9, the primary technical references are listed below:

1. Natural Resource Consultants (NRC). 2007 (March). *2006 Field Studies, Statistical Analyses and Modeling of Native Perennial Bunchgrass Distribution and Quality on the Approximately 11,680-Acre Centennial Specific Plan Site, Los Angeles County, California*. Laguna Beach, CA: NRC (see Appendix 5.7-B, No. Plant-6).
2. Natural Resource Consultants (NRC). 2007 (June). *2007 Grassland and Wildflower Community Composition and Distribution in the South Tehachapi Study Area*. Laguna Beach, CA: NRC (see Appendix 5.7-B, No. Plant-5).
3. Tree Life Concern. 2003 (December). *Oak Tree Report: "Centennial"*. Canoga Park, CA: Tree Life Concern (see Appendix 5.7-B, No. Plant-1).
4. Tree Life Concern. 2008 (July). *(Addendum 1) Oak Tree Report – Centennial Specific Plan*. Canoga Park, CA: Tree Life Concern (see Appendix 5.7-B, No. Plant-10).
5. BonTerra Consulting. 2009. *Oak Tree Supplemental Report: Centennial Specific Plan*. (see Appendix 5.7-B, No. Plant-11).

For expanded discussions, detailed methodologies, and the biological surveys conducted within the Project site and off-site component, refer to these reports contained in Appendix 5.7-B. The Mitigation Preserve Review is presented in Appendix 5.7-C.

## 5.7.2 RELEVANT PLANS, POLICIES AND REGULATIONS

### Federal

#### *Endangered Species Act*

The Federal Endangered Species Act of 1973 (FESA) protects plants and animals that the government has listed as “Endangered” or “Threatened”. The FESA is implemented by enforcing Sections 7 and 9 of the Act. A federally listed species is protected from unauthorized “take” pursuant to Section 9 of the FESA. “Take”, as defined by the FESA, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or to attempt to engage in any such conduct. All persons are presently prohibited from taking a federally listed species unless and until (1) the appropriate Section 10(a) permit has been issued by the U.S. Fish and Wildlife Service (USFWS) or (2) an Incidental Take Statement is obtained as a result of formal consultation between a federal agency and the USFWS pursuant to Section 7 of the FESA and the implementing regulations that pertain to it (50 *Code of Federal Regulations* [CFR] 402). “Person” is defined in the FESA as an individual, corporation, partnership, trust, association, or any private entity; any officer, employee, agent, department or instrument of the federal government; any State, Municipality, or political subdivision of the State; or any other entity subject to the jurisdiction of the United States. The Project Applicant is a “person” for purposes of the FESA.

#### *Section 401 and 404 of the Clean Water Act of 1972 (33 United States Code 1251 et seq.)*

Section 404 of the Clean Water Act (CWA) regulates the discharge of dredge and fill material into “Waters of the U.S.” including wetlands. Dredge and fill activities are typically associated with development projects; water-resource related projects; infrastructure development



and wetland conversion to farming; forestry; and urban development. The U.S. Army Corps of Engineers (USACE) is the designated regulatory agency responsible for administering the 404 permit program and for making jurisdictional determinations.

Under Section 401 of the CWA, an activity requiring a USACE Section 404 permit must obtain a State Water Quality Certification (or waiver thereof) to ensure that the activity will not violate established State water quality standards. The State Water Resources Control Board (SWRCB), in conjunction with the nine California Regional Water Quality Control Boards (RWQCBs), is responsible for administering the Section 401 water quality certification program.

Under Section 401 of the federal CWA, an activity involving discharge into a water body must obtain a federal permit and a State Water Quality Certification to ensure that the activity will not violate established water quality standards. The U.S. Environmental Protection Agency (USEPA) is the federal regulatory agency responsible for implementing the CWA. However, it is the SWRCB in conjunction with the nine RWQCBs who essentially have been delegated the responsibility for administering the water quality certification (401) program.

The U.S. Supreme Court has issued three decisions that provide context and guidance in determining the appropriate scope of “waters of the U.S.” In *United States v. Riverside Bayview Homes*, the Court upheld the inclusion of adjacent wetlands in the regulatory definition of “waters of the U.S.”. In *Solid Waste Agency of Northern Cook County v. U.S. Army Corps of Engineers* (SWANCC), the Court held that the use of “isolated” non-navigable intrastate ponds by migratory birds was not, by itself, sufficient basis for the exercise of federal regulatory authority under the CWA. In *Rapanos v. United States* (Rapanos),<sup>1</sup> a majority of the U.S. Supreme Court overturned two Sixth Circuit Court of Appeals decisions, finding that certain wetlands constituted “waters of the U.S.” under the CWA. In his plurality opinion, Justice Scalia argued that “waters of the U.S.” should not include channels through which water flows intermittently or ephemerally or channels that periodically provide drainage for rainfall. He also stated that a wetland may not be considered “adjacent to” remote “waters of the U.S.” based on a mere hydrologic connection. Justice Kennedy authored a separate concurring opinion concluding that wetlands are “waters of the U.S.” if they, either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as “navigable”. Lacking a majority opinion, regulatory jurisdiction under the CWA exists over a water body if either the plurality’s or Justice Kennedy’s “significant nexus” standard is satisfied.

In May 2015, in response to these Supreme Court decisions, the USACE and the U.S. Environmental Protection Agency (USEPA) published a Final Clean Water Rule (Water Rule) clarifying the scope of “waters of the U.S.” protected under the CWA (USACE and USEPA 2015). They define “waters of the U.S.” to include eight categories of jurisdictional waters. The first four types of waters are considered jurisdictional by rule in all cases: (1) Traditional Navigable Waters (TNWs); (2) interstate waters, (3) territorial seas, and (4) impoundments of jurisdictional waters. The next two types of waters are jurisdictional by rule, as defined,

---

<sup>1</sup> Consolidated cases: *Rapanos v. United States* and *Carabell v. United States* refer to the U.S. Supreme Court’s decision concerning USACE jurisdiction over “waters of the U.S.” under the CWA.

because the science confirms that they have a significant nexus to TNWs, interstate waters, or territorial seas: (5) tributaries and (6) adjacent waters. The final two types of jurisdictional waters require a case-specific analysis to determine if they have a significant nexus to TNWs, interstate waters, or territorial seas: (7) five subcategories of waters considered to be “similarly situated”—Prairie potholes, Carolina and Delmarva bays, pocosins, western vernal pools in California, and Texas coastal prairie wetlands—that must be analyzed “in combination” when making a significant nexus analysis and (8) waters within the 100-year floodplain of a TNW, interstate water, or territorial sea and waters within 4,000 feet from the high tide line or the Ordinary High Water Mark (OHWM) of a TNW, interstate water, territorial sea, impoundment, or covered tributary.

Based on the Final Clean Water Rule, the USACE and the USEPA will apply the significant standard as follows:

1. Waters are “waters of the U.S.” if they, either alone or in combination with similarly situated waters in the region, significantly affect the chemical, physical, or biological integrity of TNWs, interstate waters, or the territorial seas.
2. Waters are considered “similarly situated” where they function alike and are sufficiently close to function together in affecting the nearest TNW, interstate water, or territorial sea.
3. The “region” is considered to be the single point of entry watershed (i.e., the drainage basin within whose boundaries all precipitation ultimately flows to the nearest single TNW), interstate water, or territorial sea.
4. The functions of a water that affect the chemical, physical, or biological integrity of a TNW, interstate water, or territorial seas must be “significant” and more than “speculative or insubstantial”. To determine whether there is a significant nexus, the following functions should be considered: sediment trapping; nutrient recycling; pollutant trapping, transformation, filtering, and transport; retention and attenuation of floodwaters; runoff storage; contribution of flow; export of organic matter; export of food resources; and provision of life-cycle dependent aquatic habitat for species.

On August 27, 2015, the United States District Court for the District of North Dakota enjoined the USEPA from implementing the Final Clean Water Rule, the result of lawsuit filed by several states that challenged the statutory authority of the USEPA and USACE to issue these new regulations. Therefore, currently the USACE is not implementing the definitions in the Final Clean Water Rule.

## **State**

### ***California Endangered Species Act***

Pursuant to the California Endangered Species Act (CESA) and Section 2081 of the *California Fish and Game Code*, an incidental take permit from the California Department of Fish and Wildlife (CDFW) is required for projects that could result in the take of a State-listed Threatened or Endangered species. Under the CESA, “take” is defined as an activity that would directly or indirectly kill an individual of a species, but the definition does not include

“harm” or “harass”, as the federal act does. As a result, the threshold for a take under the CESA is higher than that under the FESA. A CDFW-authorized Incidental Take Permit under Section 2081(b) is required when a project could result in the take of a State-listed Threatened or Endangered Species. The application for an Incidental Take Permit under Section 2081(b) has a number of requirements, including the preparation of a conservation plan, generally referred to as a Habitat Conservation Plan.

### ***California Fish and Game Code***

#### **Section 1602**

State law confers upon the CDFW the trustee responsibility and authority for the public trust resource of wildlife in California. The CDFW may play various roles under the CEQA process. By State law, the CDFW has jurisdiction over the conservation, protection, and management of the wildlife, native plants, and habitat necessary to maintain biologically sustainable populations. The CDFW shall consult with lead and responsible agencies and shall provide the requisite biological expertise to review and comment upon environmental documents and impacts arising from project activities.

As a trustee agency, the CDFW has jurisdiction over certain resources held in trust for the people of California. Trustee agencies are generally required to be notified of CEQA documents relevant to their jurisdiction, whether or not these agencies have actual permitting authority or approval power over aspects of the underlying project (14 *California Code of Regulations* [CCR] Section 15386). The CDFW, as a trustee agency, must be notified of CEQA documents regarding projects involving fish and wildlife of the state as well as Rare and Endangered native plants, wildlife areas, and ecological reserves. Although, the CDFW cannot approve or disapprove a project since it is a trustee agency, lead and responsible agencies are required to consult with them. The CDFW, as the trustee agency for fish and wildlife resources, shall provide the requisite biological expertise to review and comment upon environmental documents and impacts arising from project activities and shall make recommendations regarding those resources held in trust for the people of California (*California Fish and Game Code*, Section 1602).

#### **Sections 1600–1616**

All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that support wildlife resources and/or riparian vegetation are subject to CDFW regulations, pursuant to Section 1600 through Section 1603 of the *California Fish and Game Code*. Under Section 1602, it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel or bank of any river, stream, or lake designated by CDFW as waters within their jurisdiction, nor can a person use any material from streambeds without first notifying the CDFW of such activity. For a project that may affect stream channels and/or riparian vegetation regulated under Sections 1600 through 1603, CDFW authorization is required in the form of a Streambed Alteration Agreement.

### **California Porter-Cologne Water Quality Control Act**

Pursuant to the California Porter-Cologne Water Quality Control Act, the SWRCB and the nine RWQCBs may require permits (known as waste discharge requirements or WDRs) for the fill or alteration of “waters of the State”. The term “waters of the State” is defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” (*California Water Code*, Section 13050[e]). The State and Regional Boards have interpreted their authority to require WDRs to extend to any proposal to fill or alter “waters of the State”, even if those same waters are not under USACE jurisdiction. Pursuant to this authority, the State and Regional Boards may require the submission of a “report of waste discharge” under Section 13260, which is treated as an application for WDRs.

### **Oak Woodland Conservation Act (2001) and California Public Resources Code (Section 21083.4)**

The Oak Woodland Conservation Act (*California Fish and Game Code*, Sections 1360 et seq.), passed by the California Legislature in 2001, established an Oak Woodland Conservation Fund administered by the Wildlife Conservation Board (WCB) to help and encourage local governments, park and open space districts, resource conservation districts, nonprofit organizations and private property owners to protect and enhance oak woodlands. “It offers landowners, conservation organizations, and cities and counties an opportunity to obtain funding for projects designed to conserve and restore California’s oak woodlands. It authorizes the Wildlife Conservation Board (WCB) to purchase oak woodland conservation easements and provide grants for land improvements and oak restoration efforts” (McCreary 2004). The Act defines oak woodlands as “an oak stand with a greater than 10 percent canopy cover or that may have historically supported greater than 10 percent canopy cover” (*California Fish and Game Code*, Section 1361[h]).

Section 21083.4 of the *California Public Resources Code* (PRC) (Senate Bill [SB] 1334), which references the Oak Woodland Conservation Act, provides an additional layer of protection for oak woodlands. Section 21083.4 requires that Counties determine if a project may result in a conversion of oak woodlands that will have a significant impact on the environment. If it is determined that it would, the County must require one or more of the following to mitigate the significant effect of the conversion of oak woodlands:

1. Conserve oak woodlands, through the use of conservation easements;
2. (A) Plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees
  - (B) The requirement to maintain trees pursuant to this paragraph terminates seven years after trees are planted.
  - (C) Mitigation pursuant to this paragraph shall not fulfill more than one-half of the mitigation requirement for the project.
  - (D) The requirements imposed pursuant to this paragraph also may be used to restore former oak woodlands.
3. Contribute funds to the Oak Woodlands Conservation Fund. A project applicant that contributes funds under this paragraph shall not receive a

grant from the Oak Woodlands Conservation Fund as part of the mitigation for the project; and

4. Other mitigation measures developed by the County.

## County

### ***County of Los Angeles Oak Tree Ordinance (CLAOTO)***

In unincorporated areas of Los Angeles County, the County of Los Angeles Oak Tree Ordinance (No. 88-0157) protects any tree of the oak genus which is 25 inches or more in circumference (8 inches in diameter) as measured 4.5 feet above mean natural grade; in the case of oaks with more than 1 trunk, the ordinance protects those trees with a combined circumference of any 2 trunks of at least 38 inches (12 inches in diameter), as measured 4.5 feet above mean natural grade. All potential impacts to oak trees regulated by this ordinance must be preceded by an application to the County that includes a detailed Oak Tree Report. Mitigation for impacts to oak trees is usually required as a condition of an Oak Tree Permit.

### ***Significant Ecological Area (SEA) Program***

The *County of Los Angeles General Plan* of 1976 originally characterized Significant Ecological Areas (SEAs) as areas that contain unique, dwindling, or other rare plant and animal resources that need to be more specifically studied for the purpose of public education, research, and other non-disruptive outdoor uses (England and Nelson Environmental Consultants 1976). The SEA boundary maps are general in nature and broadly outline the biological resources included in each area.

In 2015, the County Department of Regional Planning adopted updates to the SEA Program that retains a number of existing SEAs, but also incorporates many smaller, existing SEAs into several major SEAs that cover much larger areas. The revised SEAs for the Antelope Valley Area have been approved and adopted into the *County of Los Angeles General Plan* and the *Antelope Valley Area Plan*. The newly adopted San Andreas Rift Zone SEA (SEA No. 17) largely incorporates the areas of former SEA Nos. 58 and 59, located in the Project region, making it the second largest SEA in Los Angeles County (see Exhibit 5.7-15, Significant Ecological Areas). The range of SEA 17 encompasses a small portion of the western Tehachapi foothills, then stretches in a southeasterly direction to include Quail Lake; the northern foothills of Liebre and Sawmill Mountains; large portions of Portal Ridge; Leona Valley; Ritter Ridge; Fairmont and Antelope Buttes; Anaverde Valley; and Lake Palmdale. It terminates at Barrel Springs near the City of Palmdale.

The primary resources in SEA 17 are wildlife movement and the mosaic of habitats along the San Andreas Fault Zone. The area encompasses an important linkage between the San Gabriel Mountains and the Tehachapi Mountains, representing the only mountain linkage from the Transverse Ranges or the Pacific Coast Range to the Sierra Nevada Range (PCR et al. 2000). SEA 17 is identified as significant as a region where multiple diverse biomes (a community of plants and animals) and wildlife corridors come together. It contains a unique mosaic of vegetation types that represent a transitional area between the Mojave Desert, the Coast Ranges, and the Tehachapi Mountains.

---

***County of Los Angeles General Plan and Antelope Valley Area Plan***

The *County of Los Angeles General Plan* and *Antelope Valley Area Plan* address biological resources issues that affect the County. Relevant goals and policies in the *Antelope Valley Area Plan* include the following:

Biological Resources

**Goal COS 4:** Sensitive habitats and species are protected to promote biodiversity

**Policy COS 4.1:** Direct the majority of the unincorporated Antelope Valley's future growth to rural town centers and economic opportunity areas, minimizing the potential for habitat loss and negative impacts in Significant Ecological Areas.

**Policy COS 4.2:** Limit the amount of potential development in Significant Ecological Areas, including the Joshua Tree Woodlands, wildlife corridors, and other sensitive habitat areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

**Policy COS 4.5:** Subject to local, state or federal laws, require new development to provide adequate buffers from preserves, sanctuaries, habitat areas, wildlife corridors, State Parks, and National Forest lands, except within Economic Opportunity Areas.

**Policy COS 4.6:** Encourage connections between natural open space areas to allow for wildlife movement.

**Policy COS 4.7:** Restrict fencing in wildlife corridors. Where fencing is necessary for privacy or safety, require appropriate development standards that maximize opportunities for wildlife movement.

**Policy COS 4.8:** Ensure ongoing habitat preservation by coordinating with the California Department of Fish and Game to obtain the latest information regarding threatened and endangered species.

**Goal COS 16:** Native vegetation thrives throughout the Antelope Valley, reducing erosion, flooding, and wind-borne dust and sand.

**Policy COS 16.1:** Except within Economic Opportunity Areas, require new development to minimize removal of native vegetation. Discourage the clear-scraping of land and ensure that a large percentage of land is left in its natural state.

**Policy COS 16.2:** Maximize the use of native vegetation in landscaped areas, provided that vegetation meets all applicable requirements of the Fire Department and the Department of Public Works.

A consistency analysis of the Project's specific goals and policies with the County's relevant plans, policies, and regulations is provided in the Land Use, Entitlements, and Planning Section (Section 5.8) in this document.

### ***Los Angeles County Oak Woodlands Conservation Management Plan***

The final *County of Los Angeles Oak Woodlands Conservation Management Plan* (OWCMP) is dated May 2011. The primary purpose of the OWCMP is to develop a consistent policy for oak woodland management that can be incorporated into the County's General Plan and other relevant planning documents. A secondary purpose of the OWCMP is to meet eligibility requirements for funding under the Oak Woodland Conservation Act. The OWCMP is divided into two parts. Part I contains a voluntary oak woodland conservation strategy that could be adopted by resolution by the Board of Supervisors to make the County eligible for Oak Woodland Conservation Fund grants. Part II contains planning and implementation recommendations designed to assist the County in formulating policies for eventual incorporation into County codes. Several recommendations contained in OWCMP Part II are relevant to CEQA analysis, including but not limited to Section V.2 (addressing CEQA evaluation of oak woodland conversion and providing recommendations regarding thresholds of significance and impact magnitude evaluation); Section V.3 (providing recommendations regarding cumulative impact evaluation); Section V.7 (providing recommendations for restoration mitigation); and Section V.8 (providing recommendations for successful mitigation monitoring strategies) (LACDRP 2011).

### **5.7.3 ENVIRONMENTAL SETTING**

#### **Characteristics of the Site**

The Project site is located south of the Tehachapi Mountains and north of Liebre Mountain and the Angeles National Forest at the northwestern end of the Antelope Valley. Ranching, cattle grazing, and hunting are the current primary land uses in the Project area. Existing development is limited to a few paved access roads to the California Aqueduct and through the site to the National Cement Plant, which is located approximately one mile north of the Project site. There are also unpaved ranch roads, fencing, stock ponds, and a few electrical transmission lines. Vegetation on the site consists predominately of grasslands, with oak woodlands at higher elevations and scattered patches of riparian habitat along larger drainages, as further described below.

In the far eastern portion of the Project site, adjacent to 300<sup>th</sup> Street West, approximately 602 acres are actively farmed and irrigated. It is noted that the acreage provided for farmed acres is based on field mapping and, therefore, differs from the designated number of farming acres based on State mapping of agricultural lands used in the remainder of this Draft EIR. Also, while not a part of the actual Project site, the West Branch of the California Aqueduct runs in a narrow corridor through the Project site. The southern portion of the site is crossed by State Route (SR) 138 in an east-west alignment. The northern edge of the eastern portion of the site parallels the off-site East Branch of the California Aqueduct. Part of the northern boundary of the site follows the Los Angeles County/Kern County line.

#### ***Vegetation***

There are many different vegetation types (38 types were identified, see "Vegetation Types" section below for more information) in the Project's on-site and off-site study areas with the vast majority of the acreage consisting of grasslands. There is considerable variation in

species composition within the grasslands based on soil type, grazing pressure, slope and aspect, available groundwater, and disturbance history. As is typical in California, both native and non-native species occur within the mosaic of grassland types. Wildflower fields are a component within portions of the grasslands and occur throughout most of the Project's on-site and off-site study areas.

Riparian and wetland vegetation types occur in association with the drainages, springs, and seeps located on the Project site. Oak woodland vegetation types are dominant in the western portion of the Project site and in the southern portion of the Project site mainly in the areas south of SR-138. These consist of dense stands of both deciduous and evergreen oak species, such as blue oak (*Quercus douglasii*) and Tucker's oak (*Quercus john-tuckeri*). Scrub vegetation types (primarily chaparral) are generally found in the western portion of the Project site on somewhat eroded, steep slopes. Rabbitbrush scrub is present on the lower elevations of the Project site. Vegetation types are described further below, and a list of dominant species in each vegetation type is also included in Appendix 5.7-A.

### ***Geology and Topography***

The topography of the Project site ranges from steep to flat but, in general, the site is characterized by gently rolling hills. Steeper hillsides that gradually decrease to more moderate slopes occur to the west, while flat topography occurs on the easternmost portion of the site. Elevations range from approximately 3,635 feet above mean sea level (msl) along a ridge overlooking Quail Lake to approximately 2,975 feet above msl in the alluvial drainage area in the east portion of the site.

Erosion is a major element of many land features and is seen throughout the site, particularly on steeper slopes where vegetation is lacking and deep eroded gullies have formed. Meandering watercourses have also created numerous gullies ranging in depth from a few inches to over ten feet.

Several major topographic and other physical features are located on the Project site. Two primary drainages are located on site. Tentrock Creek is an east-west trending drainage that parallels SR-138. The other is Oso Creek, which enters the site from the northwest and meanders southeast and east in the northern portion of the site.

A series of high ridges in the Project site separate a number of intermittent or ephemeral streams that have high flows following winter storm events.

The California Aqueduct splits into the West and East Branches just north of the Project site. The Aqueduct's East Branch is located just north of and adjacent to the northeastern segment of the Centennial boundary. The West Branch bisects the Project site into an eastern portion and a western portion. The West Branch leads to Quail Lake, which is a former natural pond on the San Andreas Fault that has been reconfigured into a reservoir as part of the Aqueduct system. Quail Lake is situated adjacent to the southwest portion of the Project site. Although several streams cross under the Aqueduct via culverts, the Aqueduct itself does not connect to any on-site drainages.

Tentrock Canyon Creek, a nearly perennial stream that flows in a northerly direction, crosses SR-138 near the southeastern corner of the Project site and flows into the lower portion of



the drainage that is parallel to SR-138. In addition, eight ephemeral to intermittent creeks located on site west of Tentrock Canyon drain from Liebre Mountain (of the San Gabriel Mountain Range) northward, crossing under SR-138 via culverts.

The National Cement Plant Road provides access from SR-138 to the National Cement Plant, which is located just north of the Project site in Kern County. This paved road includes a bridge that crosses the West Branch of the California Aqueduct near the southern end of the site, and the road parallels the Aqueduct's West Branch across the remainder of the site.

Numerous unpaved ranch roads and fence lines cross the Project site. One single-family residence is located adjacent to the West Branch's eastern side along the northern boundary of the Project site.

### **Soil Series and Characteristics**

Soils in the Project site, as mapped by the U.S. Department of Agriculture, Natural Resource Conservation Service (2008 data available in Geographic Information System [GIS] format), are primarily sand or sandy loam. These soils are relatively deep and generally do not retain water in the upper layers. Table 5.7-1, Soil Types and their Hydrological Characteristics, describes the major on-site soil types in more detail.

**TABLE 5.7-1  
SOIL TYPES AND THEIR HYDROLOGICAL CHARACTERISTICS**

<b>Soil Type (soil classification)</b>	<b>Soil Characteristics<sup>a</sup></b>	<b>Hydric (NRCS)<sup>b</sup></b>	<b>Inclusions of Soils Possible</b>	<b>Associated Vegetation On The Site</b>
Chino loam (Co)	<ul style="list-style-type: none"> <li>• Somewhat poorly drained soils formed in mixed alluvium that is dominantly granitic.</li> <li>• Runoff is very slow and likely to pond in places.</li> <li>• Erosion potential is from none to slight.</li> <li>• Moderately slow permeability.</li> </ul>	Non-hydric (but the matrix color meets the USACE hydric soil criteria)	Hanford loam, Mocho loam, and Sorrento loam	Rushes ( <i>Juncus</i> spp.), giant wild-rye ( <i>Elymus condensatus</i> ), and other hydrophytic herbaceous species
Gaviota rocky sandy loam (GaE2)	<ul style="list-style-type: none"> <li>• Well-drained soils to somewhat excessively well-drained soils formed in weathered hard sandstone.</li> <li>• Runoff is medium.</li> <li>• Erosion potential is moderate.</li> <li>• Moderately rapid permeability.</li> </ul>	Non-hydric	Millsholm rocky loam	Oak woodlands and grasslands
Millsholm rocky loam (MhE2, MhF2)	<ul style="list-style-type: none"> <li>• Well-drained soils formed from weathered hard shale and fine sandstone. Ranges from a heavy sandy loam to a heavy coarse sandy loam and light loam.</li> <li>• Runoff is rapid, depending on topography.</li> <li>• Erosion potential is high.</li> <li>• Moderate permeability.</li> </ul>	Non-hydric	Gaviota rocky sandy loam	Oak woodland

**TABLE 5.7-1  
SOIL TYPES AND THEIR HYDROLOGICAL CHARACTERISTICS**

<b>Soil Type (soil classification)</b>	<b>Soil Characteristics<sup>a</sup></b>	<b>Hydric (NRCS)<sup>b</sup></b>	<b>Inclusions of Soils Possible</b>	<b>Associated Vegetation On The Site</b>
Oakdale sandy loam (OaC)	<ul style="list-style-type: none"> <li>Well-drained soils formed in granitic alluvium.</li> <li>Runoff is slow to medium, depending on topography.</li> <li>Erosion potential is from slight to moderate.</li> <li>Moderate permeability.</li> </ul>	Non-hydric	Greenfield sandy loam and Ramona coarse sandy loam	Grasslands
Oak Glen loam (OdA, OdC)	<ul style="list-style-type: none"> <li>Well-drained soils formed in granitic alluvial fans. Ranges from a heavy sandy loam to a heavy coarse sandy loam and light loam.</li> <li>Runoff is slow to moderate, depending on topography.</li> <li>Erosion potential is from none to moderate.</li> <li>Moderately rapid permeability.</li> </ul>	Non-hydric	Oak Glen (sandy loam) and Hanford	Riparian and grasslands
Ramona coarse sandy loam and gravelly sandy loam (RdE2, ReC)	<ul style="list-style-type: none"> <li>Well-drained soils formed in granitic alluvial fans. Ranges from a heavy sandy loam to a heavy coarse sandy loam and light loam.</li> <li>Runoff is medium to rapid.</li> <li>Erosion potential is from moderate to high.</li> <li>Moderately slow permeability.</li> </ul>	Non-hydric	Greenfield sandy loam, Hanford coarse sandy loam, and Terrace escarpments	Grasslands
Soboba cobbly loamy sand (SoB)	<ul style="list-style-type: none"> <li>Excessively drained soils in granitic alluvium.</li> <li>Runoff is very slow.</li> <li>Erosion potential is slight.</li> <li>Permeability is very rapid.</li> </ul>	Non-hydric	Riverwash	Grasslands
Terrace Escarpment (TsF)	<ul style="list-style-type: none"> <li>Runoff is medium to rapid.</li> <li>Erosion potential is moderate to high.</li> <li>Moderately slow permeability.</li> </ul>	Non-hydric	No Inclusions	Grasslands
Vernalis loam (VbA)	<ul style="list-style-type: none"> <li>Well-drained soils formed in granitic alluvial fans.</li> <li>Runoff is very slow.</li> <li>Erosion potential is none to slight.</li> <li>Permeability is moderate.</li> </ul>	Non-hydric	Oak Glen (sandy loam) and Rosamond	Grasslands

USACE: U.S. Army Corps of Engineers

<sup>a</sup> Descriptive terms are defined as standard terms in Soil Conservation Service soil surveys.

<sup>b</sup> Natural Resources Conservation Service (NRCS).

Source: U.S. Department of Agriculture, Natural Resource Conservation Service (2008 data available in Geographic Information System [GIS] format).

### ***Drainage Patterns***

Most of the watersheds in the Project vicinity generally begin in the western portion of the site, flow east toward Antelope Valley, and historically dissipated into the ground. However, with the construction of the California Aqueduct and its connection to Quail Lake, five short streams in the northwest of the Project site are now tributaries to Quail Lake. East of the Aqueduct, these old drainages dissipate into the ground near 300<sup>th</sup> Street West or continue off site to the northeast. The drainages on the Project site are discussed in more detail in Jurisdictional Resources section below.

### ***Fire***

Evidence of historical fire events is found throughout the Project site. The most obvious and common sign of past fire damage is the presence of charred tree trunk cavities at the point where the trunk meets the ground. When fires pass under and around an established oak tree, the bark and living tissue beneath the canopy are burned. This wound becomes an opening for primary and secondary wood decay organisms, thus creating a cavity at the base of the trunk. These wounds were only found on larger, older trees (typically 24 inches diameter at breast height [dbh] or larger). There is little evidence of fire damage to lower scaffold branch structures due to the general absence of understory shrubs that could carry fire into the canopies (Tree Life Concern 2003).

### **Characteristics of Surrounding Areas**

The Project site is located in a region that is at the confluence of several major geographic features and associated biomes, including the Tehachapi Mountains, Coast Ranges, Transverse Ranges (San Gabriel Mountains and Liebre Mountain), Antelope Valley of the Mojave Desert, Central Valley, and the San Andreas Fault Zone. Lands immediately surrounding the Project site are used primarily for cattle grazing, agriculture and ranching, with scattered rural residences. Quail Lake is located just outside the southern edge of the Project site, and an off-site electrical substation is located near the southwestern corner of the Project site. The California Department of Water Resources (DWR) operates an approximate 70-acre afterbay (a short stretch of stream, conduit, pond, or reservoir) just north of the Project site, and the National Cement Plant, an aggregate mining and processing facility, is also located approximately one mile north of the Project site. The Project site is approximately five miles east of the communities of Gorman and Frazier Park and three miles west of the community of Neenach.

### ***Regional Land Uses***

Lands immediately to the north and west of the Project site are privately owned and are part of the Tejon Ranch, which is largely open space and includes some grazing at lower elevations. The National Cement Plant is located approximately one mile north of the site's northern boundary in Kern County and is leased as a gravel and lime quarry. Irrigated agricultural fields owned by Tejon Ranch and other, arid, lands exist east of the site in the Antelope Valley. To the south of the site are a hunting club (leased from Tejon Ranch) and privately held lands that contain a variety of rural residential development, orchards, cattle

and sheep grazing areas, and open spaces. Forested lands in the Angeles National Forest are located further to the south, and the Los Padres National Forest is located to the west.

Interstate (I) 5 is located approximately one mile to the west of the Project site's westernmost boundary; SR-138 runs in an east-west direction and passes through the southern portion of the site. The West Branch of the California Aqueduct traverses the site from north to south near its center. The Aqueduct also widens toward the southwestern portion of the Project site and fills Quail Lake, which is located just off site to the south. The East Branch of the Aqueduct passes just north of the site and continues eastward.

### ***Regional Vegetation***

Vegetation types found in the Project's on- and off-site study areas occur to varying degrees within the Project region. The bordering region has oak woodlands to the west, north, and south; sagebrush and rubber rabbitbrush scrub to the southwest; and annual and perennial grasslands, along with a few irrigated agricultural lands, to the east. All these vegetation types are represented within the Project site.

### ***Regional Open Space Areas***

Large areas of open space occur adjacent to the Project site. Several of these areas are dedicated as permanent open space, including the Los Padres National Forest to the west and the Angeles National Forest to the south and southeast.

The Hungry Valley State Vehicular Recreation Area is located just to the southwest of the Project site; this open space area is highly disturbed by off-road vehicles. Extensive open spaces are also located north of the site in the Tehachapi Mountains, with a large portion of them occurring on the Tejon Ranch property.

The Tehachapi Mountains to the north of the site are characterized by mosaics of oak woodlands, savannas, scrub/shrub lands, perennial/annual grasslands, and some developed areas. On the south are privately owned lands, which consist of forest and grassland open spaces as well as some rural residential development. The Angeles National Forest encompasses much of the land further to the south.

Approximately 10 miles northwest of the site, portions of the Tehachapi area and the San Joaquin Valley floor are in the Wind Wolves Preserve, which conserves more than 97,000 acres of open space.

As previously stated, a portion of the California Aqueduct's West Branch bisects the Project site and continues off the site and downstream to the southwest. The Aqueduct's East Branch splits from a channel just north of the Project site and flows east into Antelope Valley. Where the Aqueduct bisects the Project site, the State maintains a wide easement that is fenced with no public access. As previously mentioned, the DWR operates an afterbay on approximately 70 acres just north of the Project site.

Quail Lake (adjacent to and just south of the Project site) is part of the Aqueduct system and is available for public uses, including shore fishing and hiking. A public rest area and parking lot are located adjacent to the southwestern side of Quail Lake, and a private airstrip is

located southeast of the lake (known as Quail Lake Sky Park). The entire perimeter of Quail Lake is fenced. Although this area is off site, an assessment of the resources associated with Quail Lake is included as part of this analysis due to its immediate proximity.

### ***Regional Conservation Plans***

#### **Tejon Ranch Conservation and Land Use Agreement (TRCRWA)**

As discussed in greater detail in the Project Description (Section 4.5.7), on June 17, 2008, the Tejon Ranch Company (TRC) entered into a Conservation and Land Use Agreement (Conservation Agreement) with Audubon California, the Endangered Habitats League, the Natural Resources Defense Council, the Planning and Conservation League, the Sierra Club (Resource Groups), and the then newly formed, independent non-profit Tejon Ranch Conservancy (Conservancy). The Conservation Agreement covers the Centennial Project site and the remainder of Tejon Ranch. The Conservation Agreement allows TRC and its development partners to pursue approvals from permitting agencies to develop portions of the Tejon Ranch (Ranch), including the Project site, while providing for the designation and permanent protection of approximately 145,000 acres of contiguous open space areas immediately north of the Project site to protect the biological resources and wildlife connectivity of the 270,000-acre Tejon Ranch. The Conservation Agreement also established options for the dedication or sale of approximately 62,000 acres in 5 additional areas of the Ranch for further open space preservation. In addition, 33,000 acres of designated open space within the development areas have been preserved. Collectively, these open space dedication and acquisition areas comprise approximately 240,000 acres, or approximately 90 percent, of the 270,000-acre Ranch. The open space preservation and development constraints in the Conservation Agreement have been recorded on title, and comprise the reasonable foreseeable land uses on Tejon Ranch. No public agency is a party to the Conservation Agreement, although the federal and State agencies responsible for administering biological protection laws and regulations confirmed that lands under the Conservation Agreement continue to be eligible mitigation lands. Agency review and approval of mitigation lands as compensatory mitigation for project impacts is part of the responsible agency permit process. The Centennial Project site is not within a dedication or acquisition area; all proposed mitigation areas for the project are within acquisition areas. The Conservancy will oversee managed public access to conserved lands and will provide interpretive and environmental education programs for local communities, focusing in particular on underserved populations. Conservancy activities are subject to all applicable federal, State and local laws and regulations.

#### **Tehachapi Upland Multiple Species Habitat Conservation Plan**

The Tehachapi Upland Multiple Species Habitat Conservation Plan (TU MSHCP or MSHCP), developed by TRC (the legal entity that owns Tejon Ranch), was finalized in April 2013. The TU MSHCP meets the requirements for a U.S. Fish and Wildlife Service (USFWS) permit pursuant to Section 10(a)(1)(B) of the FESA, as amended (16 *United States Code* [USC] Sections 1531–1544), for incidental take of the 25 Covered Species. The requested term of the Incidental Take Permit (ITP) is 50 years. The MSHCP's Covered Lands encompass 141,886 acres (222 square miles) of the 270,365-acre (422 square miles) Ranch. Los Angeles County lands, including the Centennial Project site, are located adjacent to and immediately

south of the Covered Lands. The MSHCP requires the permanent dedication of conservation easements over 91 percent of the Covered Lands to protect biological resources including wildlife connectivity.

Covered species for the MSHCP include the following:

1. round-leaved filaree (*California macrophyllum*)
2. Kusche's sandwort (*Eremogone macradenia* var. *arcuifolia*)
3. Tehachapi buckwheat (*Eriogonum callistum*)
4. Fort Tejon woolly sunflower (*Eriophyllum lanatum* var. *hallii*)
5. striped adobe lily (*Fritillaria striata*)
6. Tejon poppy (*Eschscholzia lemmonii* ssp. *kernensis*)
7. Tehachapi slender salamander (*Batrachoseps stebbinsi*)
8. Yellow-blotched ensatina (*Ensatina eschscholtzii croceator*)
9. western spadefoot (*Spea hammondi*)
10. coast horned lizard (*Phrynosoma blainvillii*)
11. two-striped garter snake (*Thamnophis hammondi*)
12. tricolored blackbird (*Agelaius tricolor*)
13. burrowing owl (*Athene cunicularia*)
14. golden eagle (*Aquila chrysaetos*)
15. western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)
16. white-tailed kite (*Elanus leucurus*)
17. little willow flycatcher (*Empidonax traillii brewsteri*)
18. southwestern willow flycatcher (*Empidonax traillii extimus*)
19. American peregrine falcon (*Falco peregrinus anatum*)
20. California condor (*Gymnogyps californianus*)
21. bald eagle (*Haliaeetus leucocephalus*)
22. purple martin (*Progne subis*)
23. yellow warbler (*Setophaga petechia*)
24. least Bell's vireo (*Vireo bellii pusillus*)
25. Tehachapi pocket mouse (*Perognathus alticolus inexpectatus*)

Activities covered by the MSHCP generally include ongoing Ranch operations (but exclude hunting) and potential future development of designated areas on and adjacent to I-5, including Tejon Mountain Village. Tejon Ranch and the Covered Lands are situated between existing public lands (both west and east). Addressing the needs of Covered Species in the Tehachapi Mountains uplands through the MSHCP benefits biological resources both within the Covered Lands and also nearby and adjacent public lands. The MSHCP includes measures to minimize and mitigate remaining impacts on Covered Species and measures that contribute to conservation and recovery.

The MSHCP protects current opportunities for wildlife movement beyond the Ranch by preserving existing landscape linkages as a federal permit condition that is independent of the Conservation Agreement described above.

## **Methodology to Document Biological Resources**

### ***Literature Review***

In order to evaluate the natural resources potentially found in the Project's on-site and off-site study area and to inform the scope of site-specific field studies, literature searches and database reviews were conducted. Available literature describing the biology, geology, soils, and hydrological resources in the region was examined prior to field surveys. The literature examined included the following:

1. *National List of Plant Species that Occur in Wetlands: California, Region 0* (USFWS 1988).
2. The CDFW's California Natural Diversity Database (CNDDDB) Rarefind report (CDFW 2015a) for the following U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles: Grapevine, Pastoria Creek, Winters Ridge, Liebre Twins, Frazier Mountain, Lebec, La Liebre Ranch, Neenach School, Alamo Mountain, Black Mountain, Liebre Mountain, and Burnt Peak.
3. The California Native Plant Society's (CNPS') Locational Inventory of Rare and Endangered Vascular Plants of California (2015) for the following USGS 7.5-minute topographic quadrangles: Grapevine, Pastoria Creek, Winters Ridge, Liebre Twins, Frazier Mountain, Lebec, La Liebre Ranch, Neenach School, Alamo Mountain, Black Mountain, Liebre Mountain, and Burnt Peak.
4. The CDFW's list of special status plants (CDFW 2017).
5. U.S. Department of Agriculture, Natural Resources Conservation Service (2008) Antelope Valley Area, California soil surveys.
6. County of Los Angeles Significant Ecological Area Study, prepared for the County of Los Angeles, Department of Regional Planning and Environmental Systems Research Institute (England and Nelson Environmental Consultants 1976).
7. Los Angeles County General Plan and Antelope Valley Area Plan (LACDRP 2015a, 2015b).
8. Various literature specific to descriptions of the habitat, vegetation types, and special status species occurring in the County of Los Angeles (see Section 5.7.9, References).
9. Aerial photographs from 1999, 2001, 2004, 2005, and 2006 (Aerials Express).
10. The USGS 7.5-minute topographic quadrangle maps: La Liebre Ranch and Lebec.

### ***Field Surveys***

Biological field surveys of the Project's on-site and off-site components or portions of them have been conducted by biological resource experts including BonTerra Consulting (doing

business as BonTerra Psomas),<sup>2</sup> Bruyeya Biological Consulting, Dave Crawford, Ecological Sciences, Glenn Lukos Associates, Impact Sciences, Natural Resource Consultants, Vollmar Consulting, Paul Beier, Paul Pruett & Associates, and Tree Life Concern. As recently as 2015, BonTerra Psomas Biologists conducted vegetation mapping surveys and focused surveys for the Swainson's hawk (*Buteo swainsoni*), tricolored blackbird, and special status plants on the Project Site. Additionally, an update to the 2009 California Condor Assessment was conducted by BonTerra Psomas in 2015. Summaries of survey dates, surveyors, and methods are provided in Table 5.7-2, Biological Surveys Conducted on the Project Site (1999–2015). Field survey data were collected by qualified biologists, typically working in teams. Habitat and species observations were noted on data sheets, aerial photographs, and maps. Specific information concerning special status species observations was recorded on maps and appropriate data sheets. Reports resulting from the site-specific studies listed in Table 5.7-2 are provided as Appendix 5.7-B.

**TABLE 5.7-2  
BIOLOGICAL SURVEYS CONDUCTED  
ON THE PROJECT SITE (1999–2015)**

<b>Taxonomic Group</b>	<b>Surveyor</b>	<b>Survey Dates/ Season</b>	<b>Methods</b>
<b>Plants</b>	BonTerra Psomas	March 23–April 5; May 25–June 5, 2015	Focused special status plant surveys throughout the impact area during the spring and summer (BonTerra Psomas 2015b).
		August 4, 2015	Vegetation mapping of the newly incorporated portion of the Project site (east of 300 <sup>th</sup> St W).
	BonTerra Consulting	January–March 2009	Supplemental oak tree surveys south of SR-138 (BonTerra Consulting 2009a).
		March 2007	Vegetation mapping of the off-site impact areas (results provided in this document).
		August–September 2005	Vegetation mapping of areas west of the Aqueduct and the 262-acre portion south of SR-138 (results provided in this document).
	Natural Resource Consultants	April–August 2008	Special status plant surveys in the Project site and off-site mitigation areas (NRC 2008a).
		spring 2008	Grassland composition studies on the Project site and in off-site mitigation areas (NRC 2008b).
		spring 2007	Second year of grassland sampling of Project site (NRC 2007c).
		spring 2007	Regional grassland distribution assessment (NRC 2007a).
		April–June 2006	Grassland sampling study on the Project site (NRC 2006a, 2007b).
		April–June 2006	Special status plant survey of previously mapped populations (NRC 2006b).

<sup>2</sup> Surveys conducted prior to January 1, 2014 were performed as BonTerra Consulting; all activities after this date performed as BonTerra Psomas.



**TABLE 5.7-2  
BIOLOGICAL SURVEYS CONDUCTED  
ON THE PROJECT SITE (1999-2015)**

<b>Taxonomic Group</b>	<b>Surveyor</b>	<b>Survey Dates/ Season</b>	<b>Methods</b>
	Tree Life Concern	June 2006–February 2007	Oak tree survey updated based on new impact area (Tree Life Concern 2008).
		July 2001–November 2001	Survey of all oak trees measuring 8 inches or greater in dbh, inside of or within 200 feet of identified Project grading boundary (Tree Life Concern 2003).
	Vollmar Consulting	April 1–11, June 23–27, 2003; April 15–24, June 10–13, 2004	Focused plant surveys throughout the site for special status species during the spring and summer (Vollmar Consulting 2004, revised 2006).
	Impact Sciences	March 2001–September 2001	Surveys for common and special status plant species concurrently with wildlife surveys and during the wetland and streambed delineation throughout many portions of the site (Impact Sciences 2002a, 2003).
	Paul Pruett & Associates	March 23, 27, April 3, June 15, 1999; April 25, 29, May 18, 2000	Focused plant surveys for special status species throughout the site (Impact Sciences 2003).
<b>Jurisdictional Waters and Wetlands</b>	BonTerra Psomas	June 2015	Updated jurisdictional delineation and functional assessment/CRAM including new areas (BonTerra Psomas 2015a)
	Glenn Lukos Associates	2008	Updated functional assessment of jurisdictional features (GLA 2009a).
		2008	Updated jurisdictional delineation assessment and report (GLA 2009b).
		May 2006–July 2006	Jurisdictional delineation of Phase One unimpacted areas and Future Phase areas; functional assessment of jurisdictional features (GLA 2006c).
		October 2005–November 2005	Jurisdictional delineation of Phase One areas (GLA 2005c).
	Impact Sciences	April 2001–August 2001	Preliminary jurisdictional delineation of Project site using USACE/CDFG delineation protocols (Impact Sciences 2002b).
<b>Invertebrates</b>	Glenn Lukos Associates	September 2006–January 2007	Dry-season protocol surveys for listed fairy shrimp species in 8 seasonal depressions (GLA 2007).
		October 2005–April 2006	Wet- and dry-season protocol surveys for listed fairy shrimp species in potentially suitable locations in the impact area west of the Aqueduct and the 262-acre portion south of SR-138 (GLA 2006a, 2006d).

**TABLE 5.7-2  
BIOLOGICAL SURVEYS CONDUCTED  
ON THE PROJECT SITE (1999–2015)**

<b>Taxonomic Group</b>	<b>Surveyor</b>	<b>Survey Dates/ Season</b>	<b>Methods</b>
		October 2005	Habitat assessment surveys for listed fairy shrimp species throughout the proposed impact area west of the Aqueduct and the 262-acre portion south of SR-138 (GLA 2005b).
		2004/2005 Wet Season	Wet-season protocol surveys for listed fairy shrimp species at 2 locations (GLA 2005a).
	Guy Bruyea	May 2004– September 2004	Same goals and emphasis as the 2001 surveys (see below), but a larger geographic area was surveyed (Bruyea Biological Consulting 2004).
		May 2003–August 2003 (5 days)	Same goals and emphasis as the 2001 surveys (see below), but a larger geographic area was surveyed (Bruyea Biological Consulting 2003).
		May 2001–August 2001 (5 days)	Surveys within potentially suitable areas of the site for special status butterfly species and adult and larval host plants potentially occurring on or near the site (Bruyea Biological Consulting 2001).
	Impact Sciences	March 2001	Non-protocol surveys for fairy shrimp at select locations. Under a USFWS permit, sampled several areas of potentially suitable habitat (i.e., vernal or seasonal pools and cattle ponds). Collected specimens with hand nets and identified them using a hand lens. Specimens were sent to Mr. Brent Helm, a fairy shrimp expert, for species confirmation (Impact Sciences 2001c).
<b><i>Herpetofauna</i></b>	BonTerra Consulting	February 2006 – June 2006	Focused protocol surveys for arroyo toad, red-legged frog, and Tehachapi slender salamander in areas west of the Aqueduct and the 262-acre portion south of SR-138 (results provided in this document).
		Spring and Summer 2005	Focused surveys for western spadefoot in potentially suitable areas west of the Aqueduct and the 262-acre portion south of SR-138 (BonTerra Consulting 2005).
	Impact Sciences	June 2004	Surveys for western spadefoot in potentially suitable areas of the site (Impact Sciences 2004b).
		June 2–6, June 30– July 3, July 7–12, 2003	Surveys and specific searches for special status amphibian and reptile species in potentially suitable areas of the site (Impact Sciences 2003).
		March 23, April 12, 23, 30, May 12, August 2001	Surveys and specific searches for special status amphibian and reptile species. USFWS protocol-level surveys for California red-legged frog.

**TABLE 5.7-2  
BIOLOGICAL SURVEYS CONDUCTED  
ON THE PROJECT SITE (1999-2015)**

<b>Taxonomic Group</b>	<b>Surveyor</b>	<b>Survey Dates/ Season</b>	<b>Methods</b>
			Surveys for two-striped garter snake and western pond turtle were conducted concurrent with frog surveys in potentially suitable areas of the site (Impact Sciences 2001a).
		May 27, 2000	General biological surveys for amphibians and reptiles conducted simultaneously with more focused survey efforts in potentially suitable areas of the site (Impact Sciences 2003).
	Paul Pruett & Associates	March 23, 27, April 3, 15, 20, 1999; April 21-29, May 1, 3, 13 2000	General biological surveys that included amphibian and reptile surveys in potentially suitable areas of the site (Impact Sciences 2003).
<b>Birds and Mammals</b>	BonTerra Psomas	July 2015	Update to the 2009 California condor assessment (BonTerra Psomas 2015d)
		March-July 2015	Focused surveys for tricolored blackbird (BonTerra Psomas 2015c)
		March - July 2013	Focused surveys for Swainson's hawk (BonTerra Psomas 2013)
	BonTerra Consulting	February-April 2010	Focused surveys for mountain plover (BonTerra Consulting 2010).
		April 2008-July 2008	Focused protocol surveys for least Bell's vireo and southwestern willow flycatcher (BonTerra Consulting 2008).
		April 2006-July 2006	Focused protocol surveys for least Bell's vireo and southwestern willow flycatcher (BonTerra Consulting 2006b).
		March 2006-July 2006	Focused protocol surveys for California spotted owl (BonTerra Consulting 2006a).
	Peter Bloom	spring-summer 2007	California condor records review, habitat assessment, and impact assessment (Peter Bloom 2009).
	Natural Resource Consultants	April 2006	Burrowing owl surveys in select areas of the Project site and mitigation lands (NRC 2006c).
	Ecological Sciences	May 2006-July 2006	Focused surveys for Tehachapi pocket mouse in the Phase One areas (Ecological Sciences 2006).
		2005	Small mammal trapping survey conducted at the Centennial site (Ecological Sciences 2005).
	Impact Sciences	June 2-6, June 30-July 3, July 7-12, 2003	Surveys for special status bird species; focused burrowing owl surveys conducted in potentially suitable areas of the site (Impact Sciences 2003).
		October 2-5 and 9-12, 2001	Small mammal species were trapped with Sherman live traps in potentially suitable

**TABLE 5.7-2  
BIOLOGICAL SURVEYS CONDUCTED  
ON THE PROJECT SITE (1999-2015)**

<b>Taxonomic Group</b>	<b>Surveyor</b>	<b>Survey Dates/ Season</b>	<b>Methods</b>
			sample areas representative of all habitat types on the site (Impact Sciences 2003).
		March 2001– October 2001	Special status bird and mammal species were noted during general reconnaissance and focused surveys for plants, amphibians, and reptiles (Impact Sciences 2003).
	Dave Crawford	June 3–7, 2003	Small mammal species were trapped with Sherman live traps in sample habitat areas primarily located east of the Aqueduct (Crawford 2003).
	Paul Pruett & Associates	March 23, 27, April 3, June 15, 1999; April 25, 29, May 18, 2000	Wildlife surveys conducted concurrent with plant surveys in potentially suitable areas of the site (Impact Sciences 2003).
<b>Wildlife Movement</b>	BonTerra Consulting	Spring 2007	Wildlife movement assessment of on-site areas to update baseline data and expected movement areas (results provided in this document).
		2005	Review of previous studies and analysis of topographic maps and aerial photographs of the vicinity (results provided in this document).
	Trust for Public Lands	2004–2005	Review of Tejon Ranch lands to develop a proposed 100,000 acre preserve (TPL 2004).
	Pioneer Environmental Services	2004	Wildlife movement study of Tejon Ranch lands including the Project site (Pioneer Environmental Services 2004).
	Dr. Paul Beier	2002	Tejon Ranch landscape connectivity study, including the Project site (Beier 2003).
	Impact Sciences	September and October 2001	Regional habitat connectivity assessment conducted with use of aerial photographs, topographic maps, and field reconnaissance. Track surveys in riparian zones (Impact Sciences 2001b).
SR: State Route; dbh: diameter at breast height; CRAM: California Rapid Assessment Method; USACE: U.S. Army Corps of Engineers; USFWS: U.S. Fish and Wildlife Service			
Sources: The survey reports listed in this table are included in Appendix 5.7-B.			

As identified in the table above, several biological surveys/assessments were updated in 2015, including California condor assessment, special status plant survey, jurisdictional delineation with functional assessment/California Rapid Assessment Method (CRAM) analysis, and tricolored blackbird surveys and analysis. Resources surveys were not updated where previous data remains accurate due to one or more of the following reasons: new Project areas are not expected to contain the resource; lack of measurable change in site conditions; past surveys were conducted within acceptable timeframe typical for that

resource; surveys have been repeated in the past with identical results; regulatory status/survey requirements have not changed in a manner that would require a survey update; and/or drought conditions have contributed to general consistency of site conditions over the past 5 to 6 years.

### ***Vegetation Mapping***

With the exception of an agricultural area, paved roads, mixed oak woodland polygons, and the 262-acre area (in a 0.5 x 1.0 mile configuration) (see Exhibit 5.7-1) in the southwestern corner of the Project site, vegetation mapping for areas east of the West Branch of the Aqueduct and south of SR-138 is mainly based on general field surveys conducted in 2001 by Impact Sciences (Impact Sciences 2003). BonTerra mapped the circular agricultural field (located west of 300<sup>th</sup> Street West) as an agricultural area and paved roads as developed based on aerial photographs taken in April 2005, and also reclassified some areas located south of SR-138 (mapped originally by Impact Sciences as scrub oak chaparral) as mixed oak woodland during an October 2008 field survey. Descriptions for vegetation types mapped in these areas are taken from Impact Sciences (2003) and Vollmar Consulting (2004). Although areas of wildflower fields have been observed and are known to occur, this component of the grassland vegetation type was not mapped due to its ephemeral nature and high variability between years depending on weather patterns. Based on field observations and data collected during grassland studies, in general, varying densities of wildflower fields occur amidst the grassland vegetation throughout the site.

The portion of the Project site located east of 300<sup>th</sup> Street West was mapped on August 4, 2015, by BonTerra Psomas Biologist Sarah Thomas. This area consists of agriculture fields; dirt access roads; small disturbed/developed areas associated with agricultural operations; and grassland vegetation. Descriptions for these vegetation types are taken from Impact Sciences (2003) and Vollmar Consulting (2004).

BonTerra mapped vegetation types within areas west of the West Branch of the Aqueduct, including the 262 acres south of SR-138, by utilizing aerial photographs printed at a scale of 1 inch equals 200 feet with an overlay of topographic lines. All accessible dirt roads were driven, and biologists also hiked to inaccessible areas and vantage points located throughout the area. Vegetation mapping was directed by BonTerra Senior Botanist Pam De Vries, who was assisted by BonTerra Biologists Andrea Warniment, David Hughes, and Jeff Wheeler, and Consulting Biologists Scott White and Travis Cooper. Vegetation mapping of these areas was conducted in the field on August 25, 26, and 31 and September 1, 6, 7, 8, 9, 12, and 13, 2005.

Nomenclature for vegetation types in the areas described in the paragraph above generally follows that of The Vegetation Classification and Mapping Program: *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database* (CDFG 2010). The CNDDDB classification system is based on *A Manual of California Vegetation* (Sawyer and Keeler-Wolf 1995) and is structured to be compatible with *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland 1986). The CNDDDB numeric code most closely associated with each vegetation type is also provided; where a specific numeric code for a described vegetation type is not designated in the CNDDDB classification system, the most appropriate general code is shown. Because of the Project

site's proximity to Kern County, references to the most similar vegetation types described in *A Flora of Kern County, California* (Twisselman and Moe 1995) are also provided.

Prior to field mapping, rules for defining vegetation types based on structure were established. The minimum mapping unit was set at approximately one acre, and patches of vegetation smaller than this were generally not mapped except for observed seeps and ephemeral ponds.

#### Delineation of Grasslands

Grasslands were delineated using a standard practice mapping protocol (consistent with the needs of a CEQA-level analyses) during the vegetation mapping field surveys. These grassland areas range widely from areas nearly completely dominated by non-native annual grassland species to areas with relatively high concentrations of both native perennial bunchgrasses and native forbs. Preliminary work was conducted in 2003 to identify the types of grasslands present and their composition on the Project site (Vollmar Consulting 2004). This work suggests that native perennial grass species do occur in various portions of the site, especially on ridge tops with well-drained soils; however, in most areas where they occur, native perennial grass species exist in a mosaic with annual grassland species and native and non-native forbs.

There is no official operational definition of "native perennial grassland" that has been published by the CDFW, CNPS, or California Native Grass Association (CNGA). Since all California's native grasslands were invaded by non-native plants prior to any full botanical description, it is difficult to define "native grassland". In fact, native grassland composed of 100 percent native species no longer applies to grasslands in California. Some definitions of native grasslands often rely on the presence or dominance of one of the species of needlegrass (*Stipa* spp.) or other native bunchgrasses typical for a region. A commonly accepted standard is to identify native grasslands as those where native grasses comprise between 10 to 20 percent of the cover in areas of very few shrubs or trees. However, because of the scientific uncertainty regarding the historical composition and distribution of native grasslands, especially in Southern California (Hamilton 1997), and because of the varying range of definitions of "native grassland" in use in California today, a definition that incorporates regional and site-specific information for the Project site has been used in this analysis.

The initial 2003 study conducted by Vollmar Consulting (2004) focused on presumed locations of native grasslands and found that the "threshold for determining dominance of combined perennial bunchgrasses versus annual grass was 20 percent relative cover" with the latter dominated by non-native species. Relative cover is the measure of the contribution of plant species (often expressed for each species) to the total cover of vegetation in a standardized area, excluding bare ground. The initial study was limited to 55 sampling plots over the entire Centennial study area. A subsequent field effort in 2004 expanded the observations to 278 plots, but only focused on sampling the highest quality grasslands. This latter study found that areas with the highest density of bunchgrasses were concentrated in areas with thinner, eroded soils including ridge tops, terrace tops, upper slopes, and lower convex slopes. Other landscape positions with deeper, accumulated soils, including floodplains, lower slopes, and upper concave slopes tend to be dominated by non-native

annual grasses and have a low to very low bunchgrass cover. Other considerations, including soil types, slope, aspect, and presence of native annual forbs can also be used to assist in characterizing and defining the native grassland vegetation type. The field study conducted in 2004 was based on a limited number of transects that were not placed randomly. Sampling points were chosen from a select portion of the site that was “restricted to the weathered ridge system in the central-eastern region of the study area”, and was identified as “supporting high-quality perennial bunchgrass community” (Vollmar Consulting 2004). The two-year study did not map the entire Centennial Project site, and it was not directed at characterizing the amounts or proportions of desirable native or undesirable non-native plant species for purposes of open space site selection or future grassland management planning.

More detailed grassland studies conducted by Natural Resource Consultants (NRC) in the spring of 2006 were designed to determine the distribution and composition of grasslands on the site using statistical methods to model the distribution and absolute cover of native perennial bunchgrasses (NPBG) in the Project site (NRC 2006a, 2007b). Absolute cover is the measure of the total plant cover (often expressed for each species) over a standardized area and includes an estimate of bare ground. Absolute cover is the primary means used to collect field data and is the most accurate way to express the field data and used for statistical analysis and scientific reporting. Additionally, because NPBG was found to be highly correlated with diversity and native species cover, this study provides information pertaining to the diversity and “nativeness”, defined as the cover of all native species relative to all cover, of these grasslands. A Scientific Review Committee monitored all aspects of this study including study design, data acquisition, and statistical analyses. The independent Scientific Review Committee consisted of three members:

1. Dennis Murphy, PhD, Director of the Graduate Program in Ecology, Evolution, and Conservation Biology at the University of Nevada, Reno, provided in depth review of the grassland studies and other aspects of the Project.
2. Bruce Pavlik, PhD, Professor of Biology at Mills College, provided botanical expertise on development of methods and analysis of results of all grassland and wildflower field studies.
3. Michael N. Josselyn, PhD provided assistance in study method design for grassland and wetland restoration and reviewed other aspects of the Project. Dr. Josselyn is a recognized expert in the field and has served on national advisory committees to the U.S. Army Corps of Engineers (USACE), the U.S. Environmental Protection Agency (USEPA), the U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA), and the National Wetlands Technical Council in the development of federal wetland policy and research.

The study involved detailed grassland sampling procedures and utilized site-specific geographic information system (GIS) modeling to complete a Project-wide mapping of grassland communities. Surveyors collected spatially explicit botanical data that described the species diversity and percent cover of all native and non-native plants at over 300 precise locations on the Project site. The locations sampled were distributed randomly over the entire Project site. The analysis produced a quantitative assessment of the grassland areas

and provided a detailed characterization of various non-native and native grassland vegetation, including native plant species richness and abundance (NRC 2007b, 2007c, 2006a).

The study was based on over 320 samples, each containing 100 data points, during approximately 150 man-hours of field work that was conducted during the height of plant cover in the spring of 2006. The study was conducted in conjunction with GIS analysis using a digital elevation model. Field data were related to various parameters and indices that affect the distribution of native grass species, as first noted in the Vollmar Consulting 2004 study. Statistical analyses were undertaken to develop a best fit multiple regression to predict NPBG distribution. The modeling uses the relationships between several topographic variables (i.e., slope, terrain curvature, terrain complexity, slope position) and NPBG absolute cover. This information provided the basis for a GIS model that predicts the distribution of native grasslands over the entire site. To examine variability of the grassland sampling, 96 plots from the 2006 study were resampled in April 2007. Using a simplified classification system of two categories (Category A: <10 percent, Category B: ≥10 percent), the overall prediction success was 69 percent, which is considered to be a high level of accuracy (NRC 2007c). NRC also used the data to investigate the distribution of other native and non-native plant species relative to native perennial bunchgrass cover. These studies provide the map predicting the distribution of native perennial grasslands. This map was used to assess impacts associated with the Project. The most recent grassland study report prepared by NRC summarizes 2006 to 2008 data collection and predictive model analysis, including analysis of variance (ANOVA) with repeated measures and Pearson's correlation coefficient ( $\rho$ ), and all statistical analyses performed for regression and general linear procedures using SAS/STAT® 2003 software (NRC 2008b). The model has also been applied to assess grasslands in the proposed mitigation sites described in Section 5.7.7 below.

#### Off-Site Areas

BonTerra Biologists Andrea Edwards and Rebecca Tyra performed a biological constraints survey and mapped the vegetation on a portion of the proposed off-site well locations in Kern County on April 21, 2011. As shown in Exhibit 4-25, Centennial Project – Off-Site Project Components, the off-site wells are located between just west of 300<sup>th</sup> Street West and just west of 290<sup>th</sup> Street West. On August 4, 2015, BonTerra Psomas Biologist Sarah Thomas mapped the previously unmapped portions of the off-site well locations and additional off-site features such as utilities; the water line and access road to the Water Treatment Facility; the alternative water line and access road to the Water Treatment Facility; the bridge locations; and the utilities and intersection improvements along SR-138. These additional off-site areas are shown on Exhibit 4-25 and are located along SR-138, the West Branch California Aqueduct, and along 300<sup>th</sup> Street West.

Vegetation was mapped by utilizing aerial photographs printed at a scale of 1 inch equals 200 feet. All accessible dirt roads were driven, and biologists also hiked to inaccessible areas and vantage points located throughout the area. Nomenclature generally follows that of List of Vegetation Alliances and Associations, Vegetation Classification and Mapping Program (CDFG 2010). The minimum mapping unit was set at approximately one acre, and patches of



vegetation smaller than this were generally not mapped except for observed seeps and ephemeral ponds.

### **Oak Tree Surveys**

An initial oak tree survey was completed in 2001 by Registered Consulting Arborist Robert W. Wallace of Tree Life Concern (Tree Life Concern 2003). Revisions to the Project footprint boundary required subsequent oak tree surveys by Tree Life Concern in 2007 (Tree Life Concern 2008) and BonTerra Consulting in 2009 (BonTerra Consulting 2009a). Each oak tree survey considered all oak trees that qualified under the County of Los Angeles Oak Tree Ordinance (CLAOTO) that are located within the identified Project grading boundary, as well as a 200-foot buffer area outside the grading boundary. The surveys included the identification, tagging, measurement of trunk diameter at breast height (dbh), and health characterization of each qualifying tree and followed all survey protocols described in CLAOTO.

### **Jurisdictional Delineations**

A preliminary planning-level jurisdictional delineation of waters and streambeds covering most of the Project site was conducted by Impact Sciences in 2001 (Impact Sciences 2002b). In 2005 and 2006, a detailed Project-level jurisdictional delineation of the entire Project site was conducted by Glenn Lukos Associates Biologists Ingrid Chlup and Dave Moskovitz (Glenn Lukos Associates 2006c). Surveys were conducted in 2005 on October 10, 13, 19–21, and 26–27 and in 2006 on January 11 and 20; February 3 and 16; March 2, 15, and 29; April 14 and 25; May 8, 10, 15, 22–23, and 30–31; June 5–7; and July 5. Suspected jurisdictional areas were field-checked for indicators of an ordinary high water mark (OHWM); presence of definable channels; potential wetland vegetation; soils and hydrology; and potential riparian vegetation. In some cases, the Impact Sciences mapped limits were refined and, where appropriate, field measurements were provided where previously not recorded. Suspected wetland areas on the site were evaluated using the method set forth in USACE's *1987 Wetland Delineation Manual* (Environmental Laboratory 1987). When the distinction between channel bank and non-jurisdictional uplands was clearly visible on an aerial photograph, the jurisdictional limits were digitized based on the aerial image. When they were not clearly visible on the photograph, field measurements were recorded on the photograph or on a Trimble GeoXT Global Positioning System (GPS) data logger and later used to digitize the limits (GLA 2006c). In addition, a preliminary jurisdictional delineation was also conducted in proposed off-site mitigation areas as discussed further in Section 5.7.7 below.

On January 18, February 1 and 14, and December 9, 2008, the site was re-evaluated by Glenn Lukos Associates in accordance with the 2006 *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Supplement* (Arid West Supplement) as well as the May 30, 2007 USACE jurisdictional guidance document entitled *U.S. Army Corps of Engineers Jurisdictional Determination Form Instruction Guidebook*.

BonTerra Psomas Senior Regulatory Specialist David Hughes, Biological Resources Manager Marc Blain, Biologist Nathan Moffett, and Biologist Sarah Thomas performed a survey of the Project site on July 9 and 10, 2015 to (1) identify and document jurisdictional waters in a

newly included parcel to the Project site and (2) determine if any changed conditions were evident since the previous delineation field surveys were conducted in 2006 and 2008. The results of the previous delineation surveys were taken into the field and various drainages were measured to determine if any significant changes in site conditions could be detected.

#### Wetland Functional Assessment

A wetland functional assessment of jurisdictional areas was conducted by Glenn Lukos Associates in order to characterize and evaluate the functions of the site's drainages and riparian habitats. Glenn Lukos Associates created a Hybrid Functional Assessment (HFA) method by combining components of three different functional assessment methods (the Hydrogeomorphic [HGM] approach, the Landscape Level Functional Assessment, and CRAM). These three methods were adapted for use to perform a functional assessment at the Project site (GLA 2006b).

At the time the combined functional assessment was developed, CRAM was a method still in the process of development. Since that time, CRAM has become a widely accepted functional assessment by all regulatory agencies. For this reason and because the combined functional assessment approach was never formally approved by the regulatory agencies, BonTerra Psomas utilized the observations and findings of the Glenn Lukos Associates survey and combined them the observations during the 2015 field surveys to perform a CRAM evaluation of the various jurisdictional features on the site.

#### ***Wildlife Surveys***

Methods used for the various wildlife surveys shown in Table 5.7-2 are described in focused survey reports included in Appendix 5.7-B. Additional surveys were general in nature, were conducted concurrently with other focused surveys, and consisted of recording observations of wildlife and potential wildlife habitat areas.

#### ***Special Status Species Surveys***

##### Special Status Plants

Focused surveys for special status plant species were conducted throughout the Project site during April 1–11 and June 23–27, 2003, by biologists John Vollmar, John Hale, Vir McCoy, Michele Disney, and Shannon Hickey (Vollmar Consulting 2004). Additional focused botanical surveys were conducted during April 14–24 and June 10–13, 2004, by Vollmar Consulting Biologists Mr. Vollmar, Jon Kelsey, Ms. Hickey, Gretchen Vos, and Mr. McCoy (Vollmar Consulting 2004). Reconnaissance-level surveys were conducted using all-terrain vehicles; areas identified as having the ability to potentially support special status species were surveyed on foot. Surveys were floristic in nature. Species that could not be identified in the field were collected and identified using field manuals. Occurrences of special status species were mapped using a GPS unit (GeoXT). The surveys were comprehensive, but did not represent complete presence/absence surveys of the entire Project site (Vollmar Consulting 2004).

In 2006, NRC conducted special status plant surveys across the site (NRC 2006b). The surveys occurred from April 10 to 28 and on June 1, 2006, by Biologists Andrew Sanders,

Kemp Anderson, Kelly Herbinson, Kip Kermoian, Mary Ann Hasskamp, Michael Honer, Patty Kermoian, Russell Kokx, Rachel Woodard, and Teresa Salvato. Survey areas included all suitable habitats for special status plant species with special emphasis on locations and habitats where they had been recorded in previous years, and areas that may experience seasonal ponding of water.

In 2008, NRC repeated special status plant surveys across the site and also in the North and South Mitigation Areas (NRC 2008a). The surveys occurred from April 3 to 29, 2008, by Biologists Mr. Sanders, Caroline Inwood, David Hadersbeck, Kathy Baumberger, Mitchell Provance, Renee Galeano-Popp, Stephen Reynolds, and Ms. Salvato. Survey areas again included all suitable habitats for special status plant species with special emphasis on locations and habitats where they had been recorded in previous years and areas that may experience seasonal ponding of water.

In 2009, BonTerra conducted special status plant surveys in the California Department of Transportation (Caltrans) right-of-way survey area for all special status plant species with potential to occur based on the presence of suitable habitat; in addition, on-site areas with chaparral were surveyed for Tehachapi buckwheat, a species that was described to science in 2006, and therefore not known to exist when previous on-site surveys were conducted (BonTerra Consulting 2009b). Special status plant surveys were conducted for the Caltrans right-of-way survey area on April 16 and June 11, 2009, by BonTerra Consulting Botanists Ms. Edwards and Jeff Crain. Surveys were conducted for the Tehachapi buckwheat survey area on June 10, 2009, by Mr. Crain and Ecologist David Hughes.

In 2015, BonTerra Psomas conducted focused special status plant surveys within the Project impact footprint (BonTerra Psomas 2015b). The surveys occurred from March 23–April 5 and from May 25–June 5, 2015; surveys were led by BonTerra Psomas Botanist Jordan Zylstra, with support from BonTerra Psomas and Consulting Biologists including Chez Brungraber, Griffin Brungraber, Ian Cain, Michelle Cloud-Hughes, Michael Couffer, Sandy Leatherman, Kier Morse, Jennifer Pareti, Allison Rudalevige, Cecile Shohet, Sarah Thomas, and Cedrick Villaseñor. The entire survey area provided potentially suitable habitat for one or more special status plant species, so a systematic survey using transects spaced 130 feet apart was conducted throughout the survey area. Based on input from Centennial Founders LLC, the round two (late spring/summer) survey was conducted using a larger disturbance area and a buffer of 100 feet was surveyed. Areas containing less than a five-percent slope and that were not associated with a drainage feature were not surveyed during the round two survey because of a lack of potential for special status plants to occur in those areas during that time of year. These areas were generally in the northeastern portion of the site. Transects spaced 130 feet apart were surveyed throughout the rest of the survey area. The only small portion of the round one (early spring) and round two survey areas where transects were not feasible due to topography was the chaparral habitat in the far southwestern corner, directly north of SR-138. Binoculars were used in these areas when necessary. All plant species observed were recorded in field notes. Plant species were identified in the field or collected for later identification. Plants were identified to the taxonomic level necessary to determine whether or not they were special status species. Plants were identified using taxonomic keys, descriptions, and illustrations in Baldwin et al.

(2012), Hickman (1993), and Munz (1974). Taxonomy and nomenclature follows the Jepson Herbarium (2015) and Baldwin et al. (2012) for scientific and common names.

### Special Status Wildlife

As previously mentioned, methods used for the various wildlife surveys listed in Table 5.7-2 are described in the focused survey reports included in Appendix 5.7-B. Some surveys were general in nature, conducted concurrently with other focused surveys, and consisted of recording observations of wildlife and potential wildlife habitat areas.

### **Experts Consulted**

Independent scientific reviews of many field survey methods and results were conducted by Dennis Murphy, PhD, Director of the Graduate Program in Ecology, Evolution, and Conservation Biology at the University of Nevada, Reno and Daniel Dawson, Director of the Sierra Nevada Aquatic Research Laboratory–Valentine Camp at the University of California, Santa Barbara. The reviews consisted of an evaluation of the various available reports along with site tours and review of documents describing regional resources. Additional assistance with grassland studies was provided by Bruce Pavlik, PhD of Mills College.

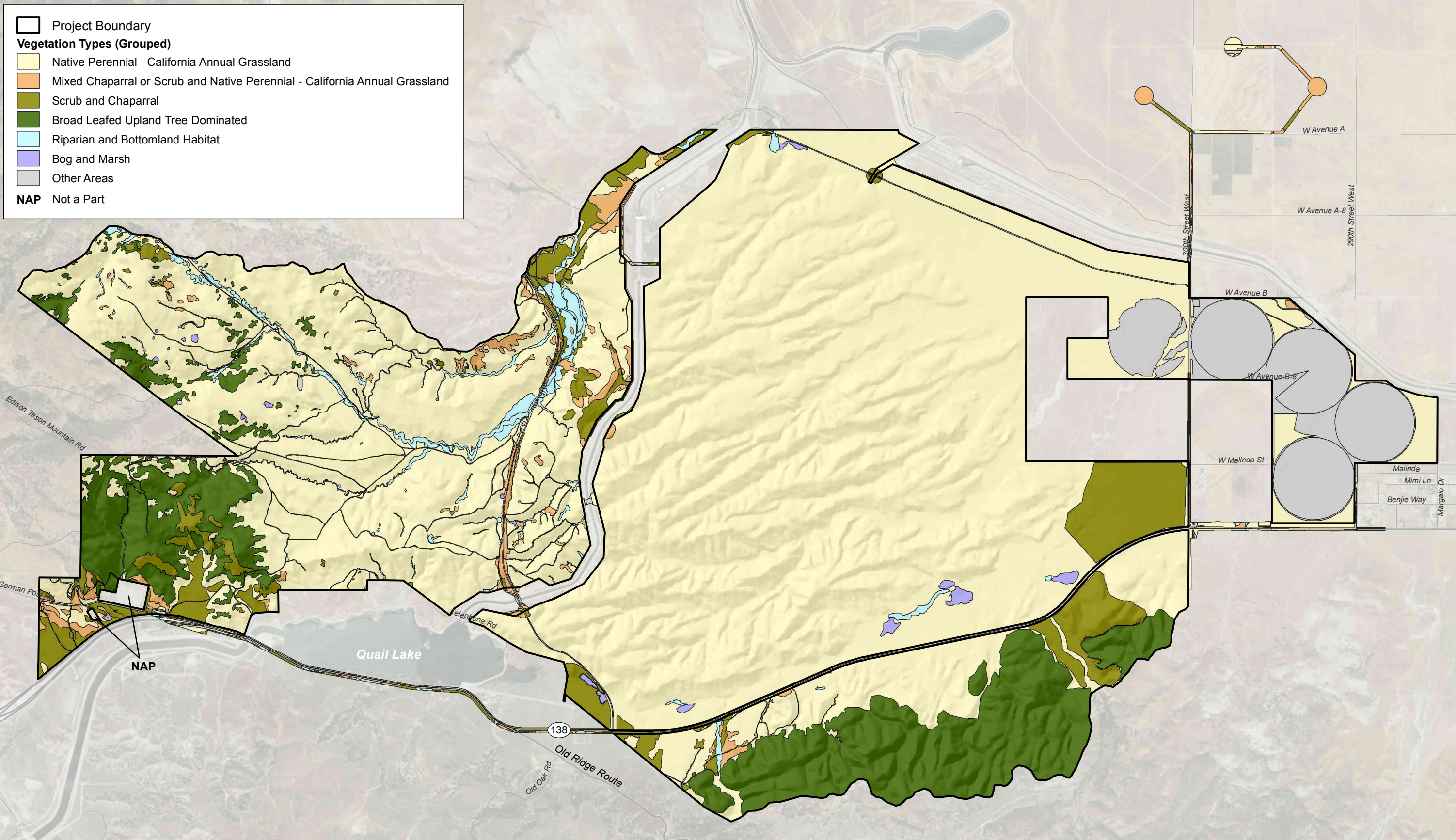
### **Vegetation Types**

The Project site is located near the convergence of three major geographical regions: the Mojave Desert, the San Gabriel Mountains, and the Tehachapi Foothills; this position has resulted in high vegetation type diversity throughout the area (England and Nelson Environmental Consultants 1976). Five main groups of vegetation types were identified on the Project site: (1) scrub and chaparral; (2) broad-leafed upland tree-dominated; (3) riparian and bottomland habitat; (4) bog and marsh; and (5) grass- and herb-dominated; (6) mixed chaparral or scrub and grassland (7) and other areas. The predominant vegetation type is grassland. Wildflower fields (dominated by annual forbs) occur in varying concentrations and are considered a subset of the grassland vegetation type. The grouped vegetation types are shown in Exhibit 5.7-1, Grouped Vegetation Types. Due to the large size of the site, detailed maps showing all vegetation types on the Project site are included separately as Exhibit 5.7-17, Detailed Vegetation Map.

Table 5.7-3, Vegetation Type Acreages, lists the acreage the vegetation types and other areas that exist on the Project site and in off-site impact areas. The agricultural, developed, and mixed oak woodland areas identified by BonTerra are also included below.

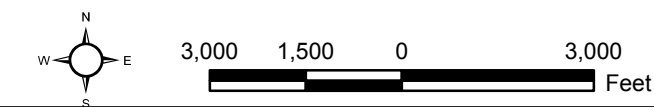
Detailed descriptions of each vegetation type are provided below. The CNDDDB numeric code most closely associated with each vegetation type is indicated in parenthesis following the vegetation type title; where a specific numeric code for a described vegetation type is not designated in the CNDDDB classification system, the most appropriate general code is shown. A list of all plant species reported from within the Project's study area is included in Appendix 5.7-A (Plant and Wildlife Compendia).





**Grouped Vegetation Types**  
 Centennial Project

**Exhibit 5.7-1**



D:\Projects\3C\EN\Centennial\MXD\EIR\Ex\_Grouped\_Veg\_20150925.mxd

---

## ***Scrub and Chaparral Vegetation Types***

### **Bladderpod Scrub (30.000.00)**

This vegetation type is dominated by bladderpod (*Peritoma arborea*). It occurs in only one small area, on a northeast-facing slope in the northwestern portion of the Project site. Other species commonly found in this vegetation type include California buckwheat (*Eriogonum fasciculatum* var. *polifolium*), our Lord's candle (*Hesperoyucca whipplei*), and interior goldenbush (*Ericameria linearifolia*). This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the bladderpod-California ephedra-narrowleaf goldenbush series and Twisselmann and Moe's (1995) upper Sonoran subshrub plant association.

### **Bush Lupine Scrub (30.000.00)**

This vegetation type is dominated by mountain bush lupine (*Lupinus excubitus* var. *austromontanus*). It occurs in only one small area, on a northwest-facing slope in the northeastern portion west of the Aqueduct. Other species commonly found in this vegetation type include California buckwheat, our Lord's candle, and interior goldenbush. This vegetation type most closely resembles Twisselmann and Moe's (1995) arid shrub plant association. A corresponding vegetation type for mountain bush lupine scrub is not described in Sawyer and Keeler-Wolf (1995).

### **California Buckwheat Scrub (32.040.00)**

This vegetation type is dominated by California buckwheat. It generally occurs on slopes, mainly in the southwestern portion of the Project site, west of the Aqueduct. Other species commonly found in this vegetation type include our Lord's candle and interior goldenbush. This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the California buckwheat series and Twisselmann and Moe's (1995) upper Sonoran subshrub plant association.

### **California Buckwheat Scrub/Yucca Scrub (32.040.00)**

This vegetation type is a mixed vegetation type that has characteristics of both California buckwheat scrub and yucca scrub. These two vegetation types are present in approximately equal proportions within the mixed vegetation type. This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the California buckwheat series and Twisselmann and Moe's (1995) upper Sonoran subshrub plant association.

**TABLE 5.7-3  
VEGETATION TYPE ACREAGES**

<b>Vegetation Type</b>	<b>On-Site Areas (acres)</b>	<b>Off-Site Areas<sup>a</sup> (acres)</b>	<b>Total Existing (acres)</b>
<b>Scrub and Chaparral Vegetation Types</b>			
Bladderpod Scrub	0.7	–	<b>0.7</b>
Bush Lupine Scrub	0.4	–	<b>0.4</b>
California Buckwheat Scrub	12.8	–	<b>12.8</b>
California Buckwheat Scrub/Yucca Scrub	1.9	–	<b>1.9</b>
California Juniper/California Buckwheat Scrub	4.6	–	<b>4.6</b>
Chamise/Bigberry Manzanita Chaparral	40.1	–	<b>40.1</b>
Coffeeberry Scrub	11.9	–	<b>11.9</b>
Goldenbush Scrub	7.7	–	<b>7.7</b>
Great Basin Scrub <sup>a</sup>	360.3	0.2	<b>360.5</b>
Rabbitbrush Scrub	222.9	30.5	<b>253.4</b>
Wand Buckwheat Scrub	0.6	–	<b>0.6</b>
Wright's Buckwheat Scrub*	12.2	–	<b>12.2</b>
Yucca Scrub	8.9	–	<b>8.9</b>
<i>Group Total</i>	<i>685.1</i>	<i>30.7</i>	<i><b>715.8</b></i>
<b>Broad Leafed Upland Tree-Dominated Vegetation Type</b>			
Mixed Oak Woodland*	1,370.8	–	<b>1,370.8</b>
<i>Group Total</i>	<i>1,370.8</i>	<i>–</i>	<i><b>1,370.8</b></i>
<b>Riparian and Bottomland Vegetation Types</b>			
Alluvial Scrub*	5.2	0.4	<b>5.6</b>
Cottonwood Woodland*	0.1	–	<b>0.1</b>
Riparian Herb*	52.7	0.6	<b>53.3</b>
Rush Riparian Grassland*	48.1	0.8	<b>48.9</b>
Southern Arroyo Willow Riparian <sup>b*</sup>	8.6	–	<b>8.6</b>
Southern Cottonwood Willow Woodland <sup>b*</sup>	4.0	–	<b>4.0</b>
Southern Willow Scrub*	12.8	0.3	<b>13.1</b>
Unvegetated Wash*	25.5	0.2	<b>25.7</b>
Valley Oak Riparian Woodland*	12.1	–	<b>12.1</b>
Willow Riparian Forest*	15.1	–	<b>15.1</b>
Willow Riparian Woodland*	8.0	0.3	<b>8.3</b>
<i>Group Total</i>	<i>192.1</i>	<i>2.6</i>	<i><b>194.7</b></i>
<b>Bog and Marsh Vegetation Types</b>			
Alkali Meadow <sup>b*</sup>	3.7	–	<b>3.7</b>
Baltic Rush <sup>b*</sup>	21.5	–	<b>21.5</b>
Coastal and Valley Freshwater Marsh <sup>b*</sup>	2.4	0.1	<b>2.5</b>
Seeps and Ephemeral Ponds*	8.0	0.1	<b>8.0</b>
<i>Group Total</i>	<i>35.6</i>	<i>0.1</i>	<i><b>35.7</b></i>



**TABLE 5.7-3  
VEGETATION TYPE ACREAGES**

Vegetation Type	On-Site Areas (acres)	Off-Site Areas <sup>a</sup> (acres)	Total Existing (acres)
<b>Grass- and Herb-Dominated Vegetation Types<sup>c</sup></b>			
Native Perennial Grassland*/California Annual Grassland	9,079.9	81.4	<b>9,161.4</b>
<i>Group Total</i>	<i>9,079.9</i>	<i>81.4</i>	<i><b>9,161.4</b></i>
<b>Mixed Chaparral or Scrub and Grassland Vegetation Types<sup>c</sup></b>			
Bush Lupine Scrub/Native Perennial Grassland*/California Annual Grassland	1.4	-	<b>1.4</b>
California Buckwheat Scrub/Native Perennial Grassland*/California Annual Grassland	7.0	-	<b>7.0</b>
Goldenbush Scrub/Native Perennial Grassland*/California Annual Grassland	8.3	-	<b>8.3</b>
Rabbitbrush Scrub/Native Perennial Grassland*/California Annual Grassland	131.0	41.3	<b>172.3</b>
Wand Buckwheat Scrub/Native Perennial Grassland*/California Annual Grassland	5.4	-	<b>5.4</b>
Wright's Buckwheat Scrub*/Native Perennial Grassland*/California Annual Grassland	4.3	-	<b>4.3</b>
Yucca Scrub/Native Perennial Grassland*/California Annual Grassland	24.3	-	<b>24.3</b>
<i>Group Total</i>	<i>181.8</i>	<i>41.3</i>	<i><b>223.1</b></i>
<b>Other Areas</b>			
Agricultural	602.8	-	<b>602.8</b>
Developed	26.4	35.0	<b>61.4</b>
Developed/Disturbed	1.7	4.5	<b>6.2</b>
Disturbed	141.5	27.5	<b>169.0</b>
Disturbed (Landslide)	2.4	-	<b>2.4</b>
Open Water/Developed	-	1.5	<b>1.5</b>
Ornamental	-	2.0	<b>2.0</b>
<i>Group Total</i>	<i>774.7</i>	<i>70.7</i>	<i><b>845.4</b></i>
<b>GRAND TOTAL</b>	<b>12,320.0</b>	<b>226.8</b>	<b>12,546.8</b>
<p><sup>a</sup> Off-site areas include all areas outside the Project impact boundary that would be impacted by Project activities.</p> <p><sup>b</sup> Vegetation type identified by Impact Sciences (2003).</p> <p><sup>c</sup> Wildflower fields are not specifically delineated but are expected to occur scattered throughout the grassland vegetation types.</p> <p>* Special status vegetation type.</p> <p><b>NOTE:</b> A cell with “-” indicates that there is no value, while a cell with “0.0” indicates that there is a value but that it is too small to round up to one-tenth of an acre. Vegetation mapping within areas east of the Aqueduct and south of the SR-138 (except for the 262-acre portion) was conducted at a more general programmatic level, while mapping in areas west of the Aqueduct and the 262-acre portion south of SR-138 was conducted at a Project level with greater detail. Also, due to rounding error (a miscalculation that results from rounding off numbers to a convenient number of decimals), figures may not add exactly to total shown.</p>			



California Juniper/California Buckwheat Scrub (89.100.10)

This vegetation type is dominated by California juniper (*Juniperus californica*) and California buckwheat. It generally occurs on south- and west-facing slopes in the southwestern portion of the site west of the Aqueduct. Other species commonly found in this vegetation type include our Lord's candle. This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the California juniper and California buckwheat series and Twisselmann and Moe's (1995) upper Sonoran subshrub plant association.

Chamise/Bigberry Manzanita Chaparral (37.101.01)

This vegetation type is dominated by chamise (*Adenostoma fasciculatum*) and bigberry manzanita (*Arctostaphylos glauca*). It generally occurs on hilltops and south-facing slopes in the southwestern portion of the site west of the Aqueduct. Other species commonly found in this vegetation type include our Lord's candle, California buckwheat, California juniper, and occasional oak species (*Quercus* spp.). This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the chamise-bigberry manzanita series and Twisselmann and Moe's (1995) chaparral plant association.

Coffeeberry Scrub (37.000.00)

This vegetation type is dominated by hoary coffeeberry (*Frangula tomentella* ssp. *cuspidata*) and oak gooseberry (*Ribes quercetorum*). It generally occurs on north- and northeast-facing slopes in the northwestern portion of the site west of the Aqueduct. Other species commonly found in this vegetation type include Mojave woollystar (*Eriastrum densifolium* ssp. *mohavense*), sand wash butterweed (*Senecio flaccidus*), and scarlet bugler (*Penstemon centranthifolius*). This vegetation type most closely resembles Twisselmann and Moe's (1995) chaparral plant association. A corresponding vegetation type for coffeeberry scrub is not described in Sawyer and Keeler-Wolf (1995).

Goldenbush Scrub (30.000.00)

This vegetation type is dominated by interior goldenbush. It generally occurs on slopes that are located mainly in the southwestern portion of the site west of the Aqueduct. Other species commonly found in this vegetation type include California buckwheat and our Lord's candle. This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the bladderpod-California ephedra-narrowleaf goldenbush series and Twisselmann and Moe's (1995) upper Sonoran subshrub plant association.

Great Basin Scrub (35.000.00)

Great Basin scrub is dominated by rubber rabbitbrush (*Ericameria nauseosa*). This vegetation type is particularly common in areas immediately adjacent to SR-138. This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the rubber rabbitbrush series and Twisselmann and Moe's (1995) arid shrub plant association.

Rabbitbrush Scrub (35.300.00)

This vegetation type is dominated by rubber rabbitbrush. It generally occurs in bottomlands and on gentle slopes throughout the site west of the Aqueduct. Other species commonly

found in this vegetation type include California aster (*Corethrogyne filaginifolia*), virgate buckwheat (*Eriogonum roseum*), golden aster (*Heterotheca sessiliflora*), interior goldenbush, bladderpod, and black mustard (*Brassica nigra*). This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the rubber rabbitbrush series and Twisselmann and Moe's (1995) arid shrub plant association.

#### Wand Buckwheat Scrub (30.000.00)

This vegetation type is dominated by wand buckwheat (*Eriogonum elongatum*). It generally occurs on slopes, mainly in the southwestern portion of the site west of the Aqueduct. Other species commonly found in this vegetation type include California buckwheat, our Lord's candle, and interior goldenbush. This vegetation type most closely resembles Twisselmann and Moe's (1995) upper Sonoran subshrub plant association. A corresponding vegetation type for wand buckwheat scrub is not described in Sawyer and Keeler-Wolf (1995).

#### Wright's Buckwheat Scrub (32.041.00)

This special status vegetation type is dominated by Wright's buckwheat (*Eriogonum wrightii* var. *trachygonum*). It occurs on a hilltop and west-facing slope near the eastern edge of the site west of the Aqueduct. Other species commonly found in this vegetation type include needlegrass, Sandberg bluegrass (*Poa secunda*), mountain bush lupine, and interior goldenbush. This vegetation type most closely resembles Twisselmann and Moe's (1995) upper Sonoran subshrub plant association. A corresponding vegetation type for Wright's buckwheat scrub is not described in Sawyer and Keeler-Wolf (1995).

#### Yucca Scrub (30.000.00)

This vegetation type is dominated by our Lord's candle. It generally occurs on south-facing slopes throughout the site west of the Aqueduct. Other species commonly found in this vegetation type include California buckwheat and interior goldenbush. This vegetation type most closely resembles Twisselmann and Moe's (1995) upper Sonoran subshrub plant association. A corresponding vegetation type for yucca scrub is not described in Sawyer and Keeler-Wolf (1995).

### ***Broad Leafed Upland Tree-Dominated Vegetation Types***

#### Mixed Oak Woodland (71.100.00)

Although the areas were originally mapped by Impact Sciences (2003) as scrub oak chaparral dominated by scrub oak (*Quercus berberidifolia*), field surveys conducted in October 2008 by BonTerra Consulting concluded that the hills south of SR-138 should be reclassified as mixed oak woodland. It generally occurs on slopes, mainly in the southwestern portion of the site, with additional areas present in the northwestern portion of the site. This special status vegetation type is dominated by blue oak, Tucker's oak, and interior live oak (*Quercus wislizenii*). Other species commonly found in this vegetation type include gray pine (*Pinus sabiniana*) and California juniper with a variable understory, including several shrub species such as California buckwheat and our Lord's candle. In addition, other oak species and hybrids occur in this vegetation type. On the lower, gentle slopes of the foothills, blue oak is dominant, while the steep upper slopes support a mixture

of the species mentioned above. This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the mixed oak series and Twisselmann and Moe's (1995) Douglas oak woodland plant association.

### ***Riparian and Bottomland Vegetation Types***

#### **Alluvial Scrub (32.070.00)**

This special status vegetation type is dominated by tarragon (*Artemisia dracunculus*) and rubber rabbitbrush. It occurs specifically along the north-south-trending drainage that crosses through the Project site south of SR-138. Other species commonly found in this vegetation type include scale-broom (*Lepidospartum squamatum*), Great Basin sagebrush (*Artemisia tridentata*), thick-leaf yerba santa (*Eriodictyon crassifolium*), annual bursage (*Ambrosia acanthicarpa*), California buckwheat, sand wash butterweed, and one-sided bluegrass. This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the scalebroom series and Twisselmann and Moe's (1995) arid shrub plant association.

#### **Cottonwood Woodland (61.130.00)**

This special status vegetation type is dominated by Fremont cottonwood trees (*Populus fremontii*). It occurs in one discrete location along the north-south-trending drainage at the northern border of the Project site just east of the California Aqueduct, and north of 300<sup>th</sup> Street West. Shrub cover is generally low due to closed cottonwood canopy. Various herbaceous species are commonly found in the understory such as broad-leaved peppergrass (*Lepidium latifolium*), common horseweed (*Erigeron canadensis*), and hoary nettle (*Urtica dioica* ssp. *holosericea*). This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the Fremont cottonwood series and Twisselmann and Moe's (1995) streambank plant association.

#### **Riparian Herb (45.000.00)**

This special status vegetation type is dominated by tarragon, western sunflower (*Helianthus annuus*), rushes (*Juncus* spp.), prickly lettuce (*Lactuca serriola*), dock (*Rumex* sp.), toad rush (*Juncus bufonius*), beardless wild-rye (*Elymus triticoides*), willow weed (*Polygonum lapathifolium*), cocklebur (*Xanthium strumarium*), and hoary nettle. It occurs along drainages throughout the site west of the Aqueduct. Other species commonly found in this vegetation type include water bentgrass (*Agrostis viridis*), annual beard grass (*Polypogon monspeliensis*), seep monkeyflower (*Mimulus guttatus*), wreath plant (*Stephanomeria* sp.), hairgrass (*Deschampsia* sp.), salt heliotrope (*Heliotropium curassavicum*), broad-leaved peppergrass, white water cress (*Nasturtium officinale*), and common horseweed. This vegetation type most closely resembles Twisselmann and Moe's (1995) freshwater marsh plant association. A corresponding vegetation type for the riparian herb vegetation type is not described in Sawyer and Keeler-Wolf (1995).

#### **Rush Riparian Grassland (45.560.00)**

This special status vegetation type is dominated by rushes and beardless wild-rye. It generally occurs along lower Oso Creek. Other species commonly found in this vegetation

type include cocklebur, western sunflower, dock, toad rush, and narrow-leaved milkweed (*Asclepias fascicularis*). This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the creeping ryegrass and spikerush series and Twisselmann and Moe's (1995) freshwater marsh plant association.

#### Southern Arroyo Willow Riparian (61.201.02)

The southern arroyo willow riparian vegetation type is dominated by arroyo willow (*Salix lasiolepis*). Various segments of this special status vegetation type are found along several sections of drainages on the site. This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the mixed willow series and Twisselmann and Moe's (1995) streambank plant association.

#### Southern Cottonwood Willow Woodland (61.130.02)

The southern cottonwood willow woodland vegetation type is codominated by Fremont cottonwood (*Populus fremontii*) and arroyo willow. This type occurs in a few areas immediately north of SR-138. This vegetation most closely resembles Sawyer and Keeler-Wolf's (1995) description of the mixed willow series and Twisselmann and Moe's (1995) streambank plant association.

#### Southern Willow Scrub (61.208.00)

This special status vegetation type is dominated by arroyo willow, red willow (*Salix laevigata*), black willow (*Salix gooddingii*), and narrow-leaved willow (*Salix exigua*). It generally occurs along drainages west of the Aqueduct. Other species commonly found in this vegetation type include hoary nettle and western sunflower. This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the mixed willow series and Twisselmann and Moe's (1995) streambank plant association.

#### Unvegetated Wash (99.900.01)

Washes are the scoured beds of smaller channels and stream courses and were generally unvegetated at the time of the survey; however, some wash areas supported a sparse cover of riparian species such as western sunflower, cocklebur, and beardless wild-rye. Although scoured wash areas are not a vegetation type, they are included on the vegetation map because they are naturally occurring features of drainages.

#### Valley Oak Riparian Woodland (74.040.07)

This special status vegetation type is dominated by valley oak (*Quercus lobata*) and occurs along upper Oso Creek. Other species commonly found in this vegetation type include arroyo willow, red willow, black willow, narrow-leaved willow, and willow weed. This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the valley oak series and Twisselmann and Moe's (1995) streambank plant association.

#### Willow Riparian Forest and Willow Riparian Woodland (61.200.00)

These special status vegetation types are dominated by arroyo willow, red willow, and black willow. The tree canopy of the willow riparian forest is generally considered to be closed

(e.g., 80 percent cover or greater) compared to the more open canopy of willow riparian woodland (e.g., 60 to 80 percent cover). These vegetation types generally occur along drainages throughout the site west of the Aqueduct. Other species commonly found in these vegetation types include narrow-leaved willow, Fremont cottonwood, and hoary nettle. These vegetation types most closely resemble Sawyer and Keeler-Wolf's (1995) description of the mixed willow series and Twisselmann and Moe's (1995) streambank plant association.

### ***Bog and Marsh Vegetation Types***

#### **Alkali Meadow (45.500.00)**

The alkali meadow vegetation type is dominated by saltgrass (*Distichlis spicata*) and occurs only in one small area: an apparent borrow pit immediately west of the National Cement Plant Road; this location is in the southern portion of the Project site, just north of SR-138 (Impact Sciences 2003). This special status vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the saltgrass series and Twisselmann and Moe's (1995) alkali sink plant association.

#### **Baltic Rush (45.562.00)**

The Baltic rush vegetation type is dominated by Baltic rush (*Juncus balticus*), giant wild rye (*Elymus condensatus*), and beardless wild-rye. This special status vegetation type occurs in the headwater seeps and adjacent to drainages throughout the area; it most closely resembles Sawyer and Keeler-Wolf's (1995) description of the creeping ryegrass and spikerush series and Twisselmann and Moe's (1995) freshwater marsh plant association.

#### **Coastal and Valley Freshwater Marsh (52.100.01)**

The coast and valley freshwater marsh vegetation type is dominated by Pacific mosquito fern (*Azolla filiculoides*) and water lentil/lesser duckweed (*Lemna minor*). This special status vegetation type occurs in a small pond adjacent to the northern property line and in the area to the east of the Aqueduct. This vegetation type most closely resembles Sawyer and Keeler-Wolf's (1995) description of the mosquito fern and duckweed series and Twisselmann and Moe's (1995) freshwater marsh plant association.

#### **Seeps and Ephemeral Ponds (45.000.00)**

Seeps and ephemeral ponds generally cover small areas on the site (i.e., less than one acre) and are scattered throughout the site west of the Aqueduct. This vegetation type is dominated by rushes, beardless wild-rye, western sunflower, dock, narrow-leaved milkweed, and hoary nettle. Other species commonly found in this vegetation type include mallow (*Malva* sp.), salt heliotrope, sedge (*Carex* sp.), spike rush (*Eleocharis* sp.), hairgrass, water lentil/lesser duckweed, cattail (*Typha* sp.), cocklebur, common horseweed, toad rush, and annual beard grass. At the time of the surveys, some ephemeral ponds consisted of only standing water and did not support any associated vegetation. This vegetation type most closely resembles Twisselmann and Moe's (1995) freshwater marsh plant association and Sawyer and Keeler-Wolf's (1995) creeping ryegrass and spikerush series.

### **Grass- and Herb-Dominated Vegetation Types**

#### Native Perennial Grassland (41.100.00)/California Annual Grassland (42.040.00)

Grasslands are composed of a mix of two vegetation types: native perennial grassland and California annual (non-native dominated) grassland. Shrub and tree cover was less than 30 percent in these vegetation types. These two grassland types occur as a mosaic across the varied topography of the landscape and include intermixed, seasonal wildflower fields that vary in density from year to year. Wildflower fields are a component of the grasslands that are temporally visible depending chiefly on rainfall amounts and timing. The California annual grassland vegetation type is characterized by wild oats (*Avena* spp.), bromes (*Bromus* spp.), fescues (*Festuca* spp.), doveweed (*Croton setigerus*), and virgate buckwheat and often intergrades with native perennial grasslands or other vegetation types. Other species commonly found in this California annual grassland vegetation type are native and non-native forbs (herbaceous, non-grass species) including flax-flowered linanthus (*Linanthus liniflorus*), western sunflower, black mustard, shortpod mustard (*Hirschfeldia incana*), and filarees (*Erodium* spp.). The California annual grassland most closely resembles Sawyer and Keeler-Wolf's (1995) description of the California annual grassland series and Twisselmann and Moe's (1995) upper Sonoran grassland plant association.

The native perennial grassland vegetation type includes varying cover of perennial bunchgrasses (needlegrass and Sandberg bluegrass) and beardless wild-rye, a perennial rhizomatous species that occurs both adjacent to drainages and on slopes with other native perennial grasses. Native perennial grassland occurs often intergrades with California annual grasslands or other vegetation types. Other species commonly found in the native perennial grassland vegetation type include squirreltail (*Elymus* sp.), desert needlegrass (*Stipa speciosa*), locoweed (*Astragalus* sp.), California aster, golden aster, flax-flowered linanthus, wild oats, fescue, virgate buckwheat, doveweed, bromes, black mustard, shortpod mustard, and filarees. As noted above, native perennial bunchgrass cover varies substantially across the site. In addition, quality of perennial grassland, based on percentage native species cover and diversity, is positively correlated with the relative cover of native bunchgrass and with wildflower species cover. Species diversity appears to be associated with topography (which varies across the landscape, from slopes of all aspects to floodplains, ridges, and mesas) as suggested by the Vollmar Consulting (2004) grassland study and as found by NRC (NRC 2007a). Other trends and associations with abiotic elements, such as soil type and geology, are likely to be factors in determining the distribution and "quality" of native perennial grasslands on the site. Native perennial grassland most closely resembles Sawyer and Keeler-Wolf's (1995) description of the one-sided bluegrass and needlegrass series and Twisselmann and Moe's (1995) upper Sonoran grassland plant association. The native perennial grassland component of the grassland mosaic is a special status vegetation type.

Wildflowers are comprised of a large number of native forb species, including multiple species of lupine (*Lupinus* spp.), California poppy (*Eschscholzia californica*), California goldfields (*Lasthenia californica*), needle goldfields (*Lasthenia gracilis*), several species of fiddleneck (*Amsinckia* spp.), and owl's clover (*Castilleja exserta*). Wildflower fields occur throughout grasslands on the site, and botanical studies conducted over several years have shown that they are seasonal and intermixed with other native and non-native grassland

species. Wildflowers are typical for this type of vegetation, and their density varies from year to year. Abundance of wildflowers is influenced by multiple environmental factors such as rainfall amounts and rainfall timing.

***Mixed Chaparral or Scrub and Grassland (Native Perennial/California Annual)  
Vegetation Types***

Mixed chaparral or scrub and grassland vegetation types are vegetation types that are composed of 30 to 60 percent cover of shrubs and 60 to 30 percent cover of grasses, as described previously in the methods description. Dominant species in these vegetation types include those described for the chaparral, scrub, or grassland vegetation types previously discussed. The mixed chaparral or scrub and grassland vegetation types found on the site west of the Aqueduct (and the 262-acre portion south of SR-138) include mountain bush lupine scrub/native perennial grassland/California annual grassland, California buckwheat scrub/native perennial grassland/California annual grassland, goldenbush scrub/native perennial grassland/California annual grassland, rabbitbrush scrub/native perennial grassland/California annual grassland, wand buckwheat scrub/native perennial grassland/California annual grassland, Wright's buckwheat scrub/native perennial grassland/California annual grassland, and yucca scrub/native perennial grassland/California annual grassland. Wright's buckwheat scrub is a special status vegetation type. Due to the native perennial component of the grassland mosaic, all the mixed chaparral or scrub and grassland vegetation types are special status vegetation types.

***Other Areas***

Agricultural

Agricultural areas are present on the Project site. Areas under regular irrigated cultivation are, in general, considered disturbed since they are actively managed and relatively lack of native plant species. The agricultural areas are located along the northeastern edge of the Project boundary. The acreage in agricultural use (602.76 acres, as mapped in 2007 and 2015) represents the approximate ground area covered by crops at the time the aerial photograph was taken (2007) or the survey was conducted (2015). The circular cultivated agricultural fields in the northeastern corner of the Project site is shown on Exhibit 5.7-1, Grouped Vegetation Types.

Developed

Using aerial photographs, the paved roadways in the Project site areas were first mapped as developed by BonTerra Consulting, then verified in subsequent site visits. These roads occupy approximately 41 acres.

Developed/Disturbed, Disturbed, and Disturbed (Landslide) Areas

Developed/disturbed, disturbed, and disturbed (landslide) areas occur where there is a mix of development (such as roads) and disturbed areas. Disturbed areas (such as dirt roads, cattle enclosure areas, and recent landslides) occur throughout the site. Disturbed areas generally lack of vegetation.

### Open Water/Developed

Open water/developed areas represent portions of the project that cross the California Aqueduct. These areas occupy approximately 1.51 acres.

### Ornamental

Areas mapped as ornamental on the Project site are generally associated with roadsides or abandoned cropland. Species consist of non-native trees such as fruit trees, cypress (*Cupressus* sp.) and pine trees (*Pinus* sp.).

### **Off-Site Project Feature Areas**

Previously unmapped vegetation types and other areas in the off-site areas were delineated in March 2007 and October 2008 by BonTerra Consulting. Vegetation types present in the off-site areas include great basin scrub, rabbitbrush scrub, alluvial scrub, riparian herb, rush riparian grassland, southern willow scrub, unvegetated wash, willow riparian woodland, coastal and valley freshwater marsh, seeps and ephemeral ponds, native perennial grassland/California annual grassland, rabbitbrush scrub/native perennial grassland\*/California annual grassland, developed, developed/disturbed, disturbed, open water/developed, and ornamental. These vegetation types and other areas are the same as those described above.

### **Results of Grassland Study**

Grasslands in the region and on the Project site have been recognized as having native and non-native plant species composition of varying degrees. Defining native grasslands is more complicated than most vegetation types because the dominant species may be non-native, may be non-grass species, and may be seasonally variable. Furthermore, native grasslands have become rare statewide and are therefore considered sensitive. In an effort to better understand the composition and distribution of grasslands on the Project site so that an adequate assessment of impacts could be made, a series of studies were conducted over the course of many years. Initial field studies were conducted by Vollmar Consulting in 2003 and 2004 to describe the species composition of native perennial grasslands relative to different landscape positions (Vollmar Consulting 2004). The results of the studies indicate differences in species composition and distribution relative to landscape position as defined by slope, aspect, and elevational position. The results for cover on north- and south-facing slopes, floodplains, and ridge/terrace tops are summarized in Table 5.7-4, Summary of Results of the 2003–2004 Grassland Study. These results are summarized from descriptive statistics tables included in the study report (Vollmar Consulting 2004).



**TABLE 5.7-4  
SUMMARY OF RESULTS OF 2003-2004 GRASSLAND STUDY**

Landscape Position	Native Perennial Bunch Grasses <sup>a</sup>	Native Perennial Sod Grasses <sup>a</sup>	Native Annual Grasses <sup>a, b</sup>	Non-Native Annual Grasses <sup>a, b</sup>	Native Forbs <sup>a, c</sup>	Non-Native Forbs <sup>a, c</sup>	Total <sup>a</sup>
<b>2003 Data</b>							
Disturbed alluvial plains	0.00	0.00	0.31	2.88	11.51	83.38	<b>98.08</b>
Floodplains	0.64	0.74	0.83	9.49	20.72	67.58	<b>100.00</b>
North-facing slopes	22.37	0.00	0.16	3.96	29.94	42.62	<b>99.05</b>
South-facing slopes	4.48	0.00	0.08	17.35	42.32	35.34	<b>99.57</b>
Terrace tops	16.09	0.00	0.00	5.69	35.29	42.93	<b>100.00</b>
Ridge tops	32.54	0.00	0.00	2.56	25.69	37.01	<b>97.80</b>
<b>2004 Data</b>							
Floodplain	2.45	6.55	N/A	32.70	N/A	N/A	<b>41.70</b>
North-facing Lower Concave	19.08	5.08	N/A	23.73	N/A	N/A	<b>47.89</b>
North-facing Lower Convex	23.00	2.11	N/A	15.74	N/A	N/A	<b>40.85</b>
North-facing Upper Concave	29.30	1.30	N/A	10.35	N/A	N/A	<b>40.95</b>
North-facing Upper Convex	33.31	0.97	N/A	6.28	N/A	N/A	<b>40.56</b>
South-facing Upper Convex	20.91	0.00	N/A	12.33	N/A	N/A	<b>33.24</b>
South-facing Upper Concave	9.67	0.28	N/A	27.56	N/A	N/A	<b>37.51</b>
South-facing Lower Convex	7.81	0.19	N/A	33.75	N/A	N/A	<b>41.75</b>
South-facing Lower Concave	4.97	0.00	N/A	31.16	N/A	N/A	<b>36.13</b>
Ridge tops	32.32	0.00	N/A	4.07	N/A	N/A	<b>36.39</b>
N/A: not applicable							
<p><sup>a</sup> All values are reported in percent relative cover.</p> <p><sup>b</sup> Separate mean cover values for native and non-native annual grasses were not given for the 2004 data; however, the annual grass cover values were almost exclusively non-native species. The values presented here as non-native cover for 2004 include minimal cover of a native annual grass species (0.25% cover in floodplain and 0.13% cover in south-facing lower convex slopes). No other native annual grass cover values were recorded for 2004.</p> <p><sup>c</sup> Mean cover values for forbs were not given for the 2004 data.</p>							
Source: Vollmar Consulting 2004.							

The 2003-2004 studies, which surveyed select locations with higher native grassland cover, found that the relative cover of native perennial bunchgrass species ranged from 19 to 33 percent on north-facing slopes and from 5 to 21 percent on south-facing slopes. The relative cover of native bunchgrasses was found to be low in floodplain areas (a range of 1 to 2 percent) and higher along ridge tops and terraces (a range of 16 to 33 percent). Data for

cover values on east- and west-facing slopes were not collected during the 2003–2004 grassland studies.

In general, differences in vegetative cover between north-slope and south-slope exposures are apparently due to the different amounts of solar energy the slopes receive. In the northern hemisphere, south-facing slopes receive the most energy, and are consequently hotter and drier than north-facing slopes; therefore, vegetative cover tends to be higher on north-facing slopes. Although the effect may not be as pronounced, west-facing slopes are generally warmer and drier than east-facing slopes (Smith 1996). Cover values on east-facing slopes, therefore, are expected to be higher than those on west-facing slopes.

As the results of the 2003–2004 grassland studies indicate, the density of native bunchgrasses is closely associated with the topography, which is variable throughout the Project site. Other factors that may contribute to the “quality” of native perennial grasslands, such as wildflower density, are expected to vary substantially and are likely also to depend on topography. The result of local topography, combined with effects of livestock and other disturbances, is a high degree of heterogeneity in the grassland vegetation types.

In an effort to substantiate the results of previous studies and to develop a better understanding of the relationships between grassland “quality” and abiotic factors, NRC completed an extensive grassland assessment in spring 2006 to determine the distribution and quality of native perennial grasslands within the grasslands (including both native and non-native grasslands) that had been previously identified on the site (NRC 2007b). For quality assurance purposes, NRC worked cooperatively with a designated Scientific Review Committee that monitored the study design, data acquisition, statistical analysis, and reporting.

Grassland quality was based on native perennial bunchgrass (NPBG) cover, a conventional metric of grassland quality in California. Percent canopy cover of plant species (e.g., native perennial grass, non-native annual grass, native annual forbs) was measured at over 300 grassland sampling locations. All NPBG cover values presented in the remainder of the Grassland Assessment section refer to absolute cover as used in the NRC grassland studies reports. These data were analyzed to create a predictive model describing the distribution of NPBG and to quantify relationships between NPBG and other vegetation guilds, species diversity, and other community characteristics (NRC 2007a, 2007b, 2007c, 2006a).

The resulting multiple linear regression was then used in conjunction with GIS analysis to generate a predictive map describing NPBG distribution and overall grassland quality. These results describe NPBG cover based on topographic variables including terrain curvature, a slope-aspect index, terrain complexity, easting, and the interaction between terrain curvature and easting. The term “easting” is a GIS term which refers to a rectangular (x, y) coordinate measurement of distance east from a north-south reference line, usually a meridian used as the axis of origin within a map zone or projection.

Predicted grassland quality was classified into four categories based on absolute cover ranges: NPBG with absolute cover of less than 4.99 percent, between 5.00 and 9.99 percent,

between 10.00 and 14.99 percent, and greater than 15.00 percent. Independent validation data collected in June 2006 supports the model's ability to predict NPBG cover values.

The NPBG model provides a reliable method for determining potential impacts to grassland communities on the site. When supplemented by field data, this information can also be effective in determining the value of on-site and off-site mitigation alternatives, the potential benefits of habitat restoration, and long-term management strategies. The grassland distribution in this study is based on absolute canopy cover as measured in April 2006 and identified the topographic and locational conditions that are likely to be important to the distribution of native grassland communities in general (NRC 2007b, 2007c, 2006a).

The regression analysis used to develop this model confirmed several observations about NPBG cover: (1) bunchgrass cover is positively associated with increasing landscape convexity (ridgetops); (2) bunchgrass cover is positively associated with increasing "easting" coordinates; and (3) the relationship between cover and landscape convexity is dependent upon easting. The most influential parameter in the model is convexity. Consequently, the map depicting predicted NPBG cover values is very similar to a map of topographic curvature with slight influence from easting, the slope-aspect illumination index, terrain roughness, and degree of slope (NRC 2007b, 2007c, 2006a).

Results of the data analysis match previous observations by Vollmar (2004) that NPBG cover was highest on ridgetops and decreased down slope towards valley floors; this relationship between convexity and NPBG cover may be indirectly related to the decreased soil depth and reduced productivity of soils found on ridgetops, as remnant stands of native grass on poor sites may exhibit some resistance to invasion of introduced species and historic agriculture and grazing operations (NRC 2007b). Also, NPBG diversity and quality were found to be the highest on steep slopes.

To explore the predictive capability of the 2006 NPBG model across years and subsequently refine and improve upon the existing model, NRC re-examined NPBG stands in 2007. In addition to validating the 2006 NPBG model, the 2007 assessment (1) examined correlations in NPBG cover and distribution between the 2006 and 2007 growing seasons; (2) determined the predictive capabilities and suitability of the 2006 NPBG model to predict NPBG cover in 2007 (with particular attention given to the relationship between NPBG cover and precipitation); and (3) proposed suggestions to improve upon limitations of the 2006 and 2007 models (NRC 2007b, 2007c).

A randomly chosen subset (approximately 30 percent) of the 2006 sampling points were used for 2007 sampling to investigate between-year variation in NPBG cover. The degree of classification error arising from the 2006 NPBG model was examined by comparing the observed NPBG cover class and the predicted NPBG cover class for each plot.

By classing absolute NPBG cover into four categories (Category 1: <5 percent, Category 2: 5 to <10 percent, Category 3: 10 to <15 percent, Category 4: ≥15 percent), the 2006 NPBG model correctly predicted the cover class of 37 percent of all 2006 plots. After simplifying this classification system into two categories (Category A: <10 percent, Category B: ≥10 percent), overall prediction success increased to 69 percent. Regardless of the number

of classes used, the 2006 NPBG model overestimates the number of high quality (i.e., >10 percent NPBG) grassland plots by approximately 7 percent. This error is largely due to the overemphasis of slope position and, potentially, curvature in the model and can be minimized using a weighted regression model (NRC 2007b, 2007c).

For the four-class classification system, the 9,005 acres of grasslands present on the Project site and off-site impact areas (at that time) were distributed as follows: Category 1: 3,305 acres, Category 2: 3,315 acres, Category 3: 2,095 acres, and Category 4: 290 acres. A higher proportion of 2006 plots with low NPBG cover were classified correctly than were plots with high cover values; the number of plots predicted to have more than ten percent NPBG absolute cover were greater than the number of plots observed with greater than ten percent NPBG absolute cover. Regional rainfall in the 2007 growing season (2.5 inches) was significantly less than that in the 2006 growing season (13.6 inches) which also followed an above normal rainfall year in 2005. As a result NPBG cover was significantly less in 2007 due to the drier conditions which caused a decrease in total biomass production and an increased allocation of energy to roots and decreased stem production. NRC (2007c) states the following:

... because change in NPBG cover was greater along ridgetops than off of ridgetops it is suggested that high cover NPBG stands along ridgetops respond more strongly to drought. The data are consistent with the concept that ridgetops with high NPBG cover, reduced competition by non-native species, and shallow, low capacity soils are more responsive to variations in rainfall than are valley bottoms with deep, high-capacity soils and elevated competition with nonnative species.

NRC (2007c) also determined the following:

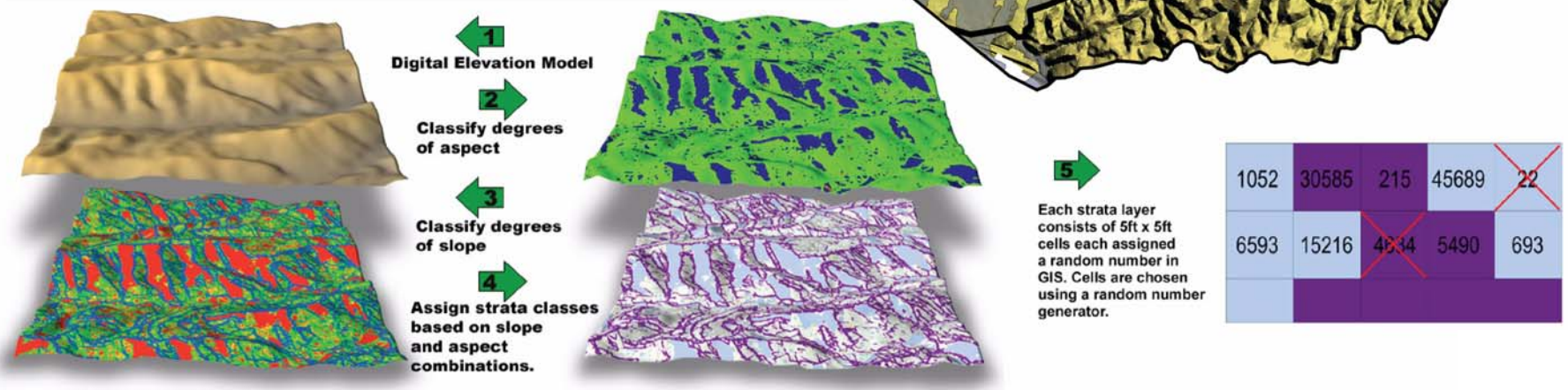
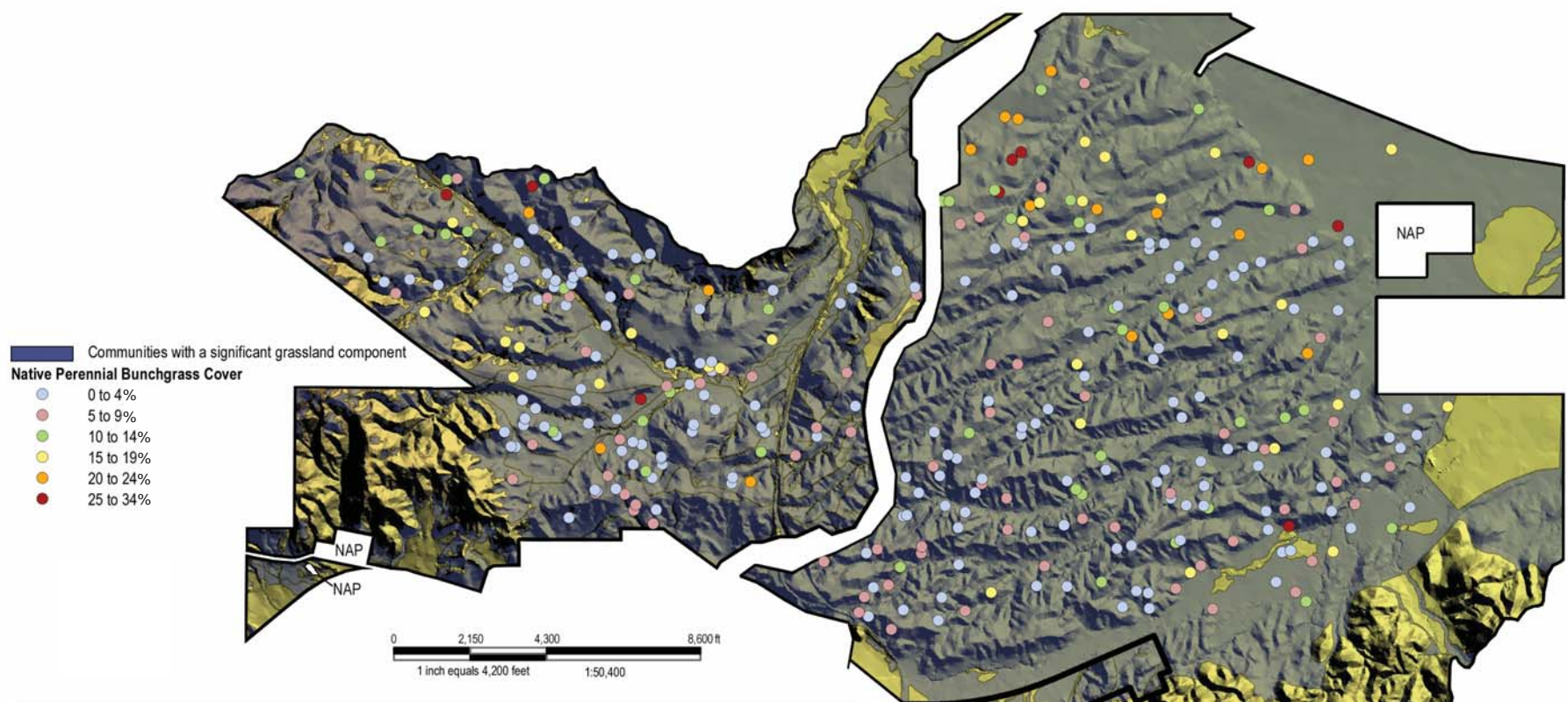
The results of this analysis also indicate that topographic variables can provide reliable predictions of NPBG distribution within a single year under normal, non-drought conditions. However, the utility of a single-year model is limited between years if environmental variables, including precipitation, are not constant ... of the two created models, the 2006 model is better than the 2007 model at predicting the typical distribution and quality of NPBG ... and this model can be improved to better predict across years by incorporating temporal variation of rainfall into the model.

Grassland field sampling point selection is depicted on Exhibit 5.7-2, Grassland Field Sampling Point Selection; a grassland category map is presented on Exhibit 5.7-3, Grassland Category Map; grassland sampling points are shown on Exhibit 5.7-4, Grassland Sampling Points; and points with predicted NPBG cover are included in Exhibit 5.7-5, Points with Predicted Native Perennial Bunchgrass (NPBG) Cover.<sup>3</sup> The model was 69 percent accurate

---

<sup>3</sup> Although the Project site boundary has expanded since the grassland studies were conducted, additional grassland studies were deemed unnecessary. The purpose of the studies was to develop a model for estimating native

D:\Projects\CEN\Centennial\GRAPHICS\EX\_Grassland\_Sampling\_20150915.ai



Source: Natural Resource Consultants 2008

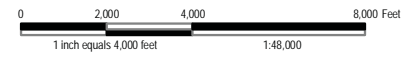
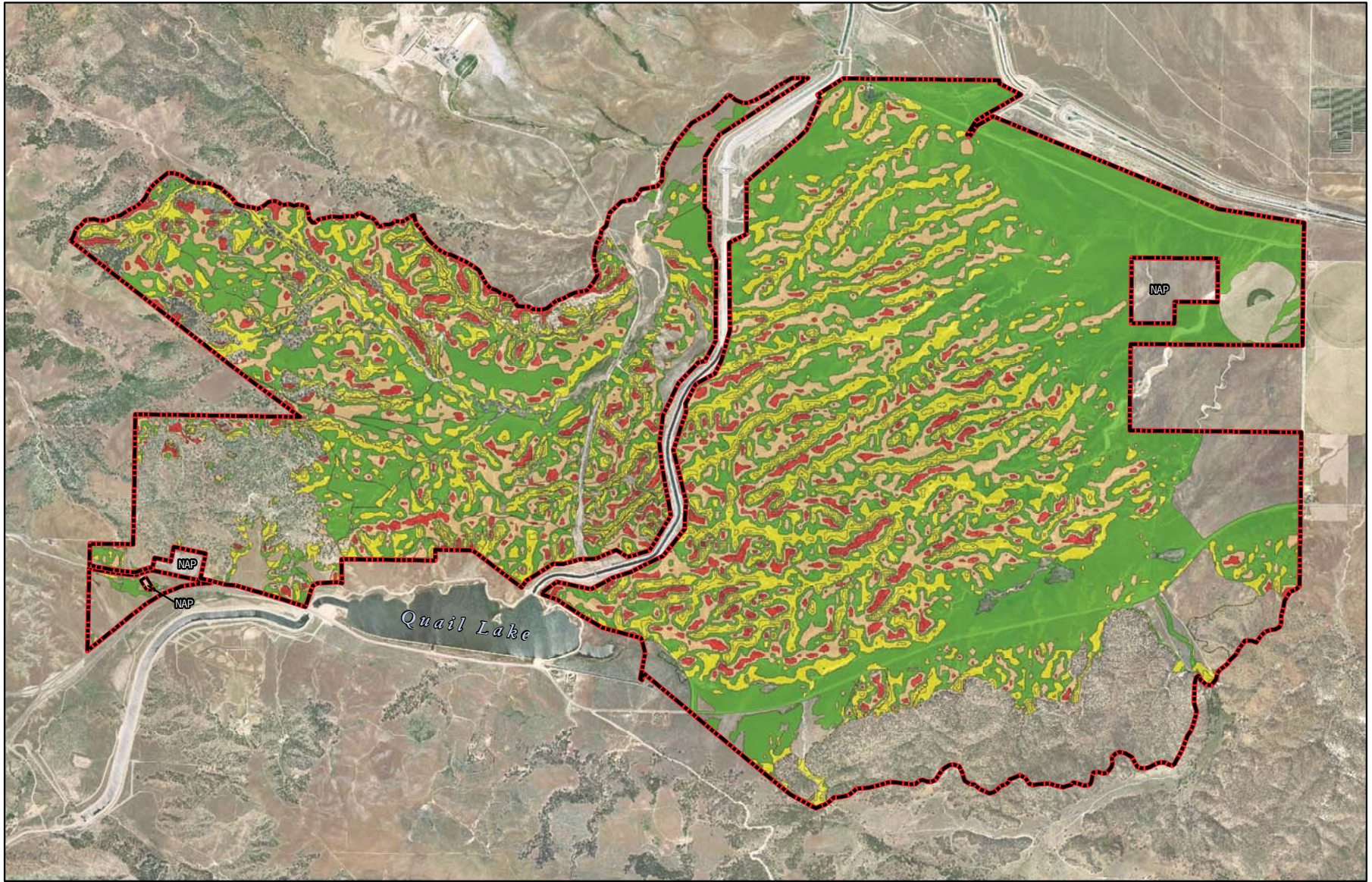
# Grassland Field Sampling Point Selection

# Exhibit 5.7-2

Centennial Project







Source: Natural Resource Consultants 2008

# Grassland Category Map

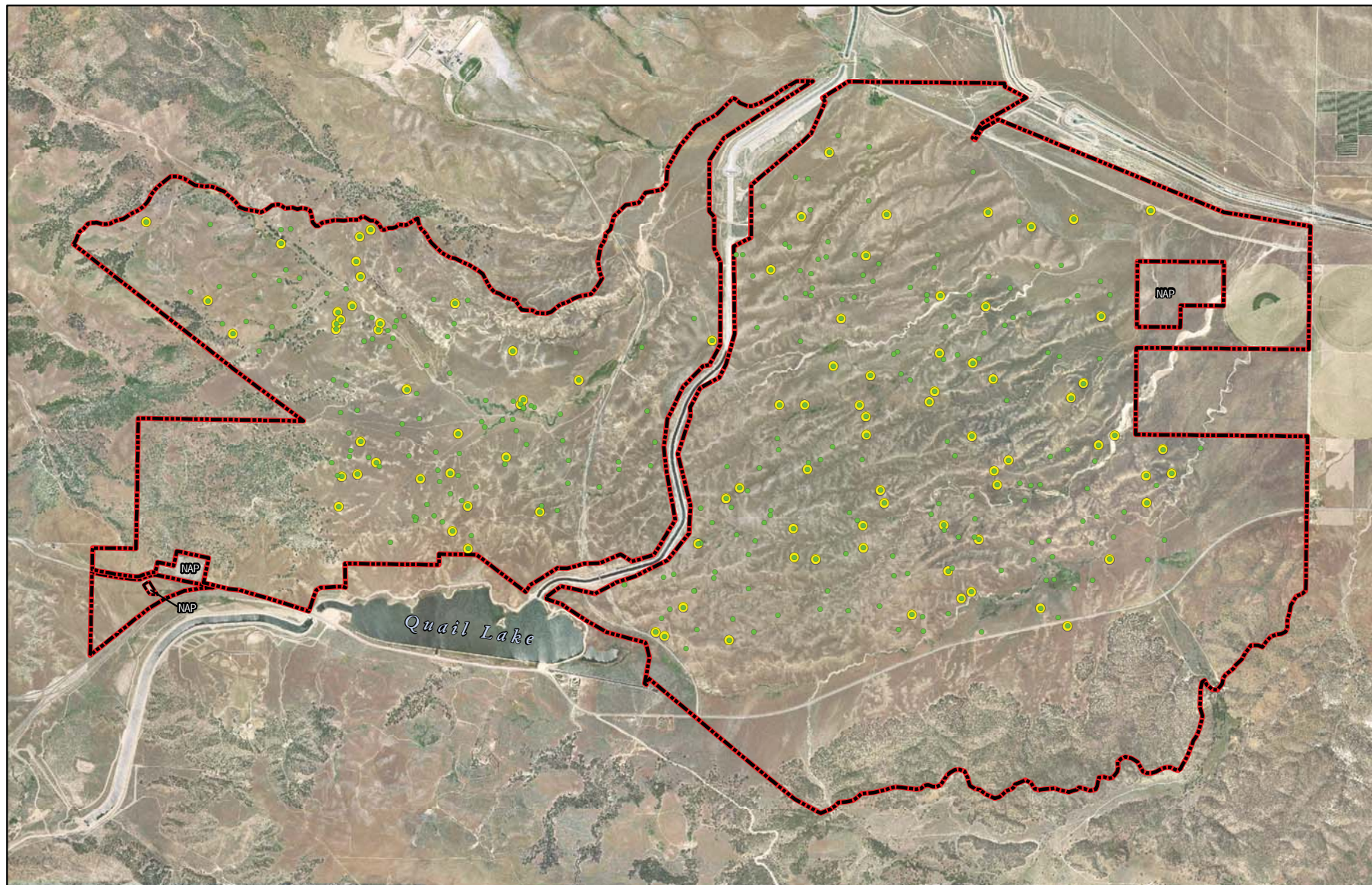
Centennial Project



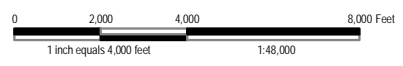
## Exhibit 5.7-3



D:\Projects\CEN\Centennial\GRAPHICS\EIR\EX\_Grassland\_Sample\_Pts\_20150915.ai



2008 Project Boundary    
 ● 2006 Sampling Points    
 ● 2007 Sampling Points



Source: Natural Resource Consultants 2008

# Grassland Sampling Points

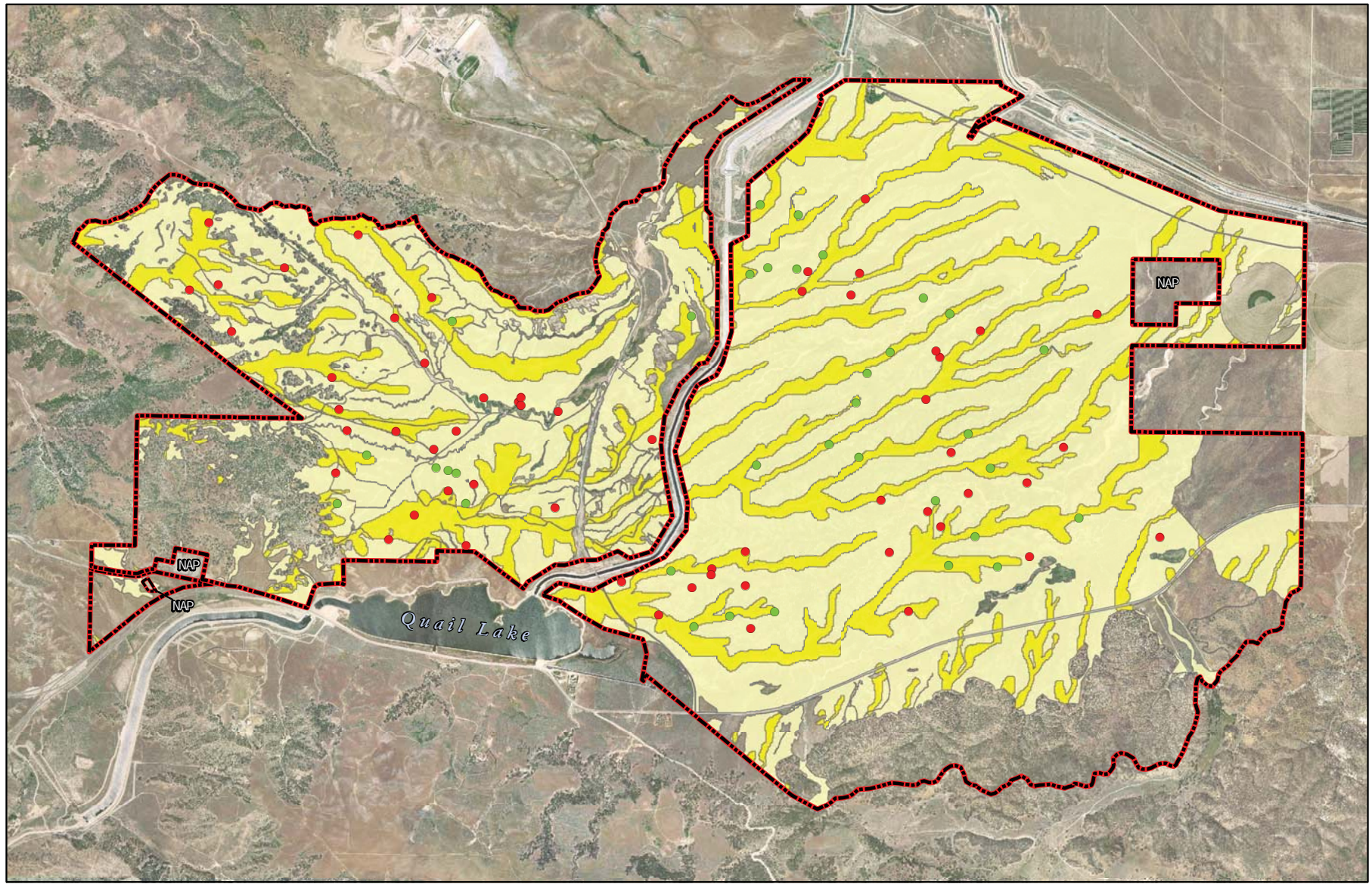
## Exhibit 5.7-4

Centennial Project





D:\Projects\CEN\Centennial\GRAPHIC\EIR\EX\_NPBG\_Points\_20150915.ai



- 2008 Project Boundary
- Ridgetop Areas
- Not Ridgetop Areas
- Overestimated Points
- Correctly Predicted Points



Source: Natural Resource Consultants 2008

## Points With Predicted Native Perennial Bunchgrass (NPBG) Cover

## Exhibit 5.7-5

Centennial Project





in predicting percent cover between a moderate rainfall year and a very dry rainfall year (NRC 2007b, 2007c). According to the grassland Scientific Advisory Committee, for biological systems, a model with 69 percent accuracy is generally considered above average. The model was untested for ability at prediction of composition in new areas not used to form the model, so accuracy of the overall predicted values is hard to judge with so much apparent year-to-year variability. Variability from year-to-year could influence the accuracy of the estimates. However, these estimates represent the best scientific data currently available for the site (NRC 2007b, 2007c; Josselyn et al. 2009).

## **Wildlife**

All wildlife species observed within the Project site are listed in the wildlife compendium included in Appendix 5.7-A. The term “expected” is used in this section to indicate a high likelihood of occurrence while the term “may” is used to indicate a moderate-to-low likelihood.

### ***Invertebrates***

A total of 27 relatively common and widely distributed butterfly species were observed on the Project site during field surveys conducted by a variety of consulting biologists. Nearly all of the Project site provides potentially suitable foraging habitat for butterflies, and much of the site provides suitable topography for hill-topping butterfly species, as do adjacent properties (Bruyey Biological Consulting 2004). Common hill-topping species such as checkered white (*Pontia protodice*), common hairstreak (*Strymon melinus*), and west coast lady (*Vanessa annabella*) were observed on the site in association with a low elevation hilltop area in the northwestern portion of the site. Other hilltops and ridgelines are present near this hilltop on and adjacent to the Project site, and are probably equally utilized by butterfly species in the vicinity. Common aquatic invertebrates are also expected to occur where potentially suitable areas exist. The versatile fairy shrimp (*Branchinecta lindahli*) was detected in two ephemeral ponds during fairy shrimp wet and dry season surveys (GLA 2005a, 2005b).

### ***Fish***

Most creeks and waterways in Southern California are subject to periods of high water flow in winter and spring, and little to no flow in summer and fall. During wetter years, flows in some drainages may persist for longer periods and experience ponding. These creeks and waterways can support a variety of suitable habitats for fish species. However, the amount of water flow can vary substantially from year to year. The herbaceous cover present typically varies by season from little to no cover during periods of high water flow to high cover in late summer and fall. Native fish species that inhabit Southern California drainages have adapted to living in the naturally fluctuating conditions of the area; however, natural and man-made events and circumstances (such as drought, alteration of habitat, and

---

composition in a given topographic location, and data gathered during the 2006 and 2007 studies is considered a sufficient analysis of the composition of grasslands on the current Project site.

introduced species) have contributed to the decline of native fish populations in Southern California.

Because most watercourses in the area are ephemeral and infiltrate into sandy desert soils on the site and east of the Project site, fish habitat is extremely limited and only the most ubiquitous and tolerant fish species, such as the non-native mosquito fish (*Gambusia affinis*), are expected to occur. No stocked fish have been reported in the Project site. Common freshwater fish are present in adjacent off-site areas, such as Quail Lake and the Aqueduct; according to the DWR, Quail Lake contains striped bass (*Morone saxatilis*), channel catfish (*Ictalurus punctatus*), blackfish (*Orthodon microlepidotus*), tule perch (*Hysterocarpus traski*), threadfin shad (*Dorosoma petenense*), and hitch (*Lavinia exilicauda*) (DWR Public Affairs 2009).

### **Amphibians**

Amphibians require moisture for at least a portion of their life cycle and many require standing or flowing water for reproduction. Although nearly all of the Project site is dry for much of the year, a number of amphibian species occur or may occur on the Project site within the few areas of perennial surface moisture. There are a number of terrestrial species that may or may not require standing water for reproduction. These species are able to survive in dry areas by remaining beneath the soil in burrows, leaf litter, or under logs, and emerging only when temperatures are appropriate and humidity is high. Many of these species' habitats are associated with water, and the species emerge to breed once the rainy season begins. Soil moisture conditions can remain high throughout the year within some habitat types depending on factors such as amount of vegetation cover, elevation, and slope aspect.

The Project site provides habitat for common amphibian species such as the California toad (*Anaxyrus boreas halophilus*) and Baja California treefrog (*Pseudacris hypochondriaca hypochondriaca*), which were both observed during surveys (BonTerra Consulting 2005). The black-bellied salamander (*Batrachoseps nigriventris*) is expected to be present in the scrub and woodland vegetation types at the western and southern edges of the Project site.

### **Reptiles**

Reptilian diversity and abundance typically varies with vegetation type and substrate characteristics. Many species occur in only one or two vegetation types; however, most will forage in a variety of situations. Most species that occur in open areas use rodent burrows for cover, protection from predators, and shelter during extreme weather conditions.

Common reptile species observed or expected to occur in the Project site include the western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), western whiptail (*Aspidoscelis tigris*), gopher snake (*Pituophis catenifer*), California kingsnake (*Lampropeltis californiae*), red racer (*Coluber flagellum piceus*), and southern Pacific rattlesnake (*Crotalus oreganus helleri*). Other species that may occur include the Skilton's skink (*Plestiodon skiltonianus skiltonianus*), western red-tailed skink (*Plestiodon gilberti rubricaudatus*), southwestern threadsnake (*Rena humilis humilis*), western yellow-bellied

racer (*Coluber constrictor mormon*), and California glossy snake (*Arizona elegans occidentalis*).

### **Birds**

A variety of bird species are expected to reside in the Project site throughout the year. Other species are present only during certain seasons. For example, the white-crowned sparrow (*Zonotrichia leucophrys*) occurs on the site during the winter season and then migrates north in the spring to breed during the summer.

Scrub vegetation types in the Project site supports bird species adapted to the dense, low vegetation that typifies these areas. Although large numbers of individuals can often be found inhabiting these vegetation types, species diversity is usually low to moderate. Common breeding residents of these habitats include California quail (*Callipepla californica*), Bewick's wren (*Thryomanes bewickii*), California thrasher (*Toxostoma redivivum*), spotted towhee (*Pipilo maculatus*), and California towhee (*Melospiza crissalis*). During winter months, the scrub vegetation provides potential areas where a number of species may be found that migrate from breeding grounds further north. Hermit thrush (*Catharus guttatus*), fox sparrow (*Passerella iliaca*), white-crowned sparrow, and golden-crowned sparrow (*Zonotrichia atricapilla*) are expected to be common winter residents in this vegetation in the Project site. By March, migratory birds (such as warblers and vireos) return from wintering grounds and begin to appear in the Project region.

Grassland vegetation types support fewer bird species than most other vegetation types in the Project site. However, these areas do support breeding residents including the mourning dove (*Zenaidura macroura*), Say's phoebe (*Sayornis saya*), horned lark (*Eremophila alpestris*), lark sparrow (*Chondestes grammacus*), and western meadowlark (*Sturnella neglecta*). Migratory birds expected to use this vegetation type on the site, either during the summer or winter, include species such as western kingbird (*Tyrannus verticalis*) and American pipit (*Anthus rubescens*).

Woody and herbaceous vegetation along pools, seeps, streams, ponds, and other watercourses can be extremely important to birds by providing food, cover, and breeding habitat. The riparian vegetation types in the Project site provide potential resources for a wide variety of resident and migratory birds. Resident species observed include the acorn woodpecker (*Melanerpes formicivorus*), northern flicker (*Colaptes auratus*), black phoebe (*Sayornis nigricans*), western scrub-jay (*Aphelocoma californica*), bushtit (*Psaltriparus minimus*), western bluebird (*Sialia mexicana*), and song sparrow (*Melospiza melodia*) (Impact Sciences 2003). Summer residents observed during surveys of these vegetation types in the Project site include the ash-throated flycatcher (*Myiarchus cinerascens*), black-headed grosbeak (*Pheucticus melanocephalus*), blue grosbeak (*Passerina caerulea*), and Bullock's oriole (*Icterus bullockii*) (Impact Sciences 2003). During spring and fall migration, a variety of migratory birds are expected to use these vegetation types on the site. Some migrants include the pacific-slope flycatcher (*Empidonax difficilis*), warbling vireo (*Vireo gilvus*), Cassin's vireo (*Vireo cassinii*), yellow warbler, black-throated gray warbler (*Setophaga nigrescens*), Townsend's warbler (*Setophaga townsendi*), MacGillivray's warbler (*Geothlypis tolmiei*), and Wilson's warbler (*Cardellina pusilla*).

Common raptors observed within the Project site include the golden eagle, red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), and American kestrel (*Falco sparverius*) (Impact Sciences 2003). Other raptors observed or expected to occur in the Project site include the northern harrier (*Circus cyaneus*), Cooper's hawk (*Accipiter cooperi*), and sharp-shinned hawk (*Accipiter striatus*).

### **Mammals**

Rodents and other small mammals are expected to be among the most diverse and widespread mammals in the Project site. Deer mouse (*Peromyscus maniculatus*), California ground squirrel (*Otospermophilus beecheyi*), and California pocket mouse (*Chaetodipus californicus*) are common rodents that are expected to occur throughout the Project site. Woodrats (*Neotoma* sp.) typically occur in woodlands and may occur throughout the woodland and chaparral vegetation on the property. Open grassy areas appear to provide suitable habitat for the western harvest mouse (*Reithrodontomys megalotis*), Pacific kangaroo rat (*Dipodomys agilis agilis*), brush mouse (*Peromyscus boylii rowleyi*), and the Botta's pocket gopher (*Thomomys bottae*).

Bats occur throughout most of Southern California and may use portions of the Project site to forage. The oak woodland and riparian vegetation in several areas on the site provides potential roosting habitat for many bat species. Many of the bats that could potentially occur on the site are not observable during the winter due to either hibernation or migration, depending on the species. Common bat species that may forage or roost on the site include the big brown bat (*Eptesicus fuscus*), Mexican free-tailed bat (*Tadarida brasiliensis*), California myotis (*Myotis californicus*), Yuma myotis (*Myotis yumanensis*), canyon bat (*Parastrellus hesperus*), and hoary bat (*Lasiurus cinereus*).

Carnivores may be common throughout the Project site and include many predatory and omnivorous species. The coyote (*Canis latrans*) was observed (Impact Sciences 2003) and is expected to occur throughout the Project site, while the gray fox (*Urocyon cinereoargenteus*) may occur more specifically in the vicinity of the riparian vegetation. Other carnivores that are expected to occur include the raccoon (*Procyon lotor*), American badger (*Taxidea taxus*), striped skunk (*Mephitis mephitis*), and bobcat (*Felis rufus*). Larger mammals such as the pronghorn antelope (*Antilocapra americana americana*), black bear (*Ursus americanus*), and mountain lion (*Felis concolor*) frequent the foothills above the Project site and are expected to occasionally forage at lower elevations, including within the Project site. Open grassland vegetation types and the understory of scrub and woodland vegetation types provide foraging opportunities for herbivorous mammals. Common herbivores observed during field surveys include the desert cottontail (*Sylvilagus audubonii*), feral pigs (*Sus scrofa*), and mule deer (*Odocoileus hemionus*).

## **Wildlife Movement**

### **Introduction**

The following describes the existing landscape conditions on the Project site used for wildlife dispersal at both the local and regional scale. A number of wildlife species disperse through or use the Project site at the local scale for either foraging or nesting, integrating some

landscape areas into their extended home ranges. However, in general, a lack of vegetation cover and the presence of significant existing barriers to wildlife dispersal combine to make the Project site an area of limited opportunity for regional wildlife movement. The wildlife movement discussion acknowledges that individual animals move on and off the site and travel across portions of it; this discussion also recognizes that some species may cross significant portions of or the entire site on occasion.

Regional and local wildlife movement can be organized into three major categories: (1) movement within home ranges (e.g., foraging for food or water, defending territories, or searching for mates, breeding areas, or cover); (2) dispersal that serves to extend range distributions; and (3) seasonal migration. In addition, the transfer of genes and the enhancement of genetic variability in populations of less agile wildlife are important to consider.

Another important concept of wildlife movement involves separating wildlife into five ecological groupings or guilds of species that share similar life histories, home ranges, and dispersal capabilities. These five guilds are (1) high mobility ground-dwelling species; (2) moderate mobility ground-dwelling species; (3) low mobility ground-dwelling species; (4) high mobility aerial species; and (5) moderate mobility aerial species.

The high mobility ground-dwelling guild consists of large to moderately sized mammals such as black bear, bobcats, coyotes, mountain lions, and mule deer, which require large home ranges. The moderate mobility ground-dwelling guild includes species such as the American badger, raccoon, and western gray squirrel (*Sciurus griseus*) that have smaller home ranges. Small wildlife with small home ranges that were placed in the low mobility ground-dwelling guild include amphibians, reptiles and rodents, which frequently can be limited in their movements by man-made physical obstructions. The high mobility aerial guild includes most birds and bats, which are typically not constrained by physical obstructions such as roads and buildings. The moderate mobility aerial guild includes birds with relatively weak flight abilities (i.e., the wrentit [*Chamaea fasciata*]), which are unable to cross or move into areas of unsuitable habitat.

A number of terms are used in this discussion of wildlife movement to refer to areas through which wildlife move from one landscape location to another. To simplify concepts, to clarify terminologies, and to facilitate discussion of wildlife movement in this analysis, definitions for these terms are provided:

**Travel Route:** A landscape feature (such as a ridgeline, drainage, canyon, or riparian strip) within a larger open space that warrants use to move frequently and access necessary resources (e.g., water, food, cover, den sites). Travel routes can be used frequently during more or less daily activities to move back and forth within an individual's home range or territory (an area which organisms occupy and defend, usually to protect offspring and other members of the same species or their breeding and living quarters). A specific travel route may be repeatedly used by wildlife because it provides the least topographic resistance to animals moving from one area to another. It contains adequate food, water, and/or cover for individuals during movement between open space habitats.

**Wildlife Corridor:** A portion of landscape, usually linear and generally a smaller scale that connects two or more habitat patches that would otherwise be isolated. Wildlife corridors frequently are bound by urban land areas or other areas that are unsuitable for wildlife. A wildlife corridor generally supports suitable cover, food, water, or other resources to support individuals moving through the corridor. The value of a corridor varies among the species that use it since different species require different habitats that may or may not be present within a given corridor. Large, landscape-level corridors (often referred to as landscape linkages, which are described further below) can simultaneously provide both transitory habitat for all five mobility guilds including wide-ranging species and resident habitat values for a diversity of less mobile species.

**Landscape Linkage:** A segment of land with similar characteristics and habitat that connects similar habitats, thereby facilitating dispersal of species that occupy such habitat types. These linkages connect the natural processes that are associated with the habitat. Linkages are typically associated with larger scale connectivity.

**Wildlife Crossing:** A narrow or otherwise limited area, relatively short in length and generally constricted in nature, that allows wildlife to pass under or through a physical obstacle or barrier that otherwise hinders or prevents wildlife movement, but which otherwise lacks most or all of the habitat values required by an individual. Wildlife crossings typically are man-made and include culverts, underpasses, drainage pipes, and tunnels. These structures provide access across or under roads, highways, pipelines, or other physical obstacles. Such areas often represent “choke points” along a wildlife movement corridor, impeding wildlife movement and increasing the risk of predation; although, absent such crossing, the man-made obstacles (e.g., a freeway) might make movement very difficult for terrestrial wildlife.

**Landscape Area:** An area of land that has a particular quality or activity and similar characteristics. The scale can vary depending on the application but typical is used in regard to larger scale concepts.

**Home Range:** The area to which an animal usually confines its daily activities.

Landscape linkages used by wildlife of all five mobility guilds can serve to provide dispersal corridors between areas that provide wildlife habitats and that are otherwise separated by impassable terrain, vegetation, developed lands, or other disturbances. The fragmentation of open spaces resulting from urbanization can create isolated “islands” of wildlife habitat imbedded in a suitable matrix. Landscape linkages mitigate the effects of fragmentation by allowing animals to move between otherwise isolated habitats, thereby permitting depleted populations to be replenished; promoting genetic exchange; and providing wildlife with potential escape routes from fire, predators, and human disturbances. These linkages thus provide opportunities to reduce the likelihood that catastrophic events (such as fire or disease) may result in extirpation of populations of susceptible species. Landscape linkages also may serve as travel routes for individual animals as they disperse across their home ranges in search of food, water, mates, and other necessary resources.

In large, continuous open space areas where there are few or no man-made or naturally occurring physical constraints to wildlife movement, wildlife corridors, as defined above, may not exist or be determinable. Given an open space area that is both large enough to maintain viable populations of certain species and to provide a variety of local travel routes (e.g., canyons, ridgelines, trails, riverbeds), individuals of all five mobility guilds will use those local routes while searching for food, water, shelter, and mates and may not cross into other large open space areas to access additional habitats. Within the project region, the Tehachapi Mountains east and north of I-5 represent an example of an area that is sufficiently extensive and open (with few current barriers to movement), allowing resident individuals for many species living there adequate habitat and space to satisfy virtually all life-history requirements (e.g., nesting, foraging, breeding) (Beier 2004; Penrod et al. 2004, 2005).

For a subset of the guilds or species that occur in the region, landscape linkages may play a greater role. Based on their size, location, vegetation cover and composition, and availability of food resources, some landscape areas (such as large drainages and canyons) may be occupied by dispersing wildlife (such as lower mobility guilds) for longer periods, and may even serve as habitat patches, particularly for small- and medium-sized animals (low and medium mobility guilds). This is especially true if a wildlife corridor is located in a larger open space area with differing types of surrounding habitat or other landscape features. However, once open space areas become constrained and/or fragmented as a result of urban development or construction of physical obstacles, the remaining landscape features or travel routes that connect the larger open space areas can become movement “corridors”. To fulfill this corridor role, they must provide adequate space, cover, food and water, and must not support barriers or behavioral obstacles (e.g., human-generated noise, lighting) that could hinder wildlife movement.

Higher mobility guilds, including species such as such as mule deer, bear, mountain lion, gray fox, and coyote and medium mobility guilds including species such as raccoon, skunk, badger, and opossum [*Didelphis virginiana*]) have relatively large home ranges through which they move to secure adequate food, water, and breeding and wintering habitat. Corridors that serve higher mobility guilds may also serve low mobility guilds including species such as such as reptiles, amphibians, and rodents) as long as suitable live-in habitat attributes are also present. Regional movement for these species can facilitate gene flow among populations. Lower mobility guilds may require local “stepping stone” movement of individuals between populations. It may take several separate movements of individuals or even generations of individual species to traverse an entire corridor.

Ideally, a wildlife corridor or a landscape linkage should encompass a heterogeneous mix of vegetation types to accommodate the ecological requirements of a multiple mobility guilds and a wide variety of resident species in any particular region. Most species require adequate vegetation cover to protect against weather and predators during dispersal activities and when foraging for necessary food. Drainages, riparian areas, and forested canyon bottoms normally serve as natural movement corridors because these features provide cover, food, and often water for a variety of species. The Project region contains many natural and man-made features which contribute to a large degree of isolation and narrow landscape linkages. The mountainous habitats and associated species are restricted due to the stark contrast with lower foothill and valley habitats. Very few species in the Project region tend to move

across open or otherwise exposed landscape areas unless individuals are compelled to move under duress and the open areas are the only subregional dispersal option available. However, some species adapted to lower elevation foothills or valley floor habitats in the region, including the Project Site, may readily use such landscapes using different modes of travel and having different tolerances to exposure. The high degree of separation due to terrain and elevation and habitat in the Project region has resulted in a concentrated area of evolutionary divergence. The project region, consequently, represents the edge of many species or subspecies ranges. Similarly, natural landscape features of the region, such as the Tehachapi Mountains, form a natural linkage or corridor on a regional scale. Many of these features are further constrained by anthropogenic barriers such as I-5 and the California Aqueduct resulting in small wildlife crossings where passage for some species is one of a small number of remaining linkages in the region.

For smaller animals or low mobility guilds (such as rodents and reptiles), wildlife corridors must be able to provide adequate food and cover to survive for sustained rather than just brief periods. In areas with large expanses of grassland and little cover, typical medium- and large-bodied animals, or low to medium mobility guilds, are generally adapted otherwise. Larger animals are fleet-footed (pronghorn antelope, and coyote) and typical of a high mobility guild. Some, like the badger, can dig into hiding in less than a minute. Smaller animals, typically of the low mobility guild, usually are fossorial (inhabit burrows or holes dug into the ground) regardless of the habitat they inhabit. Such species are typical of those which inhabit the Project site, and an open-space corridor for these species might require wider spaces than one for animals that require cover.

Wildlife and plant diversity is nearly always enhanced by the maintenance of naturally occurring open space linkages in the face of land development, but there are other critical considerations for development and open space design. So, while naturally occurring landscape linkages should be maintained wherever they exist, it is important to note that many open spaces do not facilitate dispersal for low mobility guilds or otherwise types of wildlife that require cover because of inadequate vegetation cover or physical constraints or impediments. Not all areas through which wildlife move contribute positively to regional species persistence (some areas draw individuals from higher quality habitats to lower quality ones). Some species of high mobility aerial guilds, such as birds and bats for example, do not require landscape linkages to realize dispersal between open spaces, and many species (including most insects) can persist regionally in multiple large but circumscribed populations. Constrained landscape linkages may subject wildlife to higher mortality from edge effects and increased contact with humans, and constraints on the linkage can result in lower (not greater) likelihoods of regional persistence. In most circumstances, open space linkages within development, especially linear narrow corridors, have not been shown to enhance survival of the species that are most in need of conservation attention.

In development adjacent to wildlands, where development is of such a density that only limited movement corridors are an option, designs that separate development from protected open spaces by use of hardened edges are the preferred design strategies (MacArthur and Wilson 1967; Soule 1987; Harris and Gallagher 1989; Bennett 1990). The dominant conservation planning strategy for most areas in Southern California and elsewhere in the West is to focus development in one area and expand the open space



available for movement with minimal animal-human interaction, rather than to incorporate limited movement corridors in the developed areas at the expense of adjoining open space (Bolger 2007; Crooks et al. 2004). The strategy is most applicable to areas where corridors with limited sparse development would face multiple other restrictions to movement such as (in the case of the Project) roadways, aqueducts, and otherwise disturbed areas. Development projects in areas that are mostly surrounded by large contiguous open spaces in all directions with few or no restrictions to movement do not need to rely on such limited corridor strategies to maintain linkages. However, planners should look at the surrounding areas to determine where development is possible and consider wildlife corridor provision in each project, especially if the surrounding areas are also subject to development.

### ***Methodology***

The analysis of wildlife movement within the Project site and vicinity considers substantial scientific literature regarding wildlife movement corridor principles; landscape linkage considerations from island biogeographic theory; and site characteristics from ground surveys, topographic maps, and aerial photographs. Regional wildlife linkage studies, including those conducted by the South Coast Wildlands Project (Penrod et al. 2004, 2005) were reviewed. Further evidence was gleaned from site-specific and Tejon Ranch-wide studies, including assessments of Tejon Ranch lands for the ranch-wide agreement that identified Tejon Ranch lands with the highest wildlife dispersal value; the proposed reserve design for Tejon Ranch that was prepared by the Conservation Biology Institute and South Coast Wildlands Project; a motion-sensitive camera study of I-5 underpasses by the Tejon Ranch Company; an assessment of the site's wildlife movement value from Dr. Dennis Murphy from the University of Nevada, Reno (Murphy 2002); a linkage analysis of the Project region that was conducted by Paul Beier (2003); a wildlife movement study by Tejon Ranch, which included the Project site (Pioneer Environmental Services 2004); and a linkage modeling study designed to replicate and refine the South Coast Wildlands Project's Tehachapi Linkage modeling (Dudek 2013).

Potentially existing landscape linkages between large open space areas in the region were identified and characterized by BonTerra Consulting, as were potential wildlife crossing points across existing major impediments to wildlife movement, specifically along I-5, SR-138, and the California Aqueduct. In addition, BonTerra evaluated wildlife movement between the Project site and regional open space areas using the sources described above and additional site-specific field reconnaissance surveys searching for evidence of presence and movement.

Additional field data were collected during various surveys of the Project site (see Table 5.7-2, Biological Surveys Conducted within the Project Site [1999–2015]) and were used to identify probable animal movement corridors on the Project site. Those data include assessment of the type and extent of vegetation on the site that may facilitate wildlife movement; the location and characteristics of on-site riparian drainages and channels; identification of animal signs (primarily scat and tracks); characterization of the physical attributes of potential physical and biotic wildlife movement barriers and choke points; and determination of type and extent of surrounding land uses and landscape conditions. Because the Project site is mostly surrounded by undeveloped open space, the focus of the

analysis was on potential regional open space connections since wildlife species that exhibit large home ranges, when unimpeded, can move somewhat freely to available open space in search of food, water, and shelter.

The most extensive and recent of these various studies of regional connectivity was the modeling study conducted by Dudek (2013), which focuses on wildlife movement through the I-5 corridor in the Tejon Ranch area. The study uses multiple survey methods, including use of a motion-sensitive camera placed at several I-5 underpasses. Pre-modeling analysis included identifying species present in the Tehachapi Mountains and the Sierra Nevada that would be potentially recorded at the study sites, then assigning them into the five different guilds.

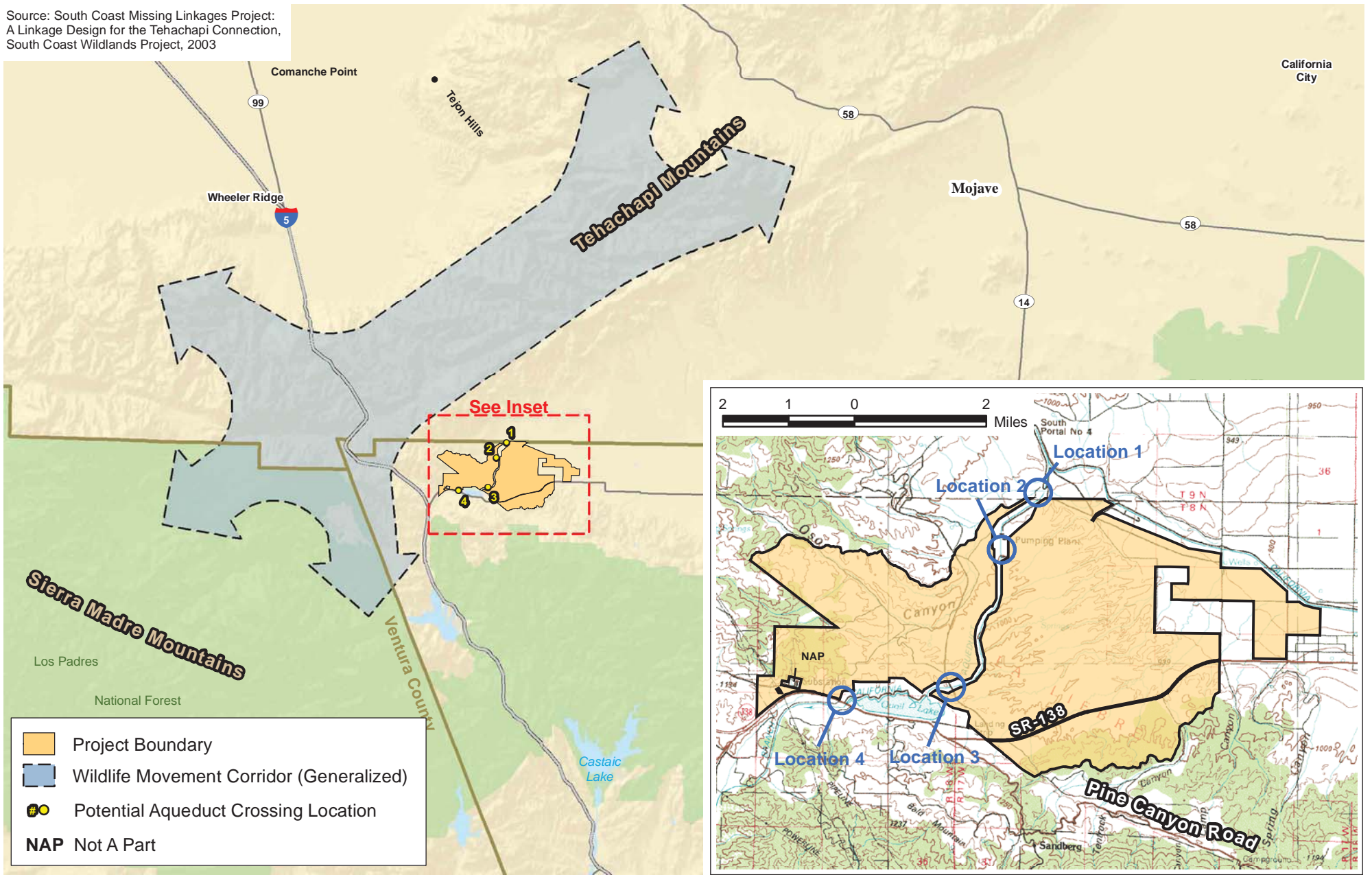
The Dudek study included a more recent and refined analysis of the Missing Linkages permeability modeling study and proposed linkage (Penrod et al. 2003). The study re-examined the permeability modeling analysis that was used as the basis for identifying proposed linkages (Majka et al. 2007). Dudek updated the model based on current conditions and used more refined site data for the permeability modeling analysis. The analysis showed that wildlife movement occurs at least at some level through the whole study area, but the northern portions of the study area provide the most permeable (available) wildlife movement routes. This study as well as the original Missing Linkages study reviewed the entire project region, inclusive of the Project site, and focused on more mountainous areas in subsequent detail study based on preliminary results indicating highest permeability within these areas. While these corridors are considered to be the highest importance for regional wildlife preservation, other wildlife corridors or landscape linkages occur to lesser degree elsewhere in the region.




In the analysis of wildlife movement within the project region, one additional method was utilized. Literature regarding several representative species from each guild grouping was reviewed. Specific points of review included preferred habitat, known species range, known local distribution, and known population locations with the western Antelope Valley. This data was then compared to regional scale vegetation maps (USGS California Gap Vegetation Data) to determine if habitat, such as foothill grasslands, on the project represent a highly constrained linkage in habitat surrounding the Antelope Valley and if such a restriction would likely effect regional populations of these species occupying such habitats.

### ***Regional Wildlife Movement***

Recent reports that discuss the biotic resources in the vicinity of the Tehachapi Mountains (including the Project region) describe the importance of these mountains as a landscape linkage between the Sierra Nevada and the Coast Ranges (see Exhibit 5.7-6, Regional Wildlife Movement). Typically, landscape linkages facilitate wildlife movement between large areas of similar terrain, vegetation types, or habitats. Because of the unique adaptations required of wildlife species that inhabit the low elevations of the San Joaquin Valley to the north of the Tehachapi Mountains and the Antelope Valley and adjacent Mojave Desert to the south of the mountain range, most species that occupy these geographically separate and distinct ecosystems do not venture south or north, into or over, the Tehachapi Mountains. As noted above, wildlife species within the mountains surrounding the project site are expected to move freely within the mountains to satisfy their life history requirements. Accordingly,

Source: South Coast Missing Linkages Project:  
A Linkage Design for the Tehachapi Connection,  
South Coast Wildlands Project, 2003

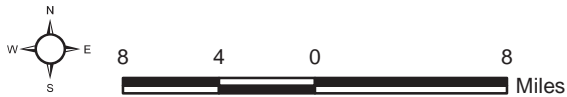


-  Project Boundary
-  Wildlife Movement Corridor (Generalized)
-  Potential Aqueduct Crossing Location
- NAP** Not A Part

## Regional Wildlife Movement

Exhibit 5.7-6

Centennial Project



D:\Projects\3CEN\Centennial\WXD\EIR\Ex\_Regional\_Wildlife\_20151119.mxd

most wildlife movement in the mountains probably occurs within large landscape areas in upland portions of the Tehachapi range, and to the south of the Centennial property within the western extent of the San Gabriel Mountains much more than between these areas. The same can be expected of movement on the valley floor and surrounding low foothills, where the proposed project is located.

The Biological Resources Assessment of SEAs in the Project vicinity states that the region encompasses “an important linkage between the San Gabriel Mountains and the Tehachapi Mountains”, and that “this linkage to the Tehachapi Mountains is important because it represents a link to the western-most extent of the Sierra Nevada Mountains . . . represent[ing] the only mountain linkage from the Transverse Ranges or the Coast Ranges to the Sierra Nevada Range” (PCR et al. 2000). The Biological Assessment also suggests that lands within SEA 17 may be an important topographic reference for migrating birds, with essential high elevation foraging grounds along the route. The Assessment does not, however, address the significant constraints on movement posed by I-5 and the Aqueduct. The assessment also does not reference any studies that demonstrate that the Project site serves a significant element of the regional landscape linkage.

Habitat types in the Tehachapi Mountains vary significantly with elevation and directional orientation. Their lower elevation foothills, for example, are characterized by scrub and woodland plant communities, while higher elevations support conifer-dominated habitats. Abiotic factors (e.g., topography, soil type, and temperature) also vary across the range. As a result, movement of certain groups of wildlife or mobility guilds (as either individual events or over multiple generations) occurs within the habitats to which the group or particular species are best adapted. For example, species adapted to scrub communities are expected to move through the Tehachapi Mountains in the lower elevation areas (foothill slopes) that support scrub communities, while species adapted to pinyon forest would be more likely to move through the higher elevation zone. Wildlife corridor assessments conducted by Paul Beier (2003) and Tejon Ranch (Pioneer Environmental Services 2004) generally confirm that wildlife movement occurs within, but not across, the various habitat types and elevation zones within Tehachapi uplands, foothills, and the adjacent plains and desert areas to which particular species are associated.

I-5 presents a formidable obstacle to animals attempting to move east or west along the Tehachapi Mountains since it is a primary and heavily traveled transportation corridor that is elevated in some areas and is bordered by fences and dividers along extensive stretches. While I-5 provides a substantial barrier to wildlife dispersal, individuals of a variety of species are expected to occasionally attempt to make highway crossings at grade and more frequently through underpasses and overpasses with reduced traffic. The at-grade crossings are less likely to be successful. Occasional movement is not likely to occur frequently enough to link continuous ecological areas on either side of I-5.

A number of culverts, underpasses, and overpasses occur along I-5 from approximately the Tejon Ranch headquarters in Lebec to the intersection with SR-138 and represent potentially more suitable pathways for navigating the I-5 obstacle. Ongoing evaluations of photographs taken from remote cameras positioned in all 11 underpasses and culverts under I-5 between the California Aqueduct undercrossing in the Grapevine area and the

intersection of I-5 with SR-138 indicate that certain of these underpasses facilitate movement under I-5 by larger, wide-ranging high mobility species (e.g., deer, coyote, bobcat, and fox) (Impact Sciences 2003; Pioneer Environmental Services 2004). Additional data gathered in more recent years indicate that some underpasses are used on a fairly regular basis by some species such as deer, coyote, and bobcat. The importance of such areas was recognized in the choice of lands for preservation in the Ranch-wide Agreement.

For species attempting to move from the Tehachapi Mountains (east of I-5) in a south-southwest direction to the Angeles National Forest, open spaces to the east of I-5 and west of the Aqueduct offer a potential wildlife corridor extending at least as far south as SR-138. These areas, which include the riparian communities along Oso Canyon and its tributaries and the oak woodlands along the western portion of the Project site (which continues farther to the west), may be suitable areas for some wildlife movement given available forest or shrubland vegetation cover, which may serve as shelter and protection from predators.

SR-138 currently does not pose a substantial hindrance for most medium to high mobility groups or medium to large wildlife species trying to cross it because it is a two-lane surface road with no fencing or dividers and because it is not as heavily traveled by auto and truck traffic as I-5. Additionally, small culverts may allow for passage of at least smaller animals under SR-138. However, this highway is expected to become a more formidable barrier in the near future due to Caltrans' pending plans to slightly realign and increase it to a six-lane divided freeway that includes a 22-foot median to accommodate area growth; this SR-138 expansion is expected to occur regardless of the Project (refer to Section 4.5.5 in the Project Description).

The West Branch of the California Aqueduct extends from the north and through the center of the Project site south to Quail Lake, crosses underneath SR-138, and reappears immediately south of SR-138, where it continues in a southwesterly direction to its intersection with I-5. Because the Aqueduct channel has steep, smooth rounded sides, often has high velocity water flows, and is fenced on both sides with a relatively high chain-link fence, it represents a significant wildlife barrier. Animals that might travel down the open spaces to the east of I-5 and west of the Aqueduct (across the western portion of the site), and then successfully cross SR-138 west of Quail Lake would likely be funneled into the intersection of the Aqueduct with I-5; the small culvert at this intersection is fenced and impassable to wildlife. The intersection of the SR-138 and the Aqueduct is passable by a narrow 50 foot gap, and some individuals may cross by following the SR-138 shoulder eastward. Alternatively, wildlife could move north to a large underpass which conveys a tributary to Gorman Creek, which is regularly used by wildlife.

Wildlife movement to the east of the Aqueduct, particularly in a north-south direction, is also problematic. The East Branch of the Aqueduct, which runs off site near the northern boundary of the Project site, forms an essentially impassable barrier to animals moving north and south. Drainages are oriented west-east with little cover of vegetation other than grasses and an occasional tree. While extensive open space is found in these areas through which wildlife presumably can move freely, both the West Branch and the East Branch of the Aqueduct significantly preclude north-south regional wildlife movement from the Tehachapi

Mountains through the site to the Angeles National Forest. The West Branch of the Aqueduct and the formidable fencing that surrounds it severs east-west regional dispersal options through the site except for four crossings or “choke points” (listed below). Given that the east-west drainages dissipate into porous soils at the eastern portion of the site and given that areas to the east of the site are in agricultural use, the value of the portion of the site east of the Aqueduct for wildlife dispersal is expected to be minimal.

Four minor gaps in the West Branch of the California Aqueduct provide opportunities for wildlife to move across the Project site, as depicted on Exhibit 5.7-6, Regional Wildlife Movement. Specifically, wildlife may cross the Aqueduct just to the north of the northern site boundary where the Aqueduct is underground (Location 1); at the Oso Pumping Plant where the Aqueduct is located underground (Location 2); where the National Cement Plant Road bridges the Aqueduct (Location 3); and to the west of Quail Lake where the Aqueduct crosses under SR-138 (Location 4). Wildlife that might cross the West Branch of the Aqueduct at any of these locations might proceed southward to the Angeles National Forest or northward to the western end of the Tehachapi Mountains. Potential use and limitations of each of the Aqueduct crossings are discussed below.

**Location 1:** Location 1 is at the far northern boundary of the Project site. This crossing is not fenced and wildlife may be able to move across the road that bridges the Aqueduct. Wildlife that cross the Aqueduct at this location would have to traverse open areas to reach the crossing from the north or east, then traverse over three miles of relatively open grassland and cross SR-138 to reach cover provided by woodlands south of SR-138. As a result, this crossing is likely to provide occasional wildlife movement opportunities for a subset of species of the region typical of grassland dominated landscapes similar to the project site.

**Location 2:** A barbed-wire fence, an Aqueduct security requirement, surrounds Location 2 (at the Oso Pumping Plant) and poses a barrier to the movement of larger wildlife species of the ground dwelling high mobility guild. Some larger mammal species of this guild (e.g., coyote, fox, or bobcat) may successfully pass through, under, or around the fence and cross the Aqueduct. The fence probably does not pose a barrier to the movement of ground dwelling low and moderate mobility fluids or smaller wildlife species (e.g., insects, rodents, and reptiles) that may pass through the fence and then cross the Aqueduct. Wildlife may travel along the Oso Creek corridor while approaching (or departing) from west of Location 2, and then traverse approximately 1,700 feet of grassland to reach the Aqueduct crossing. Wildlife approaching or departing from east of Location 2 would again have to traverse a large grassland area (approximately three miles) and SR-138 to reach the shelter provided by the woodlands south of SR-138. For similar reasons, As a result, this crossing is likely to provide occasional wildlife movement opportunities for a subset of species of the region typical of grassland dominated landscapes similar to the project site.

**Location 3:** The bridge on the National Cement Plant Road is not fenced on the northern and southern sides of the Aqueduct; large and small wildlife species may move across the road that bridges the Aqueduct. Wildlife approaching Location 3 from woodlands in the southern portion of the Project site may cross SR-138 at grade, proceed along the large drainage that parallels the north side of SR-138, then traverse approximately 2,600 feet of open grassland. Wildlife may travel along Oso Creek and its tributaries while approaching (or departing) from the north of Location 3, then traverse approximately 3,300 feet of open grassland to

reach the Aqueduct crossing. Wildlife use of this crossing is likely limited at certain times due to truck traffic to and from the National Cement Plant, which occurs during the day. More favorable conditions for wildlife to cross the Aqueduct at this location occur at night when there is little or no truck traffic. This crossing is also likely to provide occasional wildlife movement opportunities for a subset of species of the region typical of grassland dominated landscapes similar to the project site.

**Location 4:** Location 4 has a chain-link fence where there is a gravel embankment between the Aqueduct and the road. Larger wildlife species unable to cross the chain-link fence would have to move further down the highway to an area where the fence line transitions to a more permeable barbed wire fence. Wildlife (both large and small species) would have to move diagonally across SR-138 to cross the Aqueduct. It is expected that ground dwelling high mobility guilds have better chances of successfully crossing the highway than animals of low mobility guilds. To approach Location 4 from Oso Canyon, wildlife may move through the oak woodland and areas of scattered oaks, and then traverse approximately 750 feet of open grassland. To approach Location 4 from the woodlands south of SR-138, wildlife may move along one of the drainages then traverse approximately 1,000 feet of open grassland. Similarly, this crossing is likely to provide limited wildlife movement opportunities for a subset of species of the region typical of grassland dominated landscapes similar to the project site.

Although individual direct movement across the site may be limited for larger species, it is possible for insects, plants, birds, bats, and other small-bodied species to pass through some of the low elevation “choke points” described above. Such movement over many generations may contribute to gene flow between subpopulations on different parts of the site or on opposite sides of the site. However, this type of movement is expected to occur more readily in other areas in the vicinity, but off site where there are fewer restrictions. Individual dispersal events by wildlife from adjacent open spaces onto the site, with individuals returning to an original location, are expected to occur as species utilize the site for foraging. This type of movement is discussed in the “Local Wildlife Movement” section below.

The analysis of representative plant and wildlife species from each guild (described in the Wildlife Movement Methodology section above) provided similar results. Areas providing connectivity—specifically, adjacent areas of similar habitat, were generally available to a greater degree outside the Project’s proposed development footprint. Most representative species occurring on the Project site occupy scrub and/or grassland vegetation with varying degrees of annual and scrub cover. Grouping the two vegetation communities reveals a large degree of connectivity throughout the Antelope Valley, as expected, because the grasslands and scrublands of the Project site occur as remnant patches and are scattered across the valley floor. The regional Southcoast Missing Linkages study similarly reviewed vegetation types for the purposes of determining regional species movement opportunities. The study report includes a map of aggregated vegetation types showing that grasslands do not ring the Antelope Valley but are instead concentrated at the western end. Moving in a northwesterly direction from the site along the Tehachapi foothills, grasslands transition to scrub and woodland as you go beyond the project mitigation lands. Although vegetation types in the region may not be classified with the same name, the structures are similar and there are likely to be many shared species making the areas suitable for occupation and



movement. Most of the representative wildlife species that were reviewed fell into this category including desert stink beetles (*Eleodes* sp.), short horned-grasshopper (*Melanoplus* sp.), monarch butterfly, side-blotched lizard, southern pacific rattlesnake, horned lark, western meadowlark, northern harrier, coyote, and cottontail rabbit. These species will traverse, breed, or forage in the surrounding vegetation types such as rubber rabbitbrush scrub, desert scrub, and undifferentiated grasslands. Some wildlife species occurring in the Project region may have more specific habitat requirements such as the Tehachapi pocket mouse and the coast horned lizard. Based on current CNDDDB records, although historically ranging wider, the current distribution for the Tehachapi pocket mouse is limited to the Tehachapi Mountains slopes. The coast horned lizard is more widely distributed currently extending from the southern coastal ranges into the Tehachapis and the southern Sierra Nevada range as well as the Central Valley. Plant species reviewed in this analysis had a similar set of results with some common species from the Project site occurring in a variety of habitats throughout the Antelope Valley such as the California poppy bristly fiddleneck (*Amsinckia tessellata*), Mojave suncup (*Camissonia campestris*), rubber rabbitbrush, little gilia (*Gilia minor*), needle goldfields, Veatch's blazingstar (*Mentzelia veatchiana*). Some plant species with narrower habitat requirements such as desert larkspur (*Delphinium parishii*), variable linanthus (*Leptosiphon parviflorus*), creamcups (*Platystemon californicus*), and thistle sage (*Salvia carduacea*) may have a more fragmented distribution reflective of the location of the specific microhabitat type. Desert larkspur is known to occur in creosote bush scrub, Joshua tree woodland, pinyon-juniper woodland, and chaparral which are scarce or non-existent vegetation communities on the site and not within the Project impact area (Jepson 2015, CCH 2016). This species occurs within scattered remnant patches of Joshua tree woodland and creosote bush scrub on the valley floor, but occurs to a much greater degree in higher elevation mountains and foothills in the Project region. The distribution of variable linanthus indicates a tendency for more mountainous or foothill habitat where it occurs in sandy washes, mesas, meadows and openings of coastal sage scrub (Jepson 2015; Prigge, B.A. and Gibson, A.C. 2007). This type of habitat occurs within adjacent higher elevations to a much greater degree than on the Project site, which is consistent with this species' known distribution (CCH 2016). Creamcups reportedly have some degree of affinity for serpentine soils, and the known distribution does not indicate any specific connection through the Project area (Safford et al. 2005). Populations have been recorded in all directions from the Project site (CCH 2016). Thistle sage occurs in sandy or gravelly, open places in creosote bush scrub, coastal sage scrub, and valley grassland in the region and beyond. Similar to the variable linanthus, known occurrences of this species have a preponderance to occur in foothills similar to the upper portions of the Project site and the surrounding areas. Populations of this species are known from all directions of the Project site and would indicate that higher elevation foothills provide connectivity to a greater degree and are more readily available than lower elevation areas such as occurs on most of the Project development area (CCH 2016; Jepson Herbarium 2015; CCH 2016; Lady Bird Johnson Wildflower Center 2017).



The results of the analysis indicate no particular identifiable bottle neck through the Project area for species occurring on the site and within adjacent foothills of the Antelope Valley. For species that are restricted to grasslands and do not utilize scrub habitat, loss of grasslands on the site would result in loss of habitat but would not result in a break in an otherwise contiguous band of grasslands with large populations of these species occurring on either side. For species with more flexible habitat requirements allowing both grasslands and scrub, or species restricted to scrub, would not become disconnected from scrub/grassland habitats on either sides of the Antelope Valley due to the post-project persistence of scattered areas of contiguous habitat across the Western Antelope Valley floor and continuing further to the east. This conclusion can be applied to all ground dwelling mobility guilds and with aerial mobility guilds to an even greater extent due to greater ability to traverse areas of otherwise unsuitable habitat. Little is known about the pollinators of the specific rare plant impacts by the project other than round leaved filaree which is known to be self-pollinating. However, pollinators of both common and rare plants of the region are expected to fit into one or more of the five mobility guilds and all have been shown to have linkages which would persist after Project buildout and would not result in negative effects on regional populations.

#### Long-Term Sustainability of Regional Linkage

As previously described, the Tehachapi Mountains provide a regional landscape linkage between the Sierra Nevada, the Coast Ranges, and the San Gabriel Mountains to the south. Although I-5 and the California Aqueduct substantially reduce the permeability of the linkage for many wildlife species, it remains functional for many species to some degree. This is largely due to the limited amount and sparse nature of development in the vicinity of the remaining wildlife crossings and elsewhere in the Tehachapi Mountains. Keeping the Tehachapi linkage functional is important for the long-term viability of many species and for the overall health of the plant and wildlife communities in the region.

It is widely recognized that Tejon Ranch, the largest single-owner landholding west of central Texas, constitutes an unmatched conservation acquisition opportunity that can greatly benefit wildlife in Southern California. Private holdings in an area the size of the Tehachapi Mountains typically would include many landowners; however, in the case of the Tehachapis, the breadth of the mountain range is owned by a single private entity, the TRC.

Two regional conservation plans will assist in sustaining the functionality of the regional landscape linkage for future wildlife populations. These plans offer elements for long-term sustainability and management of a Tehachapi Mountains landscape linkage: the Tejon Ranch Conservation and Land Use Agreement (TRCRWA) and the Tehachapi Upland Multiple Species Habitat Conservation Plan (TU MSHCP).

Under the TRCRWA, the Tejon Ranch Conservancy will adopt, update, monitor and enforce implementation of the Ranch-Wide Management Plan (RWMP) on dedicated conservation areas and option areas subject to conservation, preservation, mitigation, and enhancement measures, as required under applicable law or imposed by federal, State or local agencies as part of any permit or approval for the Ranch or projects within the Ranch. Maintenance of the open space or conserved lands will be the responsibility of the Conservancy, funded in large part by a fee based on a portion of the purchase price for each residential parcel on

Tejon Ranch. Since Centennial constitutes over 75 percent of the currently planned residential units on the Ranch, it will bear the substantial costs of funding the Conservancy and maintaining wildlife movement corridor areas through the Ranch. As mentioned previously in 5.7.2, no public agency is a party to the Ranchwide agreement, although the federal and State agencies responsible for administering biological protection laws and regulations confirmed that lands under the RWMP continue to be eligible mitigation lands.

In addition, the TU MSHCP ensures the persistence of covered species, including sustaining viable populations of those species, providing for (within property dispersal) and protecting current opportunities for wildlife movement beyond the Ranch by preserving existing landscape linkages. Lands to be conserved as part of the TU MSHCP are adjacent to other lands within Tejon Ranch ownership and are also slated to be protected as part of the TRCRWA. The sum of these interconnected open space commitments, development restrictions, and mitigation measures is a conservation commitment that is, by design, consistent with conservation biology principles calling for large, interconnected blocks of habitat that support the life history requirements of Covered Species and other resident wildlife. The TU MSHCP, if fully implemented, will sustain crucial landscape linkages across cismontane Southern California.

The TU MSHCP will be a major contributor to ensuring the viability of the Tehachapi Landscape linkage into the future. Through the various conditions and measures stipulated by the TU MSHCP for the various covered species, habitat for these and many additional species will be preserved and enhanced, which will promote healthy plant and wildlife communities throughout the region. Although the focus of the TU MSHCP is on the California condor and other species of the montane upland communities, many of the same species occur in the foothills and lowland areas as well, including the Centennial site. These species will benefit from the TU MSHCP in addition to the Centennial Mitigation Preserve program described in this document.

### ***Local Wildlife Movement***

Oso Canyon and its many tributaries west of the Aqueduct and the east-west-oriented drainages that are located east of the Aqueduct undoubtedly are used by some animals as local travel paths as they move across their home range areas on the Project site; however, the Aqueduct probably effectively serves to block east-west movement on the Project site for most ground-dwelling wildlife. As discussed above, limited opportunities for wildlife to cross the Aqueduct have been identified at four locations, but wildlife movement across that formidable barrier is probably a rare event.

Because of the presence of cover and canopy provided by trees and shrubs, and because of the availability of seasonal water, the drainage area immediately north of SR-138 and east of the Aqueduct on the Project site may serve as a valuable foraging resource area. Tracks of mountain lion, bobcat, black bear, and numerous small mammal species were observed along this drainage during the wetland delineation study conducted on the site (Impact Sciences 2002b). Most wildlife using this area likely access it for water and/or to forage by crossing SR-138 from the more vegetated upland areas to the south of SR-138. Because individuals of many of the larger wildlife species in the region tend not to cross large expanses with sparse shrub cover (typical of the majority of the Project site), the central and

eastern portions of the Project site are not likely to be used by them to disperse between and within the regional open space areas in the site vicinity. The Project site does provide unobstructed local movement opportunities for small animals and aerially dispersing plants and animals that reside in the area.

## Special Status Biological Resources

This section addresses special status biological resources that have been observed, reported, or that have the potential to occur on the Project site. These resources include plant and wildlife species that have been afforded special status and/or recognition by federal and State resource agencies (principally the USFWS and the CDFW) and by the California Native Plant Society (CNPS). The CNPS is a conservation organization commonly relied upon for plant distribution and occurrence information. In general, the principal reason an individual taxon (i.e., species, subspecies, or variety) is given such recognition is the documented or perceived decline of its population size, geographic range, and/or distribution. Decline has resulted, in most cases, from habitat loss.

Tables 5.7-6 and 5.7-8 provide a summary of each special status plant and wildlife species, respectively, known to occur in the Project region and shown on adjacent USGS 7.5-minute quadrangle maps. The Project region is chiefly considered to be the western Antelope Valley and associated watersheds west of 90<sup>th</sup> Street West. This includes the slopes of the surrounding ranges that face the Antelope Valley and represents the western edge of the desert biome of the Mojave Desert. The Project vicinity is considered to be the surrounding area within approximately a one-mile radius of the Project site. The Project is located on the USGS Lebec and La Liebre Ranch 7.5-minute quadrangle maps. Ten surrounding quadrangles are the Grapevine, Pastoria Creek, Winters Ridge, Liebre Twins, Frazier Mountain, Neenach School, Alamo Mountain, Black Mountain, Liebre Mountain, and Burnt Peak 7.5-minute quadrangles. Table 5.7-5, Special Status Plant Species, and Table 5.7-8, Special Status Wildlife Species, also include information on the likelihood for each species to occur on the Project site along with definitions for the various status designations. In addition, special status biological resources include vegetation types and habitats that are either unique, of relatively limited distribution in the region, or of particularly high wildlife value. These resources have been defined by federal, State, and local government conservation programs. Sources used to determine the special status of biological resources are as follows:

**Plants.** Locational Inventory of Rare and Endangered Vascular Plants of California (CNPS 2015); the CDFW's California Natural Diversity Database (CNDDDB) (CDFW 2015a); various Federal Register notices from the USFWS regarding listing status of plant species; and the CDFW's *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2016b).

**Wildlife.** The CDFW's California Wildlife Habitat Relationships Database System (CDFW BDB 2014); the CNDDDB; various USFWS Federal Register notices regarding listing status of wildlife species; and the CDFW's Special Animals List (CDFW 2017b).

**Vegetation Types.** The CDFW's List of Natural Communities (CDFG 2010); the CNDDDB; and the County of Los Angeles Oak Tree Ordinance (County of Los Angeles 1988).

## Definitions

A federally Endangered species is one facing extinction throughout all, or a significant portion of, its geographic range. A federally Threatened species is one likely to become Endangered in the foreseeable future throughout all or a significant portion of its range. The presence of any federally Threatened or Endangered species in a study area generally imposes severe constraints on development, particularly if development would result in “take” of the species or its habitat. The term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct. Harm, in this sense, can include any disturbance to habitats used by the species during any portion of its life history.

Proposed species or Candidate species are those officially proposed by the USFWS for addition to the federal Threatened and Endangered species list. Because proposed species may soon be listed as Threatened or Endangered, these species could become listed prior to or during implementation of a proposed project. The presence of a Proposed or Candidate species in a project impact area may impose constraints on development if they are listed prior to issuance of project permits, particularly if a project would result in “take” of the species or its habitat.

The State of California considers an Endangered species to be one whose prospects of survival and reproduction are in immediate jeopardy; a Threatened species as one present in such small numbers throughout its range that it is likely to become an Endangered species in the near future in the absence of special protection or management; and a Rare species as one present in such small numbers throughout its range that it may become Endangered if its present environment worsens. “Rare species” only applies only to California native plants. State-listed Threatened and Endangered species are protected against take unless an Incidental Take Permit is obtained from the resource agencies. The presence of any State-listed Threatened or Endangered species in a project impact area generally imposes severe constraints on development, particularly if a project would result in “take” of the species or its habitat.

California Species of Special Concern is an informal designation used by the CDFW for some declining wildlife species that are not State Candidates for listing. This designation does not provide legal protection, but signifies that these species are recognized as special status by the CDFW. In recent years, the CDFW has downlisted several species from Species of Special Concern to the Watch List.

Species that are California Fully Protected and Protected include those protected by special legislation for various reasons, such as the mountain lion and white-tailed kite. Fully Protected species may not be taken or possessed at any time. California Protected species include those species that may not be taken or possessed at any time except under special permit from the CDFW issued pursuant to the *California Code of Regulations* (Title 14, Sections 650 and 670.7) or Section 2081 of the *California Fish and Game Code*.

Species of Local Concern are those that have no official status with the resource agencies, but are being watched because there is either a unique population in the region or the species is declining in the region.

Special Animal is a general term that refers to species that the CNDDDB is interested in tracking, regardless of legal or protective status. This term includes species designated as any of the above terms, but also includes species that may be considered biologically rare; are restricted in distribution; are declining throughout their range; have a critical, vulnerable stage in their life cycle that warrants monitoring; are on the periphery of their range and are threatened with extirpation in California; are associated with special status habitats; or are considered by other State or federal agencies or private organizations to be sensitive or declining.

The California Rare Plant Rank (CRPR), formerly known as CNPS List, is a ranking system by the Rare Plant Status Review group (which consists of over 300 botanical experts from the government, academia, non-governmental organizations, and the private sector) and is managed by the CNPS and the CDFW (CNPS 2015). A CRPR summarizes information on the distribution, rarity, and endangerment of California's vascular plants. Plants with a CRPR of 1A are presumed extinct because they have not been seen in the wild for many years. Plants with a CRPR of 1B are Rare, Threatened, or Endangered throughout their range. Plants with a CRPR of 2A are presumed extirpated from California, but are more common elsewhere. Plants with a CRPR of 2B are considered Rare, Threatened, or Endangered in California, but are more common elsewhere. Plants with a CRPR of 3 require more information before they can be assigned to another rank or rejected; this is a "review" list. Plants with a CRPR of 4 are of limited distribution or are infrequent throughout a broader area in California; this is a "watch" list. The Threat Rank is an extension that is added to the CRPR to designate the plant's endangerment level. An extension of .1 is assigned to plants that are considered to be "seriously threatened" in California (i.e., over 80 percent of the occurrences are threatened or have a high degree and immediacy of threat). Extension .2 indicates the plant is "fairly threatened" in California (i.e., between 20 and 80 percent of the occurrences are threatened or have a moderate degree and immediacy of threat). Extension .3 is assigned to plants that are considered "not very threatened" in California (i.e., less than 20 percent of occurrences are threatened or have a low degree and immediacy of threat or no current threats are known). The absence of a threat code extension indicates that this information is lacking for the plant(s) in question.

### ***Special Status Vegetation Types***

In addition to providing an inventory of special status plant and wildlife species, the CNDDDB also provides an inventory of vegetation types that are considered special status by State and federal resource agencies, academic institutions, and various conservation groups (such as the CNPS). In addition, the County of Los Angeles Oak Tree Ordinance protects all oak trees in Los Angeles County that are 8 inches or more in diameter measured at 4.5 feet above natural grade. At the community level, oak woodlands are protected via Section 21083.4 of the *California Public Resources Code* (PRC), which was enacted by Senate Bill (SB) 1334 in 2004. Finally, all wetland and riparian vegetation types are also considered special status by (1) the CDFW in its capacity as a natural resource trustee for purposes of CEQA review and (2) the federal CWA, Section 404, which protects "waters of the U.S.," including those jurisdictional wetlands that are defined by the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. The CDFW considers the vegetation types listed below as being a high priority for preservation.

Special status vegetation types existing on the Project site and on a portion of the off-site impact areas (see Table 5.7-3, Vegetation Type Acreages) include the following: Wright's buckwheat scrub (12.2 acres); mixed oak woodland (1,370.8 acres); alluvial scrub (5.6 acres); cottonwood woodland (0.1 acre); riparian herb (53.3 acres); rush riparian grassland (48.9 acres); southern arroyo willow riparian (8.6 acres); southern cottonwood willow woodland (4.0 acres); southern willow scrub (13.1 acres); unvegetated wash (25.7 acres); valley oak riparian woodland (12.1 acres); willow riparian forest (15.1 acres); willow riparian woodland (8.3 acres); alkali meadow (3.7 acres); Baltic rush (21.5 acres); coastal and valley freshwater marsh (2.5 acres); seeps and ephemeral ponds (8.0 acres); and native perennial grasslands and wildflower fields that are coincident and mixed with annual grasslands and other vegetation types (see Table 5.7-3 for individual acreages). Undifferentiated grasslands and wildflower fields cover 9,324.3 acres on the site and in mapped off-site areas, a portion of which includes the native perennial grassland and wildflower field special status vegetation type. Additionally, some of these special status vegetation types occur in mixed communities on site, as noted in the "Mixed Chaparral or Scrub and Grassland Vegetation Types" portion of Table 5.7-3. Special status vegetation types on the Project site are illustrated in Exhibit 5.7-1, Grouped Vegetation Types, and in greater detail in Exhibit 5.7-17, Detailed Vegetation Map.

### ***Special Status Plants***

Many special status plant species are known to occur in the Project region. The 12 quadrangles listed earlier were used to compile a list of potential special interest species that might occur on the Project site from the database of the CNDDDB and the CNPS Inventory of Rare and Endangered Plants. These plants and their potential to occur on the Project site are listed in Table 5.7-5. Exhibit 5.7-7a, Special Status Plant Species Observations, depicts the locations of the eight special status plant species that were identified on the site. Descriptions of all species follow the table.

Several additional special status plant species were considered, but were excluded from further review (and therefore not listed in Table 5.7-5) due to their lack of any potential to occur in the Project region (defined as the western Antelope Valley and associated watersheds). These include the California jewel-flower (*Caulanthus californicus*; State- and federally listed Endangered, CRPR List 1B.1), striped adobe-lily (*Fritillaria striata*, State-listed Threatened, CRPR List 1B.1), San Joaquin woollythreads (*Monolopia congdonii*; federally listed Endangered, CRPR 1B.2), and San Joaquin adobe sunburst (*Pseudobahia peirsonii*; State-listed Endangered, federally listed Threatened, CRPR List 1B.1). Two species—New York Mountains cryptantha (*Cryptantha tumulosa*) and San Gabriel ragwort (*Senecio astephanus*)—were identified during the CNPS Inventory search as being within the 12 quadrangle vicinity of the Project. However, no further documentation was found (such as CNDDDB, herbarium collections, or any other reporting databases) to support these species as being in the vicinity. Furthermore these locations would be significantly disjunct from the otherwise known distribution of these species. Therefore, these two species were excluded from further review.

**TABLE 5.7-5  
SPECIAL STATUS PLANT SPECIES**

Species	Status			Preferred Habitat and Site Suitability/Potential to Occur	Observations*
	USFWS	CDFW	CRPR		
<i>Acanthoscyphus</i> [ <i>Oxytheca</i> ] <i>parishii</i> var. <i>parishii</i> Parish's oxytheca	-	-	4.2	Dry, granitic sites in yellow pine forests and chaparral. Some potentially suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Androsace elongata</i> ssp. <i>acuta</i> California androsace	-	-	4.2	Dry, grassy places in coastal sage scrub, chaparral, and oak woodlands. In 2008, 5 total occurrences (381 plants) were identified on the site. In 2015, 320 total occurrences (over 29,000 estimated plants) were identified on the site. Most were located on ridgetops and north-facing slopes.	Observed
<i>Astragalus hornii</i> var. <i>hornii</i> Horn's milk-vetch	-	-	1B.1	Salty flats/lake shores and alkali sink habitats. Some marginally suitable habitat exists on the site. Low potential to occur.	Not Observed
<i>Atriplex coronata</i> var. <i>coronata</i> crownscale	-	-	4.2	Alkaline, often clay soils in chenopod scrub, grassland, and around vernal pools. In 2015, 8 occurrences with over 16,000 estimated plants were identified on the site.	Observed
<i>Boechera lincolnensis</i> [ <i>Arabis pulchra</i> var. <i>munciensis</i> ] Lincoln rockcress	-	-	2B.3	Carbonate soils, in chenopod scrub and Mojavean desert scrub. Project is not in the range of this species. Not expected to occur.	Not Observed
<i>California</i> [ <i>Erodium</i> ] <i>macrophyllum</i> round-leaved filaree	-	-	1B.2	Open sites in grasslands and scrub, especially with friable clay loam soils. In 2004, 39 occurrences were identified on the site. Most were located along the low hills and slopes south of SR-138, typically associated with limestone-derived friable clay loam soils. Some large occurrences covered several acres and supported several thousand plants. In 2008, several occurrences, each with several thousand plants, were observed on the site. In 2015, 117 occurrences, totaling nearly	Observed

**TABLE 5.7-5  
SPECIAL STATUS PLANT SPECIES**

Species	Status			Preferred Habitat and Site Suitability/Potential to Occur	Observations*
	USFWS	CDFW	CRPR		
				25,000 plants, were observed at the site.	
<i>Calochortus clavatus</i> var. <i>gracilis</i> slender mariposa lily	-	-	1B.2	Chaparral and coastal scrub in shaded foothill canyons, and on grassy slopes. Suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Calochortus fimbriatus</i> [ <i>Calochortus weedii</i> var. <i>vestus</i> ] late-flowered mariposa lily	-	-	1B.2	Dry slopes in chaparral and woodlands. Some potentially suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Calochortus palmeri</i> var. <i>palmeri</i> Palmer's mariposa lily	-	-	1B.2	Meadows and vernal moist sites in yellow-pine forests and chaparral. Potentially suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Calystegia peirsonii</i> Peirson's morning-glory	-	-	4.2	Dry slopes in chaparral, scrub, woodlands, forests, and grasslands. Potentially suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Castilleja gleasoni</i> Mt Gleason paintbrush	-	-	1B.2	Cliffs, rocky slopes in open yellow-pine forest, chaparral, and pinyon and juniper woodland. Potentially suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Caulanthus lemmonii</i> Lemmon's jewel flower	-	-	1B.2	Dry slopes in grasslands, chaparral, and woodlands. Potentially suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Chorizanthe spinosa</i> Mojave spineflower	-	-	4.2	Dry sandy and gravelly places in desert scrub. In 2004, 19 densely populated occurrences were identified in grasslands along the alluvial slopes near the central/southern edge of the Project site, south of SR-138. In 2006, approximately 47,575 individuals were observed on the site. In 2008, approximately 6,000 individuals were observed on the site. In 2015, approximately 10,000	Observed



**TABLE 5.7-5  
SPECIAL STATUS PLANT SPECIES**

Species	Status			Preferred Habitat and Site Suitability/Potential to Occur	Observations*
	USFWS	CDFW	CRPR		
				individuals were estimated on the site.	
<i>Clinopodium mimuloides</i> monkey flower savory	-	-	4.2	Moist places, streambanks, in chaparral and woodland. Some marginally suitable habitat on site. Potential to occur.	Not Observed
<i>Delphinium inopinum</i> unexpected larkspur	-	-	4.3	Rocky upper montane coniferous forest. No suitable habitat exists on the site. Not expected to occur.	Not Observed
<i>Delphinium parryi</i> ssp. <i>purpureum</i> Mt Pinos larkspur	-	-	4.3	Chaparral, Mojavean desert scrub, pinyon-juniper woodland. Suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Delphinium umbraculorum</i> umbrella larkspur	-	-	1B.3	Chaparral and cismontane woodland. Suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Eriogonum callistum</i> Tehachapi buckwheat	-	-	1B.1	Openings in chaparral on rocky, limestone substrates. Suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Eriogonum kennedyi</i> var. <i>austromontanum</i> southern mountain buckwheat	FT	-	1B.2	Dry, stony slopes in yellow pine forests. No suitable habitat exists on the site. Not expected to occur.	Not Observed
<i>Eriophyllum lanatum</i> var. <i>hallii</i> Fort Tejon woolly sunflower	-	-	1B.1	Dry sites with metamorphic soils, especially north-facing slopes near oak woodlands. Some potentially suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Eschscholzia lemmonii</i> ssp. <i>kernensis</i> Tejon poppy	-	-	1B.1	Open grasslands with heavy clay soils. Some marginally suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Frasera</i> [ <i>Swertia</i> ] <i>neglecta</i> pine green-gentian	-	-	4.3	Dry slopes in montane coniferous forests and pinyon/juniper woodlands. Some potentially suitable habitat exists on the site. Potential to occur.	Not Observed

**TABLE 5.7-5  
SPECIAL STATUS PLANT SPECIES**

Species	Status			Preferred Habitat and Site Suitability/Potential to Occur	Observations*
	USFWS	CDFW	CRPR		
<i>Githopsis tenella</i> delicate bluecup	-	-	1B.3	Moist places in oak woodlands. Some potentially suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Hulsea vestita</i> ssp. <i>gabrielensis</i> San Gabriel Mountains sunflower	-	-	4.3	Montane coniferous forests. No suitable habitat exists on the site. Not expected to occur.	Not Observed
<i>Leptosiphon</i> [ <i>Linanthus</i> ] <i>serrulatus</i> Madera leptosiphon	-	-	1B.2	Open areas in woodlands and chaparral. Suitable habitat exists on the site, but species has not been observed in Project region (or even more than 60 miles to the north) since the 1930s. Low potential to occur.	Not Observed
<i>Lilium humboldtii</i> ssp. <i>ocellatum</i> ocellate Humboldt lily	-	-	4.2	Gravelly soils of gullies and canyons in chaparral and oak woodlands. Suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Microseris sylvatica</i> sylvan scorzonella	-	-	4.2	Grasslands and open woodlands, especially upper ridges and ephemeral drainages. In 2004, numerous (500+) occurrences were identified on the Project site. In 2008 and 2015, this species was found to be common on ridgetops and dirt roads, with a total population estimate likely exceeding 100,000 on the site.	Observed
<i>Mimulus pictus</i> calico monkeyflower	-	-	1B.2	Around granite outcrops in bare, sunny, shrubby areas. Some marginally suitable habitat exists on the site. Low potential to occur.	Not Observed
<i>Monardella linoides</i> ssp. <i>oblonga</i> flax-like monardella	-	-	1B.3	Desert scrub, pinyon-juniper woodlands, open conifer forests, and subalpine areas. Some marginally suitable habitat exists on the site. Low potential to occur.	Not Observed

**TABLE 5.7-5  
SPECIAL STATUS PLANT SPECIES**

Species	Status			Preferred Habitat and Site Suitability/Potential to Occur	Observations*
	USFWS	CDFW	CRPR		
<i>Navarretia fossalis</i> spreading navarretia	FT	-	1B.1	Vernal pools, alkali grasslands, alkali playas, and alkali sinks. Some potentially suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Navarretia peninsularis</i> Baja navarretia	-	-	1B.2	Wet areas in open forests and openings in chaparral. Some potentially suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Navarretia setiloba</i> Piute Mountains navarretia	-	-	1B.1	Depressions in clay or gravelly loam in woodlands and grasslands. In 2004, 3 occurrences were identified with approximately 20,100 total plants. Occurrences were all located in the hills (associated with clay soils) in the far western region and found in areas that had been recently disturbed by feral pigs.	Observed
<i>Nemacladus secundiflorus</i> var. <i>robbinsii</i> Robbins' nemacladus	-	-	1B.2	Dry, gravelly slopes in openings of chaparral and grassland. Suitable habitat exists on site. Potential to occur.	Not Observed
<i>Opuntia basilaris</i> var. <i>treleasei</i> Bakersfield cactus	FE	SE	1B.1	Alluvial benches and fans in arid plains. No suitable habitat is present on the site. Not expected to occur.	Not Observed
<i>Perideridia pringlei</i> adobe yampah	-	-	4.3	Grassy slopes, serpentine outcrops, and openings in oak woodlands. In 2004, 1 occurrence with 16 plants was identified on an open, north-facing slope in the western portion of the Project site, associated with sandy to gravelly loam soils. In 2006, 3 occurrences were identified, including approximately 15 individuals. In 2008, approximately 108 individuals were observed on the site. In 2015, nearly 100 occurrences were recorded on site, with an estimate of over 3,000 total plants.	Observed

**TABLE 5.7-5  
SPECIAL STATUS PLANT SPECIES**

Species	Status			Preferred Habitat and Site Suitability/Potential to Occur	Observations*
	USFWS	CDFW	CRPR		
<i>Symphyotrichum defoliatum</i> [ <i>Aster bernardinus</i> ] San Bernardino aster	-	-	1B.2	Meadows, marshes, and moist sites in scrub, woodlands, forests, and grasslands. Suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Symphyotrichum</i> [ <i>Aster</i> ] <i>greatae</i> Greata's aster	-	-	1B.3	Canyons with chaparral or oak woodlands. Some potentially suitable habitat exists on the site. Potential to occur.	Not Observed
<i>Syntrichopappus lemmonii</i> Lemmon's syntrichopappus	-	-	4.3	Open, sandy to gravelly areas in chaparral and Joshua tree woodlands. In 2004, 1 occurrence with 30 plants was identified on an open, moderately steep northwest-facing slope in the north-central portion of the site west of the Aqueduct. This species was not observed in the survey area in 2015.	Observed
<i>Thermopsis macrophylla</i> var. <i>argentata</i> [ <i>Thermopsis californica</i> var. <i>argentata</i> ] silvery false lupine	-	-	4.3	Pine forests and open ridges, especially with limestone-derived soils. Potentially suitable habitat exists on the site, especially bordering Oso Canyon. Potential to occur.	Not Observed
<p>USFWS: U.S. Fish and Wildlife Service; CDFW: California Department of Fish and Wildlife; CRPR: California Rare Plant Rank; SR: State Route</p> <p><b>LEGEND</b></p> <p><b>STATUS DESIGNATIONS</b></p> <p><b>Federal (USFWS) Designations</b>      <b>State (CDFW) Designations</b></p> <p>FE    federally Endangered species    SE      State Endangered species</p> <p><b>CRPR (California Native Plant Society)</b></p> <p>1B    Plants rare, threatened, or endangered in California and elsewhere</p> <p>2B    Plants rare, threatened, or endangered in California, but more common elsewhere</p> <p>4      Plants of Limited Distribution – A Watch List</p> <p><b>CRPR Threat Code Extensions</b></p> <p>None    Plants lacking any threat information</p> <p>.1      Seriously endangered in California (over 80% of occurrences threatened; high degree and immediacy of threat)</p> <p>.2      Fairly endangered in California (20–80% of occurrences threatened)</p> <p>.3      Not very endangered in California (less than 20% of occurrences threatened or no current threats known)</p> <p>*      Sources: Impact Sciences 2003; Vollmar Consulting 2004; Natural Resource Consultants 2006b and 2008a; BonTerra Consulting 2009b, BonTerra Psomas 2015b.</p>					

### Parish's Oxytheca

Parish's oxytheca (*Acanthoscyphus* [*Oxytheca*] *parishii* var. *parishii*) is a CRPR 4.2 species. This annual herb occurs on dry granitic slopes and flats, mostly in yellow pine forest habitat, between approximately 4,000 and 8,300 feet above mean sea level (msl); it typically blooms between June and September (Munz 1974). It is also found in chaparral and sandy or gravelly lower montane coniferous forest, and is known from Los Angeles, San Bernardino, and Ventura Counties (CNPS 2015). In the Project vicinity, it occurs about 15 miles southwest of the site, near the Little Mutau Trail, just west of the McDonald Cabin in Ventura County (CCH 2016). Although potentially suitable habitat for this species exists on the site, Parish's oxytheca was not observed during focused surveys.

### California Androsace

California androsace (*Androsace elongata* spp. *acuta*) has a CRPR of 4.2. It typically blooms between March and June (CNPS 2015). This annual herb occurs in dry grassy places between sea level and approximately 4,000 feet above msl in coastal sage scrub, chaparral, and oak woodland habitats (Munz 1974). This species occurs in Alameda, Contra Costa, Colusa, Fresno, Glenn, Kern, Los Angeles, Merced, Riverside, San Bernardino, San Benito, Santa Clara, San Diego, Siskiyou, San Joaquin, San Luis Obispo, San Mateo, Stanislaus, and Tehama Counties, as well as in Oregon and Baja California, Mexico (CNPS 2015). In 2008, although 15 occurrences were found in the region, only 5 occurrences with 381 total plants were found in the survey area. All other occurrences were found in proposed mitigation areas to the southeast and northwest of the site. All occurrences of this species on the site were highly localized and directly associated with hot, exposed, mostly south-facing slopes (NRC 2008a). In 2015, California androsace was found scattered throughout the site on hilltops and on upper north-facing slopes, with the highest abundances on the lower hills in the northeastern section of the Project site. Over 29,000 individuals in 320 locations were estimated during field surveys; however, due to poor general detectability of this small plant, surveys likely underestimated both the extent and population numbers in the survey area.

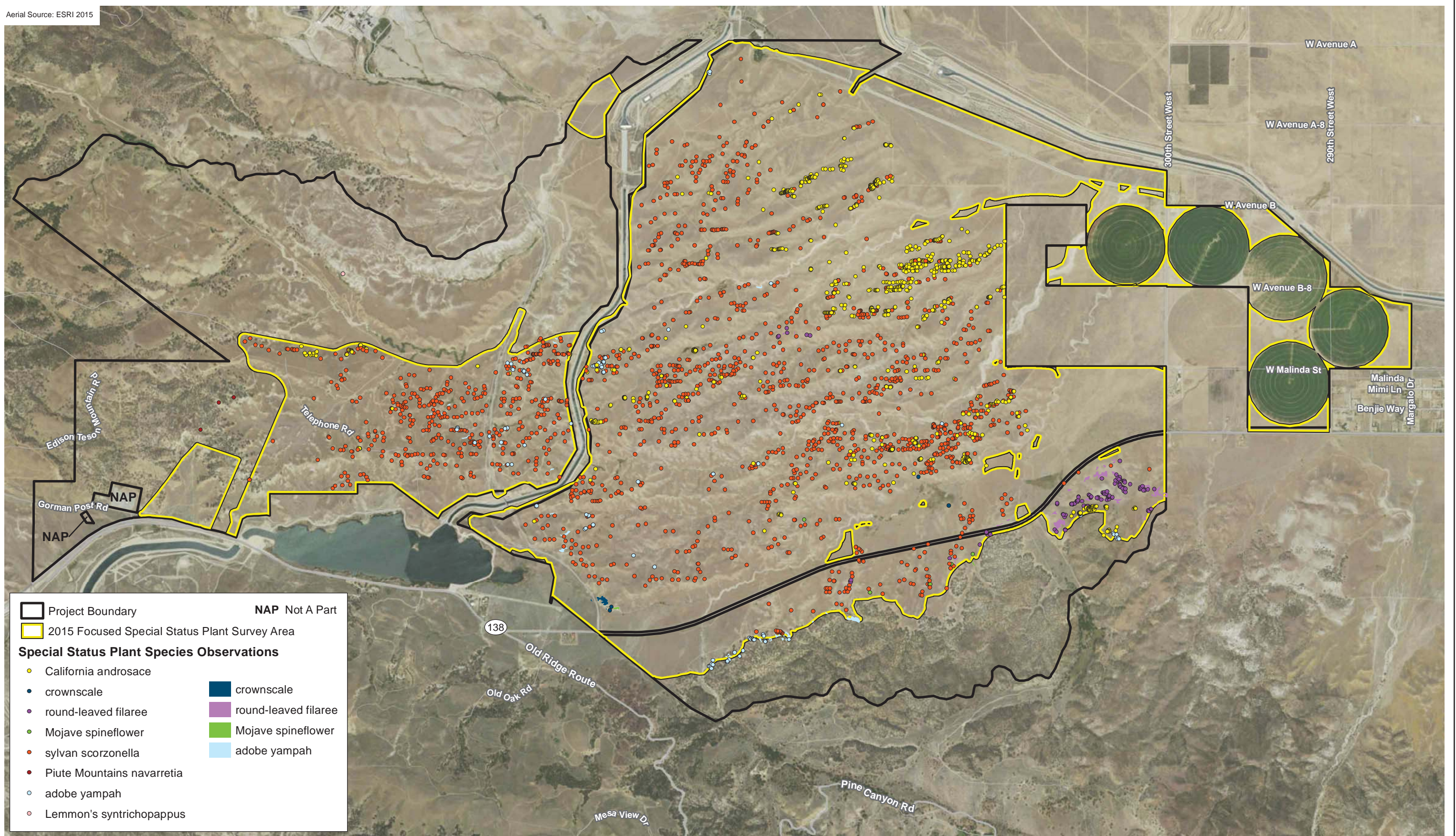
### Horn's Milk-Vetch

Horn's milk-vetch (*Astragalus hornii* var. *hornii*) is a CRPR List 1B.1 species. It typically blooms between May and October (CNPS 2015). This annual herb prefers salty flats and lake shores (Jepson Herbarium 2015); it occurs in alkali sink habitats at elevations of about 2,500 to 3,700 feet above msl in the western Mojave Desert, at lower elevations in the San Joaquin Valley, and formerly in the San Bernardino Valley (Munz 1974). This species occurs in Inyo, Kern, San Bernardino, and Tulare Counties (CNPS 2015). In the Project vicinity, according to a historical record from 1863, it occurred about ten miles northwest of the Project site, near Fort Tejon (CDFW 2015a). Although some suitable habitat for this species exists on the site, Horn's milk-vetch was not observed during focused surveys.

### Crownscale

Crownscale (*Atriplex coronata* var. *coronata*) has a CRPR of 4.2. It typically blooms between March and October. This annual herb is generally found in alkaline, often clay, soil in chenopod scrub, grasslands, and around vernal pools usually between sea level and approximately 2,000 feet above msl (CNPS 2015). Historically it has been known only from





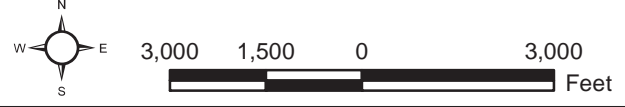
Project Boundary
 **NAP** Not A Part  
 2015 Focused Special Status Plant Survey Area

**Special Status Plant Species Observations**

● California androsace	■ crownscale
● crownscale	■ round-leaved filaree
● round-leaved filaree	■ Mojave spineflower
● Mojave spineflower	■ adobe yampah
● sylvan scorzonella	
● Piute Mountains navarretia	
● adobe yampah	
● Lemmon's syntrichopappus	

### Special Status Plant Species Observations

Centennial Project





the Sacramento Valley, San Joaquin Valley, and the Inner South Coast Ranges (Jepson Herbarium 2015). The closest known location outside the Project boundary is approximately 30 miles to the north, near the town of Arvin (CCH 2016). On the Project site, 2015 surveys identified 8 populations with more than 16,000 estimated total plants within the same drainage feature. The largest populations were found on alkali scalds and dry pools near the intersection of SR-138 and National Cement Plant Road. Populations on the Project site are not entirely consistent with published descriptions of the species, with most individuals expressing spherical, densely tubercled fruit bracts, along with flattened compressed fruit bracts. This results in a mixed key characteristic between the more common crownscale, and the federally listed Endangered San Jacinto Valley crownscale (*Atriplex coronata* var. *notatior*), which is known only from a limited distribution in Riverside County over 100 miles to the southeast. Based on expert opinion and its closer proximity to known distribution of the more common crownscale, it was decided that individuals on the Project site be considered as an unusual form of the more common crownscale (Sanders 2015).

### Lincoln Rockcress

Lincoln rockcress (*Boechea lincolnensis* [*Arabis pulchra* var. *munciensis*]) is a CRPR 2B.3 species. It typically blooms between March and May (CNPS 2015). This perennial herb is generally found on rocky slopes and gravelly soil in sagebrush and shrublands at elevations of about 4,590 to 6,560 feet above msl (Jepson Herbarium 2015). It occurs in the White and Inyo Mountains, the mountains of the Mojave Desert, and into Nevada and Utah (Jepson Herbarium 2015). There is one CNDDDB record of this species approximately nine miles east of the Project at Ripley Desert Woodland State Park (CDFW 2015a). However, this occurrence is based solely on a March 2005 CalPhotos picture of Lincoln rockcress which was originally misidentified as *Boechea lincolnensis*. The Project site is outside the known range of this species and it is therefore is unlikely to occur on the site.

### Slender Mariposa Lily

Slender mariposa lily (*Calochortus clavatus* var. *gracilis*) is a CRPR 1B.2 species. This bulbiferous herb typically blooms between March and June and usually occurs in chaparral and coastal scrub in shaded foothill canyons, but is also found on grassy slopes in other habitats (CNPS 2015; Jepson Herbarium 2015). This species occurs in Los Angeles and Ventura Counties (CNPS 2015). Slender mariposa lily is known to hybridize with club-haired mariposa lily (*Calochortus clavatus* ssp. *clavatus*), which is a more common subspecies. Slender mariposa lily occurs approximately 2.5 miles south of the Project site along Liebre Gulch road on the Angeles National Forest (CDFW 2015a). Although suitable habitat for this species exists on the site, slender mariposa lily was not observed during focused surveys. Rainfall patterns during the 2015 season resulted in diminutive plants and a very short blooming period for all mariposa lily species observed on site, and many individuals were only observed in vegetative or fruiting conditions. The majority of the observed plants were assumed to be butterfly mariposa lily (*Calochortus venustus*), but slender mariposa lily cannot be ruled out.

### Round-Leaved Filaree

Round-leaved filaree (*California [Erodium] macrophyllum*) has a CRPR of 1B.2. It typically blooms between March and May (Munz 1974). This low-growing forb is found in open sites in grassland and shrubland at elevations between sea level and approximately 3,940 feet above msl. It occurs throughout California to northern Mexico (Jepson Herbarium 2015). The 2004 special status plant survey report indicated that 46 occurrences were observed, but only 39 of these occurrences are located on the Project site (each ranging in size from 20 individuals to several thousand plants); the other occurrences are located in proposed open space just north of the Project site. All 2004 occurrences of this species on the site were directly associated with friable clay loam soils, as evidenced by the presence of limestone fragments in the soils and, in some cases, nearby limestone outcrops (Vollmar 2004). In 2008, several occurrences, each with several thousand plants, were observed on the site (NRC 2008a). In 2015, 117 occurrences were identified, with an estimated total population of about 25,000 plants. Populations were strongly associated with distinctive areas of friable clay loam soils, which also supported associated patches of common monolopia (*Monolopia lanceolata*) and Great Valley phacelia (*Phacelia ciliata*). Identified populations largely overlap those found in previous surveys, so the higher number of occurrences is likely due to mapping these occurrences at a finer scale. Germination rates of this species appeared to be high in 2015, which resulted in large population numbers; however, spring rainfall patterns caused a high percentage of individuals to die before producing viable fruit, which could affect population numbers in subsequent seasons.

### Late-Flowered Mariposa Lily

Late-flowered mariposa lily (*Calochortus fimbriatus [Calochortus weedii var. vestus]*) is a CRPR 1B.2 species. It typically blooms between July and August (Munz 1974). This bulbiferous perennial herb occurs on dry slopes in chaparral at elevations between sea level and approximately 2,500 feet above msl (Munz 1974). It is found in dry, open coastal woodlands and chaparral (Jepson Herbarium 2015). This species occurs in Kern, Los Angeles, Monterey, Santa Barbara, San Luis Obispo, and Ventura Counties (CNPS 2015). It has been reported approximately ten miles from the Project site (CNPS 2015). However, no further documentation was found (such as CNDDB, herbarium collections, or any other reporting databases) to support these species as being in the vicinity. Although potentially suitable habitat exists on the site, the Project site is likely out of range for the species. Late-flowered mariposa lily was not observed during focused surveys.

### Palmer's Mariposa Lily

Palmer's mariposa lily (*Calochortus palmeri var. palmeri*) is a CRPR 1B.2 species. It typically blooms between May and July (Munz 1974). This bulbiferous perennial herb occurs in meadows and other vernal moist places at elevations between approximately 3,500 and 6,500 feet above msl in the San Bernardino and Tehachapi Mountains (Munz 1974). It is associated with yellow-pine forests and chaparral (Jepson Herbarium 2015). This species occurs in Kern, Los Angeles, Riverside, Santa Barbara, San Bernardino, San Luis Obispo, and Ventura Counties (CNPS 2015). A population of approximately 2,000 plants has been reported less than one mile north of the Project site, east of the National Cement Plant, along



the margins of a wet meadow (CDFW 2015a). Although potentially suitable habitat for this species exists on the site, Palmer's mariposa lily was not observed during focused surveys.

#### Peirson's Morning-Glory

Peirson's morning-glory (*Calystegia peirsonii*) is a CRPR 4.2 species. This perennial herb occurs on dry slopes between approximately 3,000 and 4,500 feet above msl and typically blooms between May and June (Munz 1974). It is found in chaparral, scrub, woodland, forest, and native grassland habitats, and is known from Los Angeles County (CNPS 2015). In the Liebre Mountain region, this species is considered widespread and locally common in grassland and open situations in scrub and woodland (Boyd 1999). In the Project vicinity, it occurs more than ten miles southeast of the Project site on the Fish Canyon Truck Trail at Castaic Creek (CDFW 2015a) and also about eight miles southeast of the site, near the confluence of Pine Canyon and Bear Canyon (CCH 2016). Historical records exist from 1896 and 1935 from the vicinity of Neenach, which is less than three miles east of the Project site (CCH 2016). Although potentially suitable habitat for this species exists on the site, Peirson's morning-glory was not observed during focused surveys.

#### Mt. Gleason Paintbrush

Mt. Gleason paintbrush (*Castilleja gleasoni*) is a CPRP 1B.2 species. It typically blooms between May and September (CNPS 2015). This perennial herb occurs on cliffs and rocky slopes in open yellow pine forest, chaparral, and pinyon and juniper woodland between approximately 3,600 and 7,200 feet above msl (Jepson Herbarium 2015; CNPS 2015). This species is known only from Los Angeles County (CNPS 2015). In the Project vicinity, it occurs on the western end of Liebre Mountain, less than three miles south of the Project site (CDFW 2015a). Although suitable habitat for this species occurs on the site, the Project site is slightly under the elevation range of the species, and Mt. Gleason paintbrush was not observed during focused surveys.

#### Lemmon's Jewel Flower

Lemmon's jewel flower (*Caulanthus lemmonii*) is a CRPR 1B.2 species. It typically blooms between March and May (CNPS 2015). This annual herb occurs on dry slopes between sea level and about 5,000 feet above msl in valley grassland, chaparral, and foothill woodland habitats (Munz 1974). In Southern California, this species occurs in Kern, Santa Barbara, San Luis Obispo, and Ventura Counties (CNPS 2015). It occurs approximately 19 miles northwest of the Project site, in the vicinity of Wheeler Ridge (CDFW 2015a). Although potentially suitable habitat for this species exists on the site, Lemmon's jewel flower was not observed during focused surveys. A closely related species, Coulter's jewel flower (*Caulanthus coulteri*) was found to be common in the mixed chaparral community on the western end of the Project site. Some individuals in these populations were found to have spreading to erect fruits, which is a key characteristic of Lemmon's jewel flower, but were otherwise consistent with Coulter's jewel flower. It is possible there has been some hybridization between these and Lemmon's jewel flower, or alternatively this is simply an uncommon, undescribed characteristic of Coulter's jewel flower.

### Mojave Spineflower

Mojave spineflower (*Chorizanthe spinosa*) has a CRPR of 4.2. It typically blooms between March and July (CNPS 2015). This annual forb is found in desert scrub between sea level and 4,270 feet above msl (Jepson Herbarium 2015). It is prostrate and loosely branched and prefers dry sandy and gravelly places (Munz 1974). It occurs in Kern, Los Angeles, and San Bernardino Counties (CNPS 2015). Prior to focused surveys for the Project, this species was not known to occur in the vicinity of the Project site (Munz 1974). The closest reported occurrence outside the site is in the Antelope Valley along SR-138 at the intersection of 140<sup>th</sup> Street West (CCH 2016). In 2004, 19 densely populated occurrences were observed (Vollmar 2004). In 2006, approximately 47,575 individuals were observed on the site (NRC 2006b). In 2008, approximately 6,000 individuals were observed on the site (NRC 2008a). In 2015, approximately 10,000 individuals were observed on the site.

### Monkey Flower Savory

Monkey flower savory (*Clinopodium mimuloides*) is a CRPR 4.2 species. It typically blooms between June and October. This perennial herb occurs at elevations between approximately 1,000 and 5,900 feet above msl, and prefers moist sites and streambanks in chaparral and coastal coniferous forests (CNPS 2015). This species occurs in Los Angeles, Monterey, Santa Barbara, San Luis Obispo, and Ventura Counties. The closest known occurrence of this species is approximately nine miles south of the Project in Middle Fish Canyon (CCH 2016). Although marginally suitable habitat exists on the site, monkey flower savory was not observed during focused surveys.

### Unexpected Larkspur

Unexpected larkspur (*Delphinium inopinum*) is a CRPR 4.3 species. It typically blooms between May and July. This perennial herb occurs at elevations between approximately 6,200 and 9,200 feet above msl, and prefers rocky sites in upper montane coniferous forests. This species occurs in Fresno, Inyo, Kern, Tulare, and Ventura Counties (CNPS 2015). The closest recorded occurrence of this species is from an undated collection approximately 14 miles west of the Project, near Cuddy Valley (CCH 2016). The Project is well below the known elevation range of this species and there is no suitable habitat on the site. Unexpected larkspur was not observed during surveys, and is not expected to occur.

### Mt. Pinos Larkspur

Mt. Pinos larkspur (*Delphinium parryi* ssp. *purpureum*) is a CRPR 4.3 species. It typically blooms between May and June. This perennial herb occurs at elevations between approximately 3,300 and 8,500 feet above msl, and is generally found in chaparral, Mojavean desert scrub, and pinyon-juniper woodland. This species occurs in Kern, Santa Barbara, and Ventura Counties (CNPS 2015). The closest known record of this species is less than one mile south of the Project site along Pine Canyon Road (CCH 2016). Suitable habitat exists on the Project site; however no individuals of Mt. Pinos larkspur were identified during focused surveys.

### Umbrella Larkspur

Umbrella larkspur (*Delphinium umbraculorum*) is a CRPR 1B.3 species. It typically blooms between April and June. This perennial herb occurs at elevations between approximately 1,300 and 5,250 feet above msl, and typically grows in chaparral and cismontane woodland. This species occurs in Kern, Monterey, Santa Barbara, San Luis Obispo, and Ventura Counties (CNPS 2015). The closest recorded occurrence of this species is approximately six miles northeast of the Project near I-5 and Lebec Road in Rising Canyon (CDFW 2015a). Suitable habitat for this species exists on the Project site; however, no individuals of umbrella larkspur were identified during focused surveys.

### Tehachapi Buckwheat

Tehachapi buckwheat (*Eriogonum callistum*) is a CRPR 1B.1 species. It typically blooms between May and July. This perennial herb occurs at elevations between approximately 4,600 and 4,900 feet above msl; it prefers openings in chaparral on rocky, limestone substrates. This species has only recently been described, and is known from fewer than five occurrences in Kern County (CNPS 2015). The closest known occurrence of this species is approximately 1.5 miles northwest of the Project boundary (CDFW 2015a). Although suitable habitat for this species occurs on the site, Tehachapi buckwheat was not observed during focused surveys.

### Southern Mountain Buckwheat

Southern mountain buckwheat (*Eriogonum kennedyi* var. *austromontanum*) is a federally listed Threatened and a CRPR 1B.2 species. It typically blooms between June and September (CNPS 2015). This perennial herb occurs on dry, stony slopes at elevations between approximately 6,300 and 6,500 feet above msl, in yellow pine forest habitats (Munz 1974). This species occurs in San Bernardino and Ventura Counties (CNPS 2015). In the Project vicinity, this species has been collected several times in Lockwood Valley, more than ten miles west of the Project site (CCH 2016). Suitable elevation and habitat for this species does not exist on the site; southern mountain buckwheat was not observed during focused surveys.

### Fort Tejon Woolly Sunflower

Fort Tejon woolly sunflower (*Eriophyllum lanatum* var. *hallii*) is a CRPR 1B.1 species. It typically blooms between May and July (CNPS 2015). This herbaceous perennial grows in dry sites at elevations between approximately 3,940 and 4,600 feet above msl (Munz 1974; Jepson Herbarium 2015). It occurs in both Kern and Santa Barbara Counties, and the nearest occurrence is approximately three miles north of the Project site (CDFW 2015a). This species is associated with soils derived from metamorphic rock and is also known from 17 sites located a few miles north of the Project site; these sites were located mainly on steep, north-facing hillsides within or adjacent to dense or moderately open oak woodlands (BonTerra Psomas 2015b). Although potentially suitable habitat for this species exists on the site, Fort Tejon woolly sunflower was not observed during focused surveys.

### Tejon Poppy

Tejon poppy (*Eschscholzia lemmonii* ssp. *kernensis*) is a CRPR 1B.1 species. It typically blooms between March and May (CNPS 2015). This annual grows in open grasslands at elevations between approximately 650 and 3,280 feet above msl (Jepson Herbarium 2015). It only occurs in Kern County (CNPS 2015). This species is generally found on the northern side of the Tehachapi Mountains, and is associated with heavy clay soils (Vollmar Consulting 2004). It is reported from the canyon west of Fort Tejon State Historic Park; however, when this purported location was revisited, Tejon poppy was not found, and a similar species, the foothill poppy (*Eschscholzia caespitosa*), was found. It is possible that this foothill poppy was misidentified in this location as Tejon poppy (Vollmar Consulting 2004). Although potentially suitable habitat for this species exists on the site, Tejon poppy was not observed during focused surveys.

### Pine Green-Gentian

Pine green-gentian (*Frasera* [*Swertia*] *neglecta*) is a CRPR 4.3 species. This perennial herb occurs on dry slopes between approximately 4,500 and 8,000 feet above msl, largely in yellow pine forest habitat, and typically blooms between May and July (Munz 1974). It is found in dry, open woodlands (Jepson Herbarium 2015). More specifically, it prefers montane coniferous forest and pinyon/juniper woodland habitats, and is known from Kern, Los Angeles, Santa Barbara, San Bernardino, and Ventura Counties (CNPS 2015). In the Project vicinity, it is known from approximately six miles to the north along Blue Ridge (CCH 2016). It is also known from multiple collections southwest of the site in the Mount Pinos region of Ventura County, including about 14 miles away on Alamo Mountain, 16 miles away along Seymour Creek, and 18 miles away in Lockwood Valley (CCH 2016). Although potentially suitable habitat for this species exists on the site, pine green-gentian was not observed during focused surveys.

### Delicate Bluecup

Delicate bluecup (*Githopsis tenella*) is a CRPR List 1B.3 species. It typically blooms between May and June (CNPS 2015). This annual grows in moist places in oak woodlands at elevations between 3,600 and 6,230 feet above msl (Jepson Herbarium 2015). It occurs in Kern and Tulare Counties (CNPS 2015). It occurs approximately eight miles from the Project site, on Purdie Ridge, south of Purdie Canyon, in the Tehachapi Mountains (CDFW 2015a). The Purdie Ridge location supports an isolated stand of white fir (*Abies concolor*) within a grove of canyon live oak (*Quercus chrysolepis*). Although potentially suitable habitat for this species exists on the site, delicate bluecup was not observed during focused surveys.

### San Gabriel Mountains Sunflower

San Gabriel Mountains sunflower (*Hulsea vestita* ssp. *gabrielensis*) is a CRPR 4.3 species. This perennial herb occurs in montane coniferous forest habitat between approximately 4,900 and 8,200 feet above msl (Jepson Herbarium 2015). It typically blooms between May and July, and is known from Los Angeles, San Bernardino, and Ventura Counties (CNPS 2015). In the Project vicinity, it occurs about 10 miles west of the site at the summit of Frazier Mountain, and about 13 miles southwest of the site, west of Sewart Mountain Peak in Ventura

County (CCH 2016). Suitable elevation and habitat for this species does not exist on the site, and San Gabriel Mountains sunflower was not observed during focused surveys.

#### Madera Leptosiphon

Madera leptosiphon (*Leptosiphon [Linanthus] serrulatus*) is a CRPR 1B.2 species. This annual herb occurs in open areas in woodland and chaparral habitats (Jepson Herbarium 2015). It is found between approximately 1,000 and 4,250 feet above msl, and typically blooms between April and May. It is known from Fresno, Kern, Madera, Mariposa, and Tulare Counties (CNPS 2015). In the Project vicinity, according to a historical record from 1935, it was collected in the general vicinity of the Tehachapi Mountains, among scattered oaks (CDFW 2015a). Other than this collection, the closest known occurrences (also historical records from the 1930s) are more than 60 miles north of the Project site, in the Sequoia National Forest area, near the Kern/Tulare County boundary (CDFW 2015a; CCH 2016). Although potentially suitable habitat for this species exists on the site, Madera leptosiphon has not been observed in the Project region (or even more than 60 miles to the north) since the 1930s, so it has very low potential to occur on the site, and it was not observed during focused surveys.

#### Ocellated Humboldt Lily

Ocellated Humboldt lily (*Lilium humboldtii* ssp. *ocellatum*) is a CRPR 4.2 species. Ocellated Humboldt lily is a bulbiferous herb endemic to California that typically blooms between March and August (CNPS 2015). It occurs at elevations below about 3,000 feet above msl, in gravelly soil in gullies and canyons, usually in chaparral and oak woodland habitats (Munz 1974). This species is known from Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, and Ventura Counties, and Anacapa Island, Santa Cruz Island, and Santa Rosa Island (CNPS 2015). In the Liebre Mountain region, this species is considered widespread but generally rather scattered on shaded benches along streams (Boyd 1999). In the Project vicinity, it occurs about 12 miles southeast of the site in Warm Springs Canyon, west of Lake Hughes Road (CCH 2016). Although suitable habitat for this species exists on the site, ocellated Humboldt lily was not observed during focused surveys.

#### Sylvan Scorzonella

Sylvan scorzonella (*Microseris sylvatica*) has a CRPR of 4.2. It typically blooms between March and May (Munz 1974). This herb is found in grasslands and open woodlands between sea level and approximately 5,600 feet above msl. It occurs in the North Coast Ranges, Sacramento Valley, Sierra Nevada Foothills, Tehachapi Mountains, eastern San Francisco Bay, South Coast Ranges, western Transverse Ranges, and Mojave Desert (Jepson Herbarium 2015). In Los Angeles County, it was reported along SR-138 in the western portion of the Antelope Valley (CCH 2016). Numerous occurrences of sylvan scorzonella were observed on the Project site during 2004 focused surveys. It was most commonly found on thin, well-drained gravelly or coarse sandy loam and clay loam soils on the upper north sides of ridges and hills and on slopes and flats immediately bordering ephemeral drainages. Nearly all occurrences were located within native perennial grasslands, and a few were in areas bordered by oak woodlands (Vollmar 2004). In 2008, this species was found to be common on ridgetops and dirt roads, with a total population estimate on the site likely exceeding

100,000 plants (NRC 2008a). In 2015, focused surveys estimated that the population exceeded 100,000 plants.

#### Calico Monkeyflower

Calico monkeyflower (*Mimulus pictus*) is a CRPR 1B.2 species. It typically blooms between March and May (CNPS 2015). This annual herb grows in bare, sunny, shrubby areas around granite outcrops between about 300 and 4,700 feet above msl (Jepson Herbarium 2015; CNPS 2015). It occurs in Kern and Tulare Counties and occurs approximately 5.5 miles north of the Project site along Geghus Ridge, near Bear Trap Canyon (CNPS 2015; CDFW 2015a). Although some marginally suitable habitat for this species exists on the site, calico monkeyflower was not observed during focused surveys.

#### Flax-Like Monardella

Flax-like monardella (*Monardella linoides* ssp. *oblonga*) is a CRPR 1B.3 species. It typically blooms between June and August (Munz 1974). This perennial herb grows on gravelly dry slopes and flats in chaparral, conifer woodland, and forests at elevations between approximately 4,900 and 8,500 feet above msl (Jepson Herbarium 2015). It occurs in Los Angeles, Ventura, Tulare, and Kern Counties and occurs approximately 13 miles from the Project site, near Chuchupate Campground, which is located close to Frazier Mountain (CNPS 2015; CDFW 2015a). This location is situated on a rocky, north-facing slope with thin soils and is surrounded by chaparral (Vollmar Consulting 2004). Although some marginally suitable habitat for this species exists on the site, flax-like monardella was not observed during focused surveys.

#### Spreading Navarretia

Spreading navarretia (*Navarretia fossalis*) is a federally Threatened and CRPR 1B.1 species. It typically blooms between April and June (CNPS 2015; Jepson Herbarium 2015). This annual herb occurs at elevations between approximately 100 and 4,265 feet above msl in Los Angeles, Orange, San Diego, and Riverside Counties, as well as in Baja California, Mexico (USFWS 2010b; CNPS 2015). It prefers areas characterized by mounds, swales, and depressions within a matrix of upland habitat that result in intermittently flowing surface and subsurface water in swales, drainages, ephemeral vernal pools, and seasonally flooded alkali vernal plains (USFWS 2010b). It has been reported approximately 13 miles southeast from the Project boundary, in a seasonal depression situated between the toe slope of a small ridge and a disturbed field (former agricultural field) (CCH 2016). Although potentially suitable habitat for this species occurs on the site, spreading navarretia was not observed during focused surveys.

#### Baja Navarretia

Baja navarretia (*Navarretia peninsularis*) is a CRPR 1B.2 species. It typically blooms between June and August (CNPS 2015). This annual herb occurs at elevations between approximately 4,900 and 7,500 feet above msl in Kern, Los Angeles, Santa Barbara, San Bernardino, San Diego, and Ventura Counties, as well as in Baja California, Mexico (CNPS 2015). It prefers wet areas in open forests and openings in chaparral and lower montane coniferous forests (CNPS 2015; Jepson Herbarium 2015). It has been reported less than 1,000 feet from the Project

boundary on a disturbed slope in oak-pine woodland near German Peak, on the west end of the Project (CDFW 2015a). Although potentially suitable habitat for this species occurs on the site, Baja navarretia was not observed during focused surveys

#### Piute Mountains Navarretia

Piute Mountains navarretia (*Navarretia setiloba*) is a CRPR 1B.1 species. It typically blooms between April and July (CDFW 2015a). This annual grows in depressions in clay or gravelly loam at elevations between approximately 1,640 and 6,890 feet above msl (Jepson Herbarium 2015). Before surveys for this site, it was reported only in Kern and Tulare Counties (CNPS 2015). This species is a rare local endemic, restricted to woodland and valley and foothill grassland, in the far southern Sierra Nevada Mountains and in the Tehachapi Mountains (Vollmar Consulting 2004). In the Project vicinity, 39 occurrences were identified a few miles north of the Project site during surveys for a project located approximately 5 miles northwest. They were located in annual grasslands and open oak woodlands (Vollmar Consulting 2004). Piute Mountains navarretia was observed within the 2004 focused survey study area; the three occurrences included approximately 20,100 total plants. These occurrences represent the only known occurrences for this species in Los Angeles County and are the southernmost known occurrences (Vollmar Consulting 2004). Surveys in 2015 verified these occurrences still exist on the Project site; however focused surveys found no occurrences within the proposed impact area.

#### Robbins' Nemacladus

Robbins' nemacladus (*Nemacladus secundiflorus* var. *robbinsii*) is a CRPR 1B.2. It typically blooms between April and June (CNPS 2015). This species grows on dry gravelly slopes in openings of chaparral and grassland at elevations between 1,150 and 5,600 feet above msl (CNPS 2015; Jepson Herbarium 2015). It occurs in Los Angeles, Santa Barbara, San Benito, San Luis Obispo, and Ventura Counties (CNPS 2015). This species was recorded occurring in oak-juniper woodland approximately five miles to the west of the Project site in Hungry Valley, near Gorman (CDFW 2015a). Although suitable habitat is present on the site, Robbins' nemacladus was not observed during focused surveys.

#### Bakersfield Cactus

Bakersfield cactus (*Opuntia basilaris* var. *treleasei*) is a federally and State-listed Endangered species and a CRPR 1B.1 species. It typically blooms between April and May. This species grows in arid plains at elevations between approximately 390 and 4,750 feet above msl. It occurs only in Kern and Los Angeles Counties (CNPS 2015). This species is endemic to the alluvial benches and fans along the southern and southeastern edges of the San Joaquin Valley (Vollmar Consulting 2004). This species has been reported at the base of the Tehachapi Mountains just west of I-5, approximately 20 miles northwest of the Project site, and at Comanche Point, which is more than 20 miles north of the Project site (Vollmar Consulting 2004). In 2013, this species was reported just east of the I-5, south of Gorman Post Road, and just north of the Quail Lake Road exit (CCH 2016). This population occurs approximately 1 mile west of the Project site. Although suitable habitat exists on the site, Bakersfield cactus was not observed during focused surveys.

### Adobe Yampah

Adobe yampah (*Perideridia pringlei*) has a CRPR of 4.3. It typically blooms between April and July (CNPS 2015). This perennial herb is found on grassy slopes and serpentine outcrops at elevations between approximately 980 and 5,910 feet above msl (Jepson Herbarium 2015). It occurs in Los Angeles, Kern, Monterey, Santa Barbara, Tulare, Ventura, and San Luis Obispo Counties (CNPS 2015). Ten occurrences were identified a few miles north of the Project site within openings in oak woodlands and associated annual grasslands. Adobe yampah was observed in the north-central portion of the Project site during 2004 focused surveys. One occurrence with 16 individuals was found in native perennial grasslands on a dry, moderately steep slope with bare soil and low total vegetation cover (Vollmar 2004). In 2006, it was observed at three locations east of the Aqueduct, including approximately 15 individuals (NRC 2006b). In 2008, scattered populations were found east of the Aqueduct, including approximately 108 individuals (NRC 2008a). In 2015, adobe yampah was observed along drainage cut banks and also on north slopes of the larger hills in the southern and western halves of the Project site. Nearly 100 occurrences were recorded on site, with an estimate of over 3,000 total plants. This is assumed to be significantly underestimated, as 2015 spring rainfall patterns caused many populations to die without flowering, therefore becoming undetectable during the focused blooming period surveys.

### San Bernardino Aster

San Bernardino aster (*Symphyotrichum defoliatum* [*Aster bernardinus*]) is a CRPR 1B.2 species. It typically blooms between July and November (Munz 1974). This rhizomatous herb prefers damp meadows, and is generally found from between sea level and 6,700 feet above msl (CNPS 2015). This species occurs in Imperial, Kern, Los Angeles, Orange, Riverside, San Bernardino, San Diego, and possibly San Luis Obispo Counties. It is associated with meadows and seeps; marshes and swamps; cismontane woodland; coastal scrub; lower montane coniferous forest; and vernal mesic grasslands near ditches, streams, and springs (CNPS 2015). According to a historical record from 1939, this species was observed in Kern County in the vicinity of Lebec, about five miles northwest of the Project site (CDFW 2015a). Although suitable habitat for this species exists on the site, San Bernardino aster was not observed during focused surveys.

### Greata's Aster

Greata's aster (*Symphyotrichum* [*Aster*] *greatae*) is a CRPR 1B.3 species. It typically blooms between June and October (CNPS 2015). This perennial herb occurs in moist or dry places in canyons at elevations between approximately 1,000 and 6,600 feet above msl, and is associated with chaparral and oak woodlands (CNPS 2015; Munz 1974). It occurs in Los Angeles, San Bernardino, and Ventura Counties, although historically was only known from the southern slopes of the San Gabriel Mountains (CNPS 2015; Jepson Herbarium 2015). In the region, it has been found near springs in the understory of oak woodlands (Boyd 1999). It occurs approximately nine miles from the Project site, on Liebre Mountain and in Fish Canyon just north of the Cienega Campground (CDFW 2015a). Although potentially suitable habitat for this species exists on the site, Greata's aster was not observed during focused surveys.



### Lemmon's Syntrichopappus

Lemmon's syntrichopappus (*Syntrichopappus lemmonii*) is a CRPR 4.3 species. It typically blooms between April and June (CNPS 2015). This annual species is found in open, sandy to gravelly areas at elevations between approximately 2,950 and 4,920 feet above msl (Jepson Herbarium 2015). It is associated with chaparral habitats and Joshua tree woodlands, and ranges from the southwestern border of the Mojave Desert to adjoining slopes of the San Gabriel and San Bernardino Mountains (Munz 1974). It occurs in Kern, Los Angeles, Monterey, Riverside, San Bernardino, and Ventura Counties (CNPS 2015). No records were found in the Project vicinity prior to focused surveys in the Project site (Vollmar Consulting 2004). Lemmon's syntrichopappus was observed during 2004 focused surveys (outside the 2015 survey area). The occurrence, with approximately 30 individuals, was located in a sparsely vegetated area composed of non-native annual grasses, native perennial bunchgrasses, and native forbs, with prominent areas of bare soil and exposed sandstone bedrock (Vollmar Consulting 2004). Lemmon's syntrichopappus was not observed during the 2015 focused surveys.

### Silvery False Lupine

Silvery false lupine (*Thermopsis macrophylla* var. *argentata*), considered a synonym of *Thermopsis californica* var. *argentata*, is a CRPR 4.3 species. This rhizomatous perennial herb typically blooms between April and October. It grows in lower montane coniferous forest, cismontane woodland, and pinyon/juniper woodland at elevations between approximately 2,200 and 5,200 feet above msl. It occurs in Kern, Siskiyou, Shasta, Modoc, Lassen, Los Angeles, Santa Barbara, and Ventura Counties (CNPS 2015). This species is associated with slopes, especially areas below limestone outcrops or limestone-derived soils (Vollmar Consulting 2004). This species was found in numerous locations on alluvial slopes below a limestone formation a few miles north of the Project site (Vollmar Consulting 2004). Scattered locations have also been reported in the vicinity of the National Cement Plant, which is located immediately north of the Project site (Vollmar Consulting 2004). Although potentially suitable habitat for this species does occur on the site, silvery false lupine was not observed during focused surveys.

### **Oak Trees**

#### Tucker's Oak (*Quercus john-tuckeri*)

A previous botanical survey report prepared for the Project included a review of the species Tucker's oak also known as shrub live oak (*Quercus turbinella*), which is a CNPS List 4 species (Vollmar Consulting 2004). However, communication with a representative of the CNPS indicated that the two taxa are in fact distinct, and that only individuals that match the morphology for *Quercus turbinella* as described by E.L. Greene in 1889 are considered special status by the CNPS (Ward 2005). The range of *Quercus turbinella* in California is thought to be limited to the New York Mountains in the southeastern portion of the California Mojave Desert (CNPS 2015). Given the known range of *Quercus turbinella*, the oaks on the Project site are likely *Quercus john-tuckeri*; however, additional taxonomic studies of the oaks in the Project site would be required to confirm this. The oak tree study conducted in 2001 did not differentiate *Quercus john-tuckeri* from other scrub oak species observed on the Project site (Tree Life Concern 2003).

Tucker oak was reported on slopes in the southeastern and southwestern portions of the Project site (Vollmar Consulting 2004). These sites are located in two general regions: (1) scattered in the hills in the southwestern region of the Project site in open, mixed oak woodland and chaparral habitat and (2) in oak woodland and chaparral habitat along the southeastern edge in the hills south of SR-138. Although Tucker oak should not be considered a CNPS List 4 special status plant species, all individuals of the genus *Quercus* are considered under the County of Los Angeles Oak Tree Ordinance, described in the following section.

### Regulated Oak Trees

As stated previously, Sections 22.56.2050–22.56.2260 of the County of Los Angeles Oak Tree Ordinance protects “regulated oaks” in unincorporated areas of Los Angeles County that are 25 inches or more in circumference (8 inches in diameter) as measured 4.5 feet above mean natural grade; in the case of oaks with more than 1 trunk, the ordinance protects those trees with a combined circumference of any 2 trunks of at least 38 inches (12 inches in diameter) as measured 4.5 feet above mean natural grade (LACDRP 1988). A “heritage oak”, as defined by the CLAOTO, is (1) any oak tree that measures 36 inches or more in diameter, as measured 4.5 feet above the natural grade or (2) any oak less than 36 inches in diameter having a significant historical or cultural importance to the community. The CLAOTO requires that all potential impacts to regulated oak trees regulated by the ordinance be preceded by an application to the County that includes a detailed Oak Tree Report. Mitigation for impacts to regulated oak trees is usually required as a condition to receive a County oak tree permit.

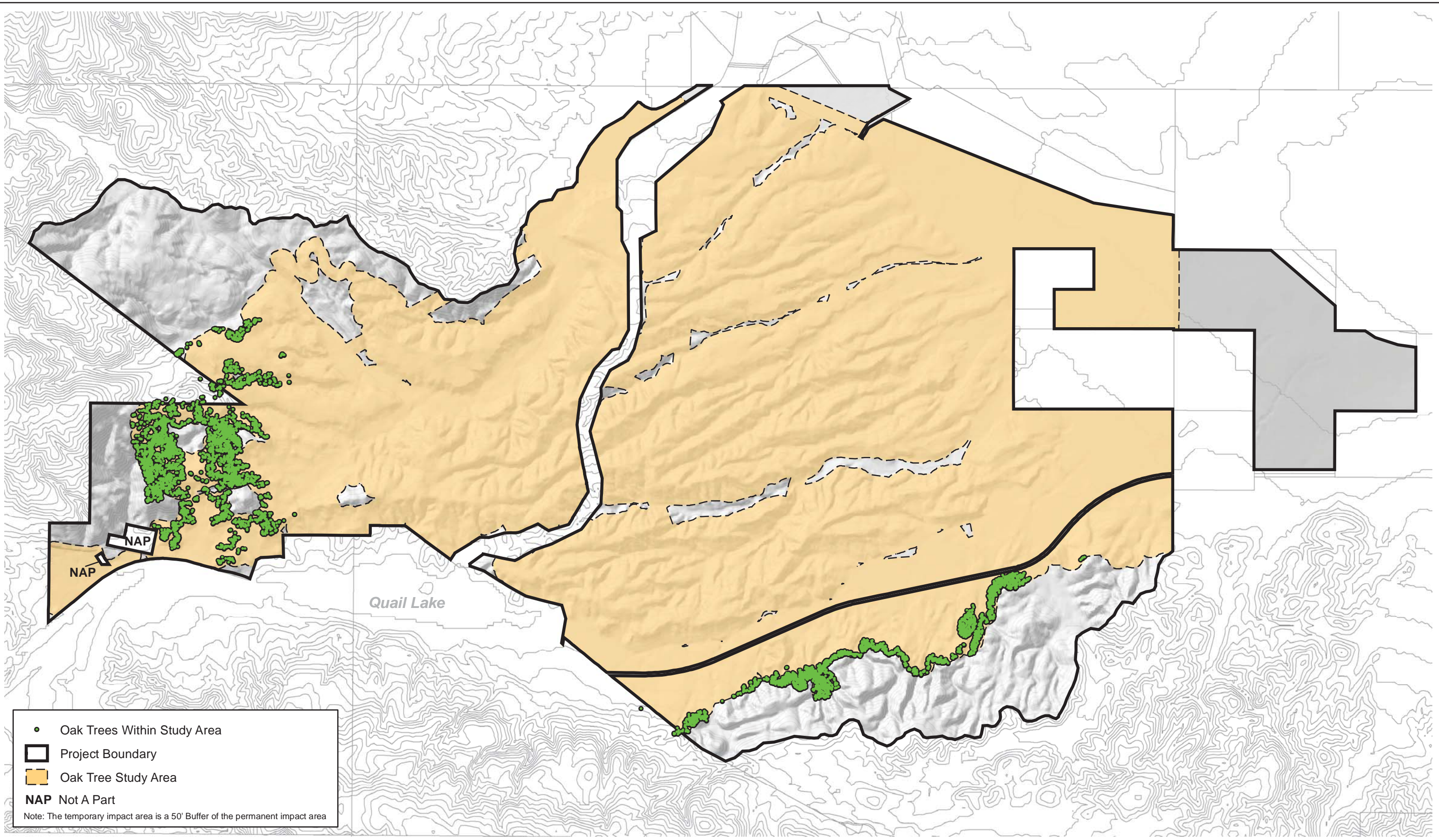
Oak tree surveys were conducted of the on-site oak woodlands occurring inside, and within 200 feet outside, both the original and revised proposed grading limits. The surveys identified 7,149 oaks potentially regulated by the CLAOTO. Blue oak, scrub oak, interior live oak, canyon live oak, valley oak, and hybrids were recorded during the survey (see Exhibit 5.7-8, Oak Trees within Study Area). Of the 7,149 oaks surveyed, 127 are “heritage oaks” as defined by the CLAOTO.

Because the CLAOTO mandates that oak surveys focus on oak trees likely to be either directly or indirectly impacted by proposed development, the survey did not include the vast majority of the oaks that would be preserved in open space areas. Specifically, an extensive oak woodland area is present south of SR-138 and within Significant Ecological Area No. 17. A blue and valley oak-dominated area lies in the western portion of the Project site north of SR-138.

To roughly determine the approximate number of preserved oaks (of all sizes) that will occur on the Project site following development, a limited census was conducted using a standard plant population sampling method. Within the proposed open space areas, oak tree densities were generally lower on the northern side of SR-138 than on the southern side of SR-138 due in part to the different composition of species in these two areas. The results of the oak census are summarized in Table 5.7-6, Estimated Number of Oaks on the Project site.



D:\Projects\3C\EN\Centennial\MXD\IEIR\Oak\_Trees\_20150915.mxd

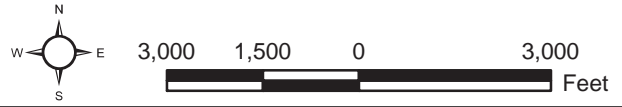


- Oak Trees Within Study Area
- ▭ Project Boundary
- Oak Tree Study Area
- NAP** Not A Part

Note: The temporary impact area is a 50' Buffer of the permanent impact area

### Oak Trees Within Study Area

Centennial Project





**TABLE 5.7-6  
ESTIMATED NUMBER OF OAKS ON THE PROJECT SITE**

<b>Location</b>	<b>Density</b>	<b>Area</b>	<b>Number of Oaks (regulated and non-regulated)</b>
South of SR-138	169.5 oaks per acre	841 acres	142,550 oaks
North of SR-138	85.6 oaks per acre	450 acres	38,520 oaks
<b>Total</b>		<b>1,291 acres*</b>	<b>181,070 oaks</b>
SR: State Route			
* 10.4% of the Project's on-site and off-site components			
<i>Note: These estimates are not used for the impact assessment. They are meant only to provide a rough approximation number for discussion and therefore have not been statistically tested for margin of error.</i>			
Sources: BonTerra Consulting 2009a; Tree Life Concern 2003, 2008; Impact Sciences 2003.			

Using this same method, an estimate of oak tree populations in various size classes was also calculated. Either the diameter of the trunk (at breast height or above any basal swelling) or the largest diameter trunk (if multi-trunked) was estimated for all the oaks both north and south of SR-138. The majority of the trees (70.4 percent) have trunk diameters smaller than 12 inches. The estimated number of oaks in each size class is provided in Table 5.7-7, Estimated Number of Oaks by Size Class on the Project Site.

**TABLE 5.7-7  
ESTIMATED NUMBER OF OAKS BY SIZE CLASS  
ON THE PROJECT SITE**

<b>Size Category (Largest Trunk)</b>	<b>Percent of Oaks in Size Category (Rounded to nearest percent)</b>	<b>Number of Oaks in Size Category (Rounded to nearest unit)</b>
0-5 inches	34	61,563
5-12 inches	36	65,186
12-24 inches	25	45,267
24-36 inches	4	7,243
Greater than 36 inches in diameter	1	1,811
<i>Note: These estimates are not used for the impact assessment. They are meant only to provide a rough approximation number for discussion and therefore have not been statistically tested for margin of error.</i>		
Source: Tree Life Concern 2003.		

Of the 1,370.8 acres of mixed oak woodland existing on the site, 1,364.6 acres would be unimpacted by the Project (500.8 acres north of SR-138 and 870.0 acres south of SR-138). Additionally, of the 1,370.8 acres of mixed oak woodland existing on the site, 1,291.8 acres (473.2 north of SR-138 and 818.6 acres south of SR-138) would be preserved in the on-site preservation areas (unimpacted areas within SEA 17). As mentioned above, oak tree surveys that were performed in support of the impact analysis for the Project only considered trees within the proposed grading footprint at that time, including a 200-foot buffer area (this oak tree survey area includes potential habitat within the current proposed grading footprint). Therefore, in order to estimate the number of oaks under the jurisdiction of CLAOTO that

would be preserved by the Project, twenty 1-acre sample areas were randomly chosen in the mixed oak woodlands located in the survey area of the previous tree studies (10 sample areas were located north of SR-138 and 10 were located south of SR-138). The average tree density for areas north and south of SR-138 was calculated and extrapolated to determine the number of oaks within the adjacent on-site preservation areas (unimpacted areas within SEA 17). Only oaks that are regulated by CLAOTO were considered for this analysis.

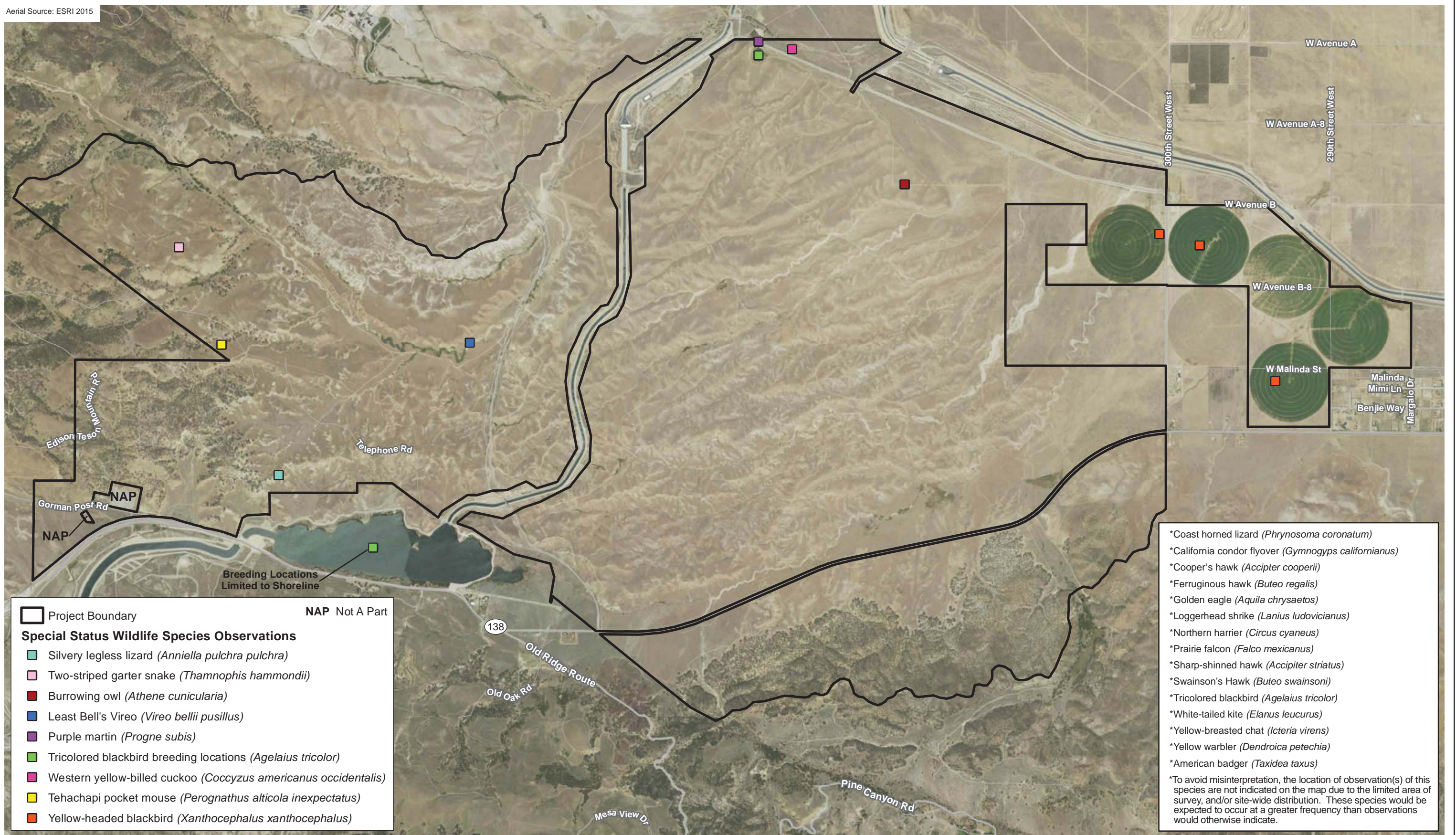
In areas north of SR-138, the average density of oaks under the jurisdiction of CLAOTO was 20.9 trees per acre. By extrapolating this density into adjacent on-site preservation areas, it is estimated that approximately 9,890 regulated oaks would be preserved. In areas south of SR-138, the average density of regulated oaks was 27.4 trees per acre, meaning that approximately 22,430 regulated oaks would be preserved. Therefore, according to this method, it is estimated that approximately 32,319 oaks under the jurisdiction of CLAOTO would be preserved on the site (outside the proposed impact boundary and within SEA 17). Overall it is estimated that about 33,861 regulated oaks are present on the site.

## Special Status Wildlife

A total of 42 special status wildlife species that are known to occur or potentially occur in the Project region (defined as the western Antelope Valley and its associated watersheds) are listed in the table below. Thirty-three of these species have at least some potential to occur, albeit low in many cases, or were observed by Biologists working with Impact Sciences during the course of various field surveys conducted on the Project site. Of these potentially occurring species, 10 are State- and/or federally listed as Endangered, Threatened, or Candidate Species: conservancy fairy shrimp (*Branchinecta conservatio*), vernal pool fairy shrimp (*Branchinecta lynchi*), Tehachapi slender salamander, arroyo toad (*Anaxyrus californicus*), Swainson's hawk, western yellow-billed cuckoo, southwestern willow flycatcher, California condor, bald eagle, and least Bell's vireo. The Project site is not located within any USFWS-designated or proposed Critical Habitat for any of these species. The remaining species are considered to be "of concern" by the CDFW. Table 5.7-8, Special Status Wildlife Species, lists the special status wildlife; the suitability of the habitat on or adjacent to the site; and their potential to occur on the Project site. Following the table are descriptions of special status wildlife species that may be potentially impacted by the Project. Exhibit 5.7-7b, Special Status Wildlife Species Observations, depicts the locations of the special status wildlife species that were observed on the site.

Other species formally considered to be "of concern" by the CDFW but that were recently down-graded to "Watch List" (i.e., as a result of studies suggesting the species numbers and/or distribution are more extensive than previously thought) were considered but not addressed further due to their status. An additional set of species was reviewed due to occurrence records on USGS 7.5-minute quadrangle maps of adjacent regions. The species that did not have records in the Project region and are not expected to occur anywhere in the Project region were excluded from further analysis. Lastly, those species that are tracked by the CDFW through the CNDDDB but have no State-listed special status were excluded from additional analysis.





**Project Boundary** NAP Not A Part

**Special Status Wildlife Species Observations**

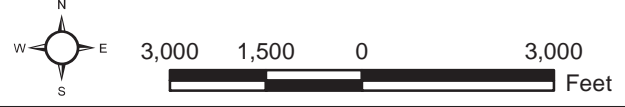
- Silvery legless lizard (*Anniella pulchra pulchra*)
- Two-striped garter snake (*Thamnophis hammondi*)
- Burrowing owl (*Athene cunicularia*)
- Least Bell's Vireo (*Vireo bellii pusillus*)
- Purple martin (*Progne subis*)
- Tricolored blackbird breeding locations (*Agelaius tricolor*)
- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)
- Tehachapi pocket mouse (*Perognathus alticola inexpectatus*)
- Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)

- \*Coast horned lizard (*Phrynosoma coronatum*)
  - \*California condor flyover (*Gymnogyps californianus*)
  - \*Cooper's hawk (*Accipiter cooperii*)
  - \*Ferruginous hawk (*Buteo regalis*)
  - \*Golden eagle (*Aquila chrysaetos*)
  - \*Loggerhead shrike (*Lanius ludovicianus*)
  - \*Northern harrier (*Circus cyaneus*)
  - \*Prairie falcon (*Falco mexicanus*)
  - \*Sharp-shinned hawk (*Accipiter striatus*)
  - \*Swainson's Hawk (*Buteo swainsoni*)
  - \*Tricolored blackbird (*Agelaius tricolor*)
  - \*White-tailed kite (*Elanus leucurus*)
  - \*Yellow-breasted chat (*Icteria virens*)
  - \*Yellow warbler (*Dendroica petechia*)
  - \*American badger (*Taxidea taxus*)
- \*To avoid misinterpretation, the location of observation(s) of this species are not indicated on the map due to the limited area of survey, and/or site-wide distribution. These species would be expected to occur at a greater frequency than observations would otherwise indicate.

### Special Status Wildlife Species Observations

### Exhibit 5.7-7b

Centennial Project





The Los Angeles Audubon maintains a list of Sensitive Bird Species that they consider to be at risk of decline or extirpation in Los Angeles County (Allen et. al 2009). Although not considered special status for the purposes of State CEQA guidelines, these species were analyzed for potential to occur on the Project site and are included in Table 5.7-9, Other L.A. Audubon Sensitive Bird Species, presented further below. Species already included in Table 5.7-8 are not included in Table 5.7-9 to avoid duplication of information.

**TABLE 5.7-8  
SPECIAL STATUS WILDLIFE SPECIES**

Species	Status <sup>a</sup>		Preferred Habitat	Habitat Suitability and Potential to Occur	Occurrence <sup>b</sup>
	USFWS	CDFW			
<b>Invertebrates</b>					
<i>Branchinecta conservatio</i> conservancy fairy shrimp	FE	-	Highly turbid water of ephemeral or temporary pools of fresh water (vernal pools) that form in the cool, wet months of the year; dependent upon seasonal fluctuations in their habitat, such as absence or presence of water during specific times of the year.	Although potentially suitable habitat is present, this species was not identified during wet and dry season protocol surveys in 2004-2005.	Not observed
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	FT	-	Inhabits small vernal pools with cool water (10°C) of moderate alkalinity and conductivity that are less than 1-m deep; occurs primarily in vernal pools and seasonal wetlands that fill with water during fall and winter rains and dry up in spring and summer.	Not known to occur on the Project site; although potentially suitable habitat is present, this species was not identified during wet and dry season protocol surveys of 2 ponds in 2004-2005.	Not observed
<b>Amphibians</b>					
<i>Anaxyrus californicus</i> arroyo toad	FE	SSC	Washes/streams, sandy banks, willows, cottonwoods, or sycamores; riparian habitats of semiarid areas, small cobbly streambeds.	Potentially suitable habitat is present in large drainages; not detected during protocol surveys in 2006; may occur.	Not observed
<i>Batrachoseps stebbinsi</i> Tehachapi slender salamander	-	ST	North-facing slopes in valley-foothill hardwood conifer and valley-foothill riparian habitats.	Some potentially suitable habitat in oak woodland areas of the site and within high elevation <i>Hesperoyucca whipplei</i> ; not detected during focused surveys in 2006; may occur.	Not observed

**TABLE 5.7-8  
SPECIAL STATUS WILDLIFE SPECIES**

Species	Status <sup>a</sup>		Preferred Habitat	Habitat Suitability and Potential to Occur	Occurrence <sup>b</sup>
	USFWS	CDFW			
<i>Ensatina eschscholtzii croceator</i> yellow-blotched ensatina (salamander)	-	SSC	Coniferous habitats, montane hardwood habitats, and mixed chaparral.	Potentially suitable habitat present in the heavily wooded drainages in the westernmost portion of the site; may occur.	Not observed
<i>Rana aurora draytonii</i> California red-legged frog	FT	SSC	Humid forests, woodlands, grasslands and streamsides, especially where cattails and other plants provide good cover.	Not detected during focused protocol surveys conducted in 2001; not detected during protocol surveys in 2006; marginally suitable habitat present on the site.	Not observed
<i>Spea hammondi</i> western spadefoot	-	SSC	Relatively open areas in lowland grasslands, chaparral, and pine-oak woodlands, sandy or gravelly soil in alluvial fans, washes, and floodplains.	Potentially suitable habitat is present; not detected during 2005 focused surveys west of the Aqueduct; may occur east of the Aqueduct.	Not observed
<b>Reptiles</b>					
<i>Anniella pulchra pulchra</i> silvery legless lizard	-	SSC	Coastal dune, valley-foothill, chaparral, and coastal scrub habitats.	1 silvery legless lizard was observed in the far western portion of the site. Potentially suitable habitat is present in many areas on the site.	Observed
<i>Emys marmorata pallida</i> western pond turtle	-	SSC	Ponds, marshes, rivers, streams, irrigation ditches.	Western pond turtles have been observed at Quail Lake; limited potentially suitable habitat is present on the Project site.	Not observed
<i>Gambelia sila</i> blunt-nosed leopard lizard	FE	SE FP	Vegetative ground cover of 50% or less, dominated by a relatively short grass component. Vegetation types utilized include grassland, saltbush scrub, and valley sink scrub.	Blunt-nosed leopard lizard has a range that stops north of the Tehachapi Range; not expected to occur on the site.	Not observed



**TABLE 5.7-8  
SPECIAL STATUS WILDLIFE SPECIES**

Species	Status <sup>a</sup>		Preferred Habitat	Habitat Suitability and Potential to Occur	Occurrence <sup>b</sup>
	USFWS	CDFW			
<i>Phrynosoma blainvillii</i> coast horned lizard	-	SSC	Valley-foothill hardwood, conifer, and riparian habitats, pine-cypress, juniper and annual grassland habitats from sea level to 6,000 feet above msl and open country, especially sandy areas, washes, floodplains, and windblown deposits.	Horned lizards were observed in several drainages, primarily in the eastern portion of the site; potentially suitable habitat is present in many areas.	Observed
<i>Thamnophis hammondi</i> two-striped garter snake	-	SSC	Riparian and freshwater marshes with perennial water.	1 individual was observed in the northwestern portion of the site; potentially suitable habitat is also present in other permanent water sources on the site, including cattle ponds and along Oso Creek.	Observed
<b>Birds</b>					
<i>Agelaius tricolor</i> tricolored blackbird (nesting colony)	-	SCE, SSC	Freshwater marshes and riparian scrub.	This species was observed foraging and nesting. A large nesting colony along the north-central edge of the Project site was observed during surveys in 2006 and 2008. This species was <b>not</b> observed nesting on the site in 2015, although it was observed nesting in Quail Lake and foraging on site.	Observed

**TABLE 5.7-8  
SPECIAL STATUS WILDLIFE SPECIES**

Species	Status <sup>a</sup>		Preferred Habitat	Habitat Suitability and Potential to Occur	Occurrence <sup>b</sup>
	USFWS	CDFW			
<i>Ammodramus savannarum</i> grasshopper sparrow (nesting)	-	SSC	Grassland habitats including a variety of tall- and mixed-grass habitats such as native prairies, hayfields, pastures, and grassy fallow fields.	Grassland habitats provide potentially suitable habitat, but the Project site is outside the historic and current known range; not expected to occur.	Not observed
<i>Aquila chrysaetos</i> golden eagle (nesting and non-breeding/ wintering)	-	FP, WL	Mountains, deserts, and open country; prefer to forage over grasslands, deserts, savannahs and early successional stages of forest and shrub habitats.	Observed foraging in the northwestern and northeastern portions of the site; limited potential nesting but extensive foraging habitat is present on the site.	Observed
<i>Asio otus</i> long-eared owl (nesting)	-	SSC	Breeding habitat includes thickly wooded areas with nearby open spaces for hunting. Winters in dense conifer groves or brushy thickets.	Limited potentially suitable habitat in the western portion of the Project site.	Not Observed
<i>Athene cunicularia</i> burrowing owl (burrow sites and some wintering sites)	-	SSC	Dry grasslands, desert habitats, open pinyon-juniper, and ponderosa pine woodlands between sea level and 5,300 feet above msl; berms, ditches, and grasslands adjacent to rivers, agricultural, and scrub areas.	1 pair observed in the eastern portion of the site in 2001 and 1 pair just off the site in 2006; potentially suitable foraging and nesting habitat exists throughout the site; although not detected on site since 2001, this species is expected to occur in low numbers.	Observed
<i>Aythya americana</i> redhead (nesting)	-	SSC	Marshes, lakes, reservoirs, river pools, and bays.	Potentially suitable habitat at adjacent Quail Lake; not expected to occur for breeding on the Project site.	Not Observed

**TABLE 5.7-8  
SPECIAL STATUS WILDLIFE SPECIES**

Species	Status <sup>a</sup>		Preferred Habitat	Habitat Suitability and Potential to Occur	Occurrence <sup>b</sup>
	USFWS	CDFW			
<i>Buteo swainsoni</i> Swainson's hawk (nesting)	-	ST	Plains, ranges, open hills, sparse trees.	Observed on an adjacent site during 2004 spring migration; a group of 5 non-breeding birds was present in summer 2008; potentially suitable breeding habitat is present on the site; this species is not known to breed in the Project region, although in recent years nesting has been observed to the east of the Project region.	Observed
<i>Charadrius montanus</i> mountain plover (wintering)	-	SSC	Open grasslands and agricultural fields of larger valleys and basins of the region	The eastern portions of the Project site dominated by grasslands and agricultural fields on relatively gentle terrain provide potentially suitable wintering habitat. This species was not observed during focused surveys.	Not observed
<i>Circus cyaneus</i> northern harrier (nesting)	-	SSC	Coastal salt marshes, freshwater marshes, grasslands, and agricultural fields; occasionally forages over open desert and brushlands.	This species was observed foraging during field investigations; potentially suitable foraging and nesting habitat is present on the site.	Observed

**TABLE 5.7-8  
SPECIAL STATUS WILDLIFE SPECIES**

Species	Status <sup>a</sup>		Preferred Habitat	Habitat Suitability and Potential to Occur	Occurrence <sup>b</sup>
	USFWS	CDFW			
<i>Coccyzus americanus occidentalis</i> western yellow-billed cuckoo (nesting)	FT	SE	Riverine woodlands, thickets, and farms.	One individual was reported during June 2003 surveys and is considered to be a migrant; the limited amount of suitable nesting habitat probably would not support breeding for this species.	Observed
<i>Elanus leucurus</i> white-tailed kite (nesting)	-	FP	Grasslands with scattered trees, near marshes, along highways.	Observed on the site; potentially suitable breeding and foraging habitat is present on the site; local breeder in small numbers in Antelope Valley.	Observed
<i>Empidonax traillii extimus</i> southwestern willow flycatcher (nesting)	FE	SE	Wet meadow and montane riparian habitats, river valleys and large mountain meadows.	Although migrant willow flycatchers (unknown subspecies) have been observed on the site, no breeding southwestern willow flycatchers were present in 2006 and 2008; the site provides potentially suitable nesting habitat for this species.	Not Observed
<i>Gymnogyps californianus</i> California condor	FE	SE	Montane and foothill regions; vast expanses of open savannah, grasslands, and chaparral with cliffs, large trees, and snags.	No suitable breeding habitat; potential foraging habitat is present, but lack of thermals appears to prohibit use of the site. Although there are many flyover records from the site (and 1 landing) and from the surrounding areas, this species is expected to occur only as a relatively rare flyover compared with core	Observed

**TABLE 5.7-8  
SPECIAL STATUS WILDLIFE SPECIES**

Species	Status <sup>a</sup>		Preferred Habitat	Habitat Suitability and Potential to Occur	Occurrence <sup>b</sup>
	USFWS	CDFW			
				habitat in the adjacent mountains to the north and west.	
<i>Haliaeetus leucocephalus</i> bald eagle (nesting and non-breeding/ wintering)	(De-listed 2007)	SE, FP	Lakes, reservoirs, rivers, offshore islands, and some rangelands and coastal wetlands in Southern California.	Not observed on the site, but observed foraging adjacent to the site at Quail Lake; marginal nesting habitat is present on the site; may occur.	Not observed
<i>Icteria virens</i> yellow-breasted chat (nesting)	-	SSC	Riparian woodlands with a thick understory.	Singing males present during May 2006 and 2008 but none remained to breed; potentially suitable nesting habitat on the site.	Observed
<i>Lanius ludovicianus</i> loggerhead shrike (nesting)	-	SSC	Open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches.	Observed foraging on the site in 2006, 2008, and 2015; present throughout site; nesting habitat is present in the Oso Canyon drainage and also the woodland habitats at western edge of site.	Observed
<i>Piranga rubra</i> summer tanager (nesting)	-	SSC	Mature, desert riparian habitat dominated by cottonwoods and willows, especially older, dense stands.	Cottonwood woodlands on the site provide potentially suitable breeding habitat, although this species is rare this far west; may occur.	Not observed

**TABLE 5.7-8  
SPECIAL STATUS WILDLIFE SPECIES**

Species	Status <sup>a</sup>		Preferred Habitat	Habitat Suitability and Potential to Occur	Occurrence <sup>b</sup>
	USFWS	CDFW			
<i>Polioptila californica californica</i> coastal California gnatcatcher	FT	SSC	Prefers open sage scrub with California sagebrush as a dominant or co-dominant species. More abundant near sage scrub-grassland interface than where sage scrub grades into chaparral. Dense sage scrub is occupied less frequently than more open sites. Mostly absent from coastal areas dominated by black sage, white sage, or lemonade berry.	No suitable habitat exists on the site; not expected to occur.	Not observed
<i>Progne subis</i> purple martin (nesting)	-	SSC	In Southern California, now only a rare and local breeder on the coast and in interior mountain ranges, with few breeding localities. Absent from higher desert regions except as a rare migrant. Often nests in tall, old trees near a body of water. Also nests occasionally in residential areas. Frequents old-growth, multi-layered, open forest and woodland with snags.	Observed in oak woodlands on the site; potentially suitable breeding and foraging habitat exists and it may nest on the site.	Observed
<i>Setophaga petechia</i> yellow warbler (nesting)	-	SSC	Sparse to dense woodland and forest habitats with or without heavy brush understory.	Common migrant of riparian habitats during 2006 and 2008 surveys, but none remained to breed; may potentially nest in the more dense riparian areas of Oso Creek and other drainages on the site.	Observed

**TABLE 5.7-8  
SPECIAL STATUS WILDLIFE SPECIES**

Species	Status <sup>a</sup>		Preferred Habitat	Habitat Suitability and Potential to Occur	Occurrence <sup>b</sup>
	USFWS	CDFW			
<i>Strix occidentalis occidentalis</i> California spotted owl	-	SSC	Oak and oak-conifer habitats.	Oak woodlands in the western portion of the site provide potentially suitable breeding and foraging habitat; may occur on site.	Not observed
<i>Vireo bellii pusillus</i> least Bell's vireo (nesting)	FE	SE	Perennial and intermittent streams with low, dense riparian scrub and riparian woodland habitats generally between sea level and 2,000 feet above msl (about 4,000 feet above msl on eastern side of the Sierra Nevada).	Cottonwood and willow woodlands on the site provide potentially suitable breeding habitat; 1 singing male was present on June 22, 2006, but not thereafter and presumed to be an unmated wandering male; none were present during 2008 surveys.	Observed
<i>Xanthocephalus xanthocephalus</i> yellow-headed blackbird (nesting)	-	SSC	Freshwater marshes and riparian scrub	Agricultural fields on the Project site provide suitable foraging habitat. This species was observed foraging on the site in the agricultural fields in 2015. Not observed nesting on the site.	Observed
<b>Mammals</b>					
<i>Ammospermophilus nelsoni</i> Nelson's antelope squirrel	-	ST	Primarily valley saltbush scrub; often lives sympatrically with giant kangaroo rat.	Current and historical geographic range do not include the Project site and are separated by a mountain range; not expected to occur.	Not observed
<i>Antrozous pallidus</i> pallid bat	-	SSC	Roosts in cliffs, crevices, mine tunnels, caves, house attics, and other man-made structures.	Potentially suitable roosting habitat present in oak woodlands; likely forages throughout the site; expected to occur.	Not observed

**TABLE 5.7-8  
SPECIAL STATUS WILDLIFE SPECIES**

Species	Status <sup>a</sup>		Preferred Habitat	Habitat Suitability and Potential to Occur	Occurrence <sup>b</sup>
	USFWS	CDFW			
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	-	SSC	Caves, mine tunnels, and buildings.	No potentially suitable hibernation or maternity roosting features observed on the Project site; potential to forage throughout the site; low potential to occur.	Not observed
<i>Dipodomys nitratoides nitratoides</i> Tipton kangaroo rat	FE	SE	Primarily valley sink scrub.	Current and historical geographic range do not include the Project site and are separated by a mountain range; not expected to occur.	Not observed
<i>Eumops perotis</i> western mastiff bat	-	SSC	In arid and semi-arid lowlands; roosts in cliffs and rock crevices.	No potentially suitable roosting habitat; may occur to forage, but not expected to roost.	Not observed
<i>Onychomys torridus ramona</i> southern grasshopper mouse	-	SSC	Grasslands, desert areas, especially scrub with friable soils.	Potentially suitable habitat present in grasslands and scrub habitat; may occur.	Not observed
<i>Perognathus alticolus inexpectatus</i> Tehachapi pocket mouse	-	SSC	Arid annual grassland, desert shrub, fallow grain fields, Russian thistle; burrows for cover and nesting; aestivates and hibernates; forages on open ground and under shrubs.	1 individual was observed during small mammal trapping surveys; potentially suitable habitat present in the western part of the site.	Observed
<i>Taxidea taxus</i> American badger	-	SSC	Prefers drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Badgers are generally associated with treeless regions, prairies, park lands, and cold desert areas but are unlikely in cultivated lands.	Individual badgers were observed in both the eastern and western portions of the site and a number of badger dens were observed throughout the site during various field surveys.	Observed



**TABLE 5.7-8  
SPECIAL STATUS WILDLIFE SPECIES**

Species	Status <sup>a</sup>		Preferred Habitat	Habitat Suitability and Potential to Occur	Occurrence <sup>b</sup>														
	USFWS	CDFW																	
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	FE	ST	Mostly grassland and saltbush scrub; however, quite tolerant of human-caused disturbances and will, to an extent, utilize oil fields and cultivated agriculture lands.	Southernmost range is north of Los Angeles County (in Kern County); not expected to occur on the site.	Not observed														
<p>USFWS: U.S. Fish and Wildlife Service; CDFW: California Department of Fish and Game; °C: degrees Celsius; m: meters; msl: mean sea level</p> <p><b>LEGEND</b></p> <p><sup>a</sup> <b>Status Definitions</b></p> <table> <tr> <td><b>Federal (USFWS)</b></td> <td><b>State (CDFW)</b></td> </tr> <tr> <td>FE: Federally Endangered</td> <td>SE: State Endangered</td> </tr> <tr> <td>FT: Federally Threatened</td> <td>ST: State Threatened</td> </tr> <tr> <td></td> <td>SCE: State Candidate for listing as Endangered</td> </tr> <tr> <td></td> <td>SSC: Species of Special Concern</td> </tr> <tr> <td></td> <td>FP: Fully Protected</td> </tr> <tr> <td></td> <td>WL: Watch List</td> </tr> </table> <p><sup>b</sup> “Not Observed” does not infer that focused surveys were conducted.</p> <p>Note: All observation data is from wildlife surveys listed in Table 5.7-2.</p>						<b>Federal (USFWS)</b>	<b>State (CDFW)</b>	FE: Federally Endangered	SE: State Endangered	FT: Federally Threatened	ST: State Threatened		SCE: State Candidate for listing as Endangered		SSC: Species of Special Concern		FP: Fully Protected		WL: Watch List
<b>Federal (USFWS)</b>	<b>State (CDFW)</b>																		
FE: Federally Endangered	SE: State Endangered																		
FT: Federally Threatened	ST: State Threatened																		
	SCE: State Candidate for listing as Endangered																		
	SSC: Species of Special Concern																		
	FP: Fully Protected																		
	WL: Watch List																		

**TABLE 5.7-9  
OTHER L.A. AUDUBON SENSITIVE BIRD SPECIES**

Species	Status	Preferred Habitat	Potential to Occur on the Project site; Results of Surveys	Occurrence
	L.A. Audubon			
<i>Anser albifrons</i> greater white-fronted goose	CSBS	Tundra wetlands for breeding; winters in agricultural fields, marshes, bays, and lakes.	The Project site does not provide suitable breeding habitat, but does provide marginal wintering habitat; not expected to occur as species has strong site fidelity for known wintering locations supporting large flocks.	Not observed
<i>Asio flammeus</i> short-eared owl	CSBS	Large, open areas with low vegetation, including prairie and coastal grasslands, meadows, shrub steppe, savanna, tundra, marshes, dunes, and agricultural areas; nests most commonly on tundra, inland and coastal prairies, extensive marshes, farmland.	The Project site provides a very limited amount of potentially suitable marsh habitat that is not substantial enough for breeding; may occur for wintering in the scrub, grassland, and agricultural areas of the Project site.	Not observed
<i>Botaurus lentiginosus</i> American bittern	CSBS	Wetlands of a variety sizes and kinds; freshwater marshes with tall vegetation for breeding; near the coast they occasionally use brackish marshes; managed wetlands important for wintering, may also forage in dry grasslands and other terrestrial habitats in winter.	The Project site provides a very limited amount of potentially suitable marsh habitat that is not substantial enough to support breeding or wintering birds; not expected to occur other than as a rare migrant.	Migrant observed
<i>Buteo regalis</i> ferruginous hawk	CSBS	Open-country; grasslands, sagebrush, saltbush-greasewood shrublands, and edges of pinyon-juniper forests at low to moderate elevations for breeding; breeding habitat includes features such as cliffs, outcrops, and tree groves for nesting; grasslands or deserts with abundant rabbits or pocket gophers for wintering.	The Project site is outside known breeding range for this species, but does provide suitable foraging habitat for wintering birds; it is expected to occur in small numbers on and in the vicinity of the Project site during winter.	Observed

**TABLE 5.7-9  
OTHER L.A. AUDUBON SENSITIVE BIRD SPECIES**

Species	Status	Preferred Habitat	Potential to Occur on the Project site; Results of Surveys	Occurrence
	L.A. Audubon			
<i>Cathartes aura</i> Turkey Vulture	CSBS (breeding)	Open areas including mixed farmland, forest, and rangeland; nest on ground, hollow logs and trees, caves, cliff ledges, and rocky cavities; roost in trees, on rocks, and other high secluded spots.	Suitable foraging and roosting habitats are present throughout most of the Project site, but only the more remote western portions of the site provide potentially suitable nesting sites; expected to occur year-round for foraging.	Observed
<i>Cardellina pusilla</i> Wilson's warbler	CSBS (ML breeding)	Thickets of riparian habitats, lakes, bogs, and overgrown clear-cuts of montane and boreal zone for breeding; winters in tropical evergreen and deciduous forest, cloud forest, pine-oak forest, and forest edge habitat; also found in mangrove undergrowth, secondary growth, thorn-scrub, dry washes, riparian gallery forest, mixed forests, brushy fields, and plantations.	The riparian habitats on the Project site are considered to be too sparse to suitable breeding habitat for this species, so it is expected to occur only as a migrant.	Migrants Observed
<i>Catharus ustulatus</i> Swainson's thrush	CSBS (breeding)	Coniferous forests for breeding, except in coastal California where they are found primarily in deciduous streamside woodlands, alder or willow thickets, and occasionally in coastal scrub; sea level up to about 8,500 feet in elevation; winter habitat includes primary and old second-growth tropical forest and forest-pasture edges.	The riparian habitats on the Project site are considered to be too sparse to suitable breeding habitat for this species, so it is expected to occur only as a migrant.	Migrants observed

**TABLE 5.7-9  
OTHER L.A. AUDUBON SENSITIVE BIRD SPECIES**

Species	Status	Preferred Habitat	Potential to Occur on the Project site; Results of Surveys	Occurrence
	L.A. Audubon			
<i>Chen caerulescens</i> snow goose	CSBS	Colonial breeder on Canadian and Northern Alaskan tundra in the vicinity of the coast; winter in regions on both American coasts as well as in some inland areas, frequenting open habitats like marshes, grasslands, marine inlets, freshwater ponds, and agricultural fields.	The Project site does not provide suitable breeding habitat, but does provide marginal wintering habitat; not expected to occur as species has strong site fidelity for known wintering locations supporting large flocks.	Migrant observed
<i>Chordeiles acutipennis</i> lesser nighthawk	CSBS (coastal slope)	Large open areas with relatively level topography and naturally open land; nest on vernal pool soils in large.	The Project site provides potentially suitable breeding and foraging habitat; this species may occur for foraging and breeding.	Not observed
<i>Cistothorus palustris</i> marsh wren	CSBS (interior breeding)	Marshes (cattail, bulrush, or brackish); breeds in many fresh and brackish marsh situations, usually with a large area of cattails, bulrushes, or cordgrass; winters in a wider variety of large and small marshes, including salt marshes and brushy edges of ponds or irrigation ditches.	The Project site provides a limited amount of potentially suitable marsh habitat for breeding and wintering; may occur for breeding and wintering.	Not observed
<i>Empidonax wrightii</i> gray flycatcher	CSBS (breeding)	Sagebrush, and pinyon and juniper; open and rather arid habitats for breeding, especially sagebrush plains with a few taller trees or shrubs, also scrubby woods of juniper and pinyon pine; winters in mesquite groves and in streamside willows and other trees, in lowlands.	Project site is outside known breeding range; not expected to occur other than as rare migrant.	Migrant observed
<i>Eremophila alpestris actia</i> California horned lark	CSBS (coastal slope)	Open areas dominated by sparse low herbaceous vegetation or widely scattered low shrubs; nests in hollow on ground often next to grass tuft or clod of earth or manure.	The Project site is outside the breeding range for this subspecies that occurs primarily on the coastal slope of Los Angeles County; the Mojave horned lark ( <i>E. a. ammophila</i> ) does nest on the Project site.	Not observed

**TABLE 5.7-9  
OTHER L.A. AUDUBON SENSITIVE BIRD SPECIES**

Species	Status	Preferred Habitat	Potential to Occur on the Project site; Results of Surveys	Occurrence
	L.A. Audubon			
<i>Falco mexicanus</i> prairie falcon	CSBS (breeding)	Bluffs and cliffs in open country for nesting; the majority spend the winter in the Great Plains and Great Basin, In winter, often found in farmland and around lakes and reservoirs, and may regularly winter in some western cities; avoids forested country, and usually scarce on the immediate coast.	The Project site does not provide suitable nesting sites for this species, but this species is expected to occur during the breeding and winter seasons for foraging.	Observed
<i>Geococcyx californianus</i> greater roadrunner	CSBS	Semi-open, scrubby habitat including areas dominated by creosote, mesquite, chaparral, and tamarisk, as well as grasslands, riparian woodlands and canyons.	The Project site provides suitable breeding and foraging habitat and it is expected to occur.	Observed
<i>Hydroprogne caspia</i> caspiian tern	CSBS (breeding)	Breeds in wide variety of habitats along water, such as salt marshes, barrier islands, dredge spoil islands, freshwater lake islands, and river islands; during migration and winter found along coastlines, large rivers and lakes; roosts on islands and isolated spits.	The Project site does not provide suitable habitat for this species; this species is an infrequent visitor to Quail Lake and may, as a result, be seen from or over the project site.	Observed
<i>Icterus parisorum</i> Scott's oriole	CSBS (breeding)	Dry woods and scrub in desert mountains, yuccas, Joshua-trees, pinyons; breeds in semi-arid zones of Southwest in oak zones of lower canyons, open woods of juniper and pinyon pine, stands of Joshua-trees, grassland with many yuccas, palm oases; avoids true desert.	The Project site does not provide suitable breeding habitat, so it is not expected to occur.	Not observed

**TABLE 5.7-9  
OTHER L.A. AUDUBON SENSITIVE BIRD SPECIES**

Species	Status	Preferred Habitat	Potential to Occur on the Project site; Results of Surveys	Occurrence
	L.A. Audubon			
<i>Megaceryle alcyon</i> belted kingfisher	CSBS (breeding)	Need access to bodies of water (streams, rivers, ponds, lakes, estuaries, and calm marine waters) for feeding; vertical earthen banks for nesting.	The Project site does not provide suitable foraging habitat, and is not expected to provide any potentially suitable nesting sites near Quail Lake; may occur on Project site as fly-over, but not expected to occur for nesting.	Not observed
<i>Melospiza lincolni</i> Lincoln's sparrow	CSBS (breeding)	Bogs, wet meadows, and riparian thickets for breeding, mostly in northern and montane areas; winters in brushy areas, thickets, hedgerows, understory of open woodlands, forest edges, clearings, and scrubby areas.	The Project site does not provide suitable breeding habitat; expected to occur as migrant and winter visitor.	Observed
<i>Numenius americanus</i> long-billed curlew	CSBS (wintering)	Sparse, short grasses, including shortgrass and mixed-grass prairies as well as agricultural fields for breeding; winters at coastal and interior Mexico, in wetlands, tidal estuaries, mudflats, flooded fields, and occasionally beaches.	The Project site provides suitable foraging habitat and potentially suitable breeding habitat, although south of known breeding locations in California; may occur in winter, but has been observed in migration and summer.	Observed
<i>Picoides villosus</i> Hairy woodpecker	CSBS (lowland)	Mature woodlands with medium to large trees, and coniferous forests, deciduous forests, or mixtures, and generally up to about 6,500 feet elevation.	The Project site provides suitable habitat for this species; it is expected to occur in the woodlands on western portions of the Project site; may occur in the riparian woodlands elsewhere on the Project site.	Not observed
<i>Plegadis chihi</i> white-faced Ibis	CSBS (breeding)	Fresh and saltwater marshes containing many rushes and sedges for nesting; also found around ponds, rivers and in flooded pastures and agricultural fields; movement patterns shift depending on rain.	The Project site does not provide suitable breeding habitat, but does provide suitable foraging habitat; observed during migration and may occur during winter.	Observed

**TABLE 5.7-9  
OTHER L.A. AUDUBON SENSITIVE BIRD SPECIES**

Species	Status	Preferred Habitat	Potential to Occur on the Project site; Results of Surveys	Occurrence
	L.A. Audubon			
<i>Podiceps nigricollis</i> eared grebe	CSBS (breeding)	Breeds in shallow lakes and ponds; migration and in winter prefers salt water.	The Project site does not provide suitable habitat for this species; Quail Lake provides suitable habitat for this species; may occur on Project site but only as fly-over.	Observed
<i>Poocetes gramineus</i> vesper sparrow	CSBS	Found in various open habitats with grass, including prairie, sagebrush steppe, meadows, pastures, and roadsides.	The Project site is outside the breeding range for this species, but does provide suitable wintering habitat; this species is expected to occur in migration and winter.	Observed
<i>Porzana carolina</i> sora	CSBS (breeding)	Breeds in shallow wetlands with lots of emergent vegetation.	The Project site provides a very limited amount of potentially suitable marsh habitat for breeding and wintering; may occur during migration and winter but not expected to breed as marsh habitat not substantial enough.	Not observed
<i>Rallus limicola</i> Virginia rail	CSBS	Freshwater marshes in dense emergent vegetation; occasionally inhabits salt marshes.	The Project site provides a very limited amount of potentially suitable marsh habitat for breeding and wintering; may occur during migration and winter but not expected to breed as marsh habitat not substantial enough.	Not observed
<i>Sialia currucoides</i> mountain bluebird	CSBS (wintering)	Open areas with a mix of short grasses, shrubs, and trees, at elevations of up to 12,500 feet above sea level for breeding; winter at lower elevations—in meadows, hedgerows, prairies, and flat grasslands with few scattered trees and bushes, pinyon-juniper and oak-juniper woodlands, and	The Project site provides suitable wintering habitat; small numbers observed wintering on the Project site during surveys.	Observed

**TABLE 5.7-9  
OTHER L.A. AUDUBON SENSITIVE BIRD SPECIES**

Species	Status	Preferred Habitat	Potential to Occur on the Project site; Results of Surveys	Occurrence
	L.A. Audubon			
		agricultural areas; they avoid the most arid desert habitats.		
<i>Sturnella neglecta</i> western meadowlark	CSBS	Open grasslands, prairies, meadows, and some agricultural fields; avoid wooded edges and areas with heavy shrubs; in winter they forage for seeds on nearly bare ground.	The Project site provides suitable habitat; moderate numbers observed year-round on the Project site during surveys.	Observed
<i>Thalasseus elegans</i> elegant tern	CSBS (breeding)	Coastal waters, occasionally ocean far from land; breeds on low, flat, sandy islands.	The Project site is outside the known range of this species; not expected to occur.	Not observed
<i>Thalasseus maximus</i> royal tern	CSBS (breeding)	Coasts, sandy beaches, salt bays; favors warm coastal waters, especially those that are shallow and somewhat protected, as in bays, lagoons, estuaries; usually nests on low-lying sandy islands.	The Project site is outside the known range of this species; not expected to occur.	Not observed
<i>Toxostoma lecontei</i> Le Conte's thrasher	CSBS	Desert flats with sparse growth of saltbush; also on creosote bush flats in some areas; mainly where there are a few slightly larger mesquites or cholla cactus.	The Project site is outside the known range of this species; not expected to occur	Not observed
ML=Mountain and lowland				
<b>L. A. Audubon</b>				
CSBS County Sensitive Bird Species				

## ***Invertebrates***

### **Conservancy Fairy Shrimp**

The conservancy fairy shrimp is a federally listed Endangered Species. It was listed on September 19, 1994. The species is currently known from several disjunct populations: the Vina Plains in Tehama County; south of Chico in Butte County; the Jepson Prairie Preserve and surrounding area in Solano County; the Sacramento National Wildlife Refuge in Glenn County; Mapes Ranch west of Modesto; San Luis National Wildlife Refuge and the Haystack Mountain/Yosemite Lake area in Merced County; and two locations on the Los Padres National Forest in Ventura County (USFWS 1994b). Critical Habitat was designated for this species on February 10, 2006. A total of 161,786 acres in Butte, Colusa, Mariposa, Merced,



Solano, Stanislaus, Tehama, and Ventura Counties were determined to be critical habitat for this species. Three other vernal pool crustacean species had Critical Habitat designated within the same document: longhorn fairy shrimp (*Branchinecta longiantenna*), vernal pool fairy shrimp, and vernal pool tadpole shrimp (*Lepidurus packardii*). Although there are no records of this species within the vicinity of the site, survey data are limited. A habitat assessment conducted by Glenn Lukos Associates indicated that suitable conditions for this species may occur on the Project site (GLA 2005b). This species was not observed during protocol dry and wet season surveys of two seasonal ponds in 2004–2005 (GLA 2005a). The conservancy fairy shrimp is not expected to occur on the Project site due to negative results of focused surveys.

### Vernal Pool Fairy Shrimp

The vernal pool fairy shrimp is a federally listed Threatened Species. It occupies a variety of different vernal pool habitats from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley pools. The vernal pool fairy shrimp requires water temperatures of 10 degrees Celsius (°C, 50 degrees Fahrenheit [°F]) or less for cysts to hatch, and time to sexual maturity ranges from an absolute minimum of 18 days at 20°C (68°F) to a more typical 41 days at 15°C (59°F). Longevity ranges from about 70 days to a maximum of 139 days (Eriksen and Belk 1999). Although the species has been collected from large vernal pools, including 1 exceeding 25 acres, it tends to occur in smaller pools. It is most frequently found in pools measuring less than 0.05 acre (Impact Sciences 2003). These are most commonly found in grass- or mud-bottomed swales, or basalt flow depression pools in unplowed grasslands (USFWS 1994b). This species has been recorded from elevations as high as 5,600 feet above msl. The vernal pool fairy shrimp is known from three locations in Los Angeles County: one near Via Princessa, one at Cruzan Mesa, and the third at nearby Plum Canyon in the Santa Clarita area (Impact Sciences 2011; GLA 2005b).

A total of 597,821 acres in Jackson County, Oregon and Alameda, Amador, Butte, Contra Costa, Fresno, Kings, Madera, Mariposa, Merced, Monterey, Napa, Placer, Sacramento, San Benito, San Joaquin, San Luis Obispo, Santa Barbara, Shasta, Solano, Stanislaus, Tehama, Tulare, Ventura, and Yuba Counties, California were determined to be Critical Habitat for this species. A habitat assessment conducted by Glenn Lukos Associates indicated that suitable conditions for this species may occur on the Project site (GLA 2005b); however, it was not observed during protocol dry and wet season surveys of two seasonal ponds in 2004–2005 (GLA 2005a). Based on the absence of this species from the two ponds during protocol surveys, the lack of reported occurrences in the site vicinity, and the location of the Project site outside the Critical Habitat designation for this species, the vernal pool fairy shrimp is not expected to occur on the Project site.

## ***Amphibians and Reptiles***

### Arroyo Toad

The arroyo toad is a federally listed Endangered Species and a California Species of Special Concern. This species historically occurred from San Luis Obispo to San Diego Counties along most major rivers. Most of the remaining populations occur in the national forests. The nearest recorded observation location is Piru Creek in the Los Padres National Forest (CDFW

2015a). The arroyo toad is generally found in semi-arid regions near washes or intermittent streams (Zeiner et al. 1988); however, this species has highly specialized habitat requirements, such as breeding pools within approximately 300 feet of juvenile and adult habitats, consisting of stream banks comprised of stable, sandy terraces (Jennings and Hayes 1994).

On February 9, 2011, the USFWS published the current Final Rule designating 98,366 acres of land as critical habitat for the arroyo toad in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, Orange, and San Diego Counties (USFWS 2011b). The study area is not located in areas designated as critical habitat for the arroyo toad. Although potentially suitable habitat is present in some drainages on the Project site, the site is located outside the species' known current range, and it has not been observed during other biological surveys and site visits. The Project site is not within the 2001, 2005, or 2011 designated Critical Habitat areas determined by the USFWS; the closest Critical Habitat is from the 2011 designation and is located about four miles southwest of the site. Surveys for this species were completed by BonTerra Consulting in spring/summer 2006 and results were negative. The arroyo toad is not expected to occur on the Project site.

#### Tehachapi Slender Salamander

The Tehachapi slender salamander is a State-listed Threatened Species. It occurs in scattered populations through the Tehachapi Mountains to Fort Tejon in Kern County, California (Stebbins 2003). This species is associated with north-facing slopes; it is found within and under rock talus and rotting logs; and it is located in moist, decomposing, our Lord's candle leafbases (Hansen and Wake 2005; Sweet 2011). The Tehachapi slender salamander occurs in moist canyons comprised of canyon live oak, blue oak, interior live oak, western sycamore (*Platanus racemosa*), Fremont cottonwood, California buckeye (*Aesculus californica*), foothill pine (*Pinus sabiniana*) woodlands, and juniper woodland (Hansen and Wake 2005; Sweet 2011). Individuals are usually observed between elevations of 2,000 and 4,600 feet above msl (Stebbins 2003). In the vicinity (within ten miles) of the site, this species has been reported from Bear Trap Canyon and Fort Tejon State Park (CDFW 2015a). The range of distribution for this species overlaps with only one other slender salamander species: the black-bellied slender salamander. The black-bellied slender salamander and Tehachapi slender salamander can be easily distinguished from each other. Although Tehachapi slender salamander was not observed on the site, potentially suitable habitat is present in the north-facing oak woodlands in the western portion of the site and in the southern portion of the site south of SR-138. Focused surveys for this species were completed by BonTerra Consulting in spring/summer 2006 and results were negative for all salamanders. The Tehachapi slender salamander may occur on the Project site.

On April 22, 2009, the USFWS published a 90-day finding concluding that the petition to list the salamander contained substantial scientific or commercial information to indicate that listing the Tehachapi slender salamander may be warranted (USFWS 2009). On October 11, 2011, the petition to list the Tehachapi slender salamander was denied by the USFWS. It was determined that the threats to the species did not warrant federal protective status and that, despite the species limited range and population, it was not threatened throughout the entirety of its occurrences (USFWS 2011a).

### Yellow-Blotched Ensatina (Salamander)

The yellow-blotched ensatina, a subspecies of ensatina (*Ensatina eschscholtzii*), is a California Species of Special Concern. This subspecies occurs in the Tehachapi Mountains, on Mount Pinos, in the vicinity of Fort Tejon, and in the Frazier-Alamo Mountain area. This species is found under rotting logs, bark, and rocks. In the south, this species is found in forests and well-shaded canyons, oak woodlands, grasslands, and chaparral (Stebbins 2003). In the vicinity of the site, yellow-blotched ensatina has been reported from Fort Tejon State Park (near Lake Castaic) and Tejon Peak (CDFW 2015a). Wooded drainages in the western portion of the Project site could possibly support the yellow-blotched ensatina. Surveys for this species were completed by BonTerra Consulting in spring/summer 2006 and results were negative. However, this species may occur in unsurveyed areas on the Project site where there is suitable habitat.

### California Red-Legged Frog

The California red-legged frog (*Rana aurora draytonii*) is a federally listed Threatened Species and a California Species of Special Concern. This frog has been extirpated from approximately 70 percent of its historic range and now primarily occurs only in wetlands and streams in Central California (USFWS 2006a). Until 2004, the red-legged frog (*Rana aurora*) was considered to comprise two subspecies, the California red-legged frog (*Rana aurora draytonii*) and the northern red-legged frog (*Rana aurora aurora*) until genetic studies (Shaffer et al. 2004) determined that the two taxa are actually two separate species, *R. aurora*, and *R. draytonii*. The ranges of these two species overlap in Mendocino County. However, the regulatory agencies (CDFW and USFWS) continue to recognize the older taxonomy of one species of red-legged frog as having two subspecies: the California red-legged frog and the northern red-legged frog. Only the California red-legged frog (*Rana aurora draytonii* or *R. draytonii*) occurs in the Project region. This frog prefers areas with deep ponds in slow-moving streams where emergent vegetation is found on the bank edges (Jennings and Hayes 1994). Adults feed primarily on aquatic and terrestrial invertebrates.

On March 17, 2010, the USFWS published the current Final Rule designating 1,636,609 acres of land as Critical Habitat for the California red-legged frog in 27 California counties, including Los Angeles County. The Project site is not located in the final Critical Habitat designations for this species. This species was not observed during focused protocol surveys in 2001, and the stream conditions on the site indicate that this species is not expected to occur (Impact Sciences 2001a). Focused surveys for this species were completed by BonTerra in spring/summer 2006 and results were negative. The Project site is not located within areas designated as Critical Habitat in either 2001, 2006, or 2010 (USFWS 2010a); the closest Critical Habitat is from the 2010 designation, and is located approximately 16 miles south of the Project site.

### Western Spadefoot

The western spadefoot is a California Species of Special Concern. This species occurs in the Central Valley, in its bordering foothills, and in the Pacific Coast Ranges from Monterey Bay south to Baja California, Mexico (Stebbins 2003). From the Santa Clara River Valley in Los Angeles and Ventura Counties southward, an estimated 80 percent of habitat for this species

has been lost. This species inhabits grassland, coastal sage scrub, and other habitats with open sandy, gravelly soils. The western spadefoot is primarily a species of the lowlands, frequenting washes, floodplains of rivers, alluvial fans, and alkali flats (Stebbins 2003). The western spadefoot breeds in quiet streams, vernal pools, and temporary ponds. This species is rarely seen outside the breeding season. The Project site provides conditions potentially suitable for this species at cattle ponds, ephemeral ponds, and other areas where there are water ponds during the wet season; however, the Project site is located just outside the known geographical range for this species (Zeiner et al. 1988). The western spadefoot was not observed during focused surveys in 2005 (only a portion of the Project site was surveyed). This species may occur in other unsurveyed areas on the Project site where there is potentially suitable habitat.

#### Silvery Legless Lizard

The silvery legless lizard (*Anniella pulchra pulchra*) is a California Species of Special Concern. It occurs in the Coast, Transverse, and Peninsular Ranges from Contra Costa County south to Baja California, Mexico (Stebbins 2003). It is nearly endemic to the state of California (Jennings and Hayes 1994). Though currently viewed as subspecies of silvery legless lizard by the CDFW, the silvery legless lizard's taxonomic classification is under review due to the present amount of genetic similarity between the silvery legless lizard and black legless lizard (*Anniella pulchra nigra*) populations. This report conforms to the regulatory agency, CDFW, and thus places the silvery legless lizard and black legless lizard as subspecies of silvery legless lizard. The distribution ranges of the silvery legless lizard and black legless lizard do not overlap in the Project region, and the Project site is within the silvery legless lizard's known geographical range (Zeiner et al. 1988).

The silvery legless lizard is a small, secretive lizard that spends most of its life beneath the soil, under stones, logs, debris, or in leaf litter. This species requires areas with loose, sandy soil, moisture, warmth, and plant cover. It occurs in chaparral, pine-oak woodland, beach, and riparian vegetation types at elevations ranging from sea level to about 5,100 feet above msl (Stebbins 2003). The strict habitat requirements for this species (such as substrates with high sand and moisture content) and its limited range make this species extremely vulnerable to disturbance. It is threatened by development, grazing, off-road vehicle activity, sand mining, beach erosion, excessive recreational use of coastal dunes, and the introduction of exotic plants (Jennings and Hayes 1994). The Project site provides suitable habitat for this species; one silvery legless lizard was observed, although no focused surveys for this species were conducted.

#### Western Pond Turtle

The western pond turtle (*Actinemys marmorata pallida*) is a California Species of Special Concern. This subspecies occurs from approximately the San Francisco Bay area south to northern Baja California, Mexico. The western pond turtle is thought to be in decline in 75 to 80 percent of its range (Stebbins 2003). The western pond turtle occurs primarily in freshwater rivers, streams, lakes, ponds, vernal pools, and seasonal wetlands, requiring water depths in excess of six feet and basking sites such as logs, banks, or other suitable areas above water level. Nesting occurs during spring or early summer (generally between April and August). Nest sites can be located along sandy banks adjacent to large, slow-moving

streams, but females may travel up to approximately 300 feet in search of suitable nesting sites and have been known to nest in open grasslands on south-facing slopes (Morey 2000; Lovich n.d.). Other long-distance movements (e.g., overwintering) may be in response to drying bodies of water or other local factors (Morey 2000). In cold regions where hibernation is more common, it usually occurs in mud beneath water, though this has been documented in upland areas as well. The life history of western pond turtles living in perennial water bodies, such as at Quail Lake, may be almost exclusively aquatic, only leaving the water to nest (Zargoza et al. 2015).

In addition to losses of habitat, this species is also threatened by grazing, non-native species, and disease (Jennings and Hayes 1994). There are reported occurrences of this species in the vicinity of the Project site in the Lebec and Frazier Mountain USGS topographic quadrangles (CDFW 2015a); however, specific location information is suppressed by the CDFW to protect this species from collectors. This species has been observed adjacent to the Project site at Quail Lake. The Project site has limited availability of similar suitable habitat (Impact Sciences 2004b). General surveys conducted during 2006 and 2008 found habitat insufficient to support pond turtle except for the ranch pond located near the north-central edge of the Project site (also where the tricolored blackbird colony was observed). Although no live trapping for the pond turtle was conducted during the 2006 and 2008 surveys, this species is not expected to occur due to poor water quality. Other wetland areas on the site were inadequate for turtle occupation. Upland areas just north (within 300 feet) of Quail Lake may contain potentially suitable nesting habitat, partially overlapping the Project site. This species was not detected during surveys.

#### Blunt-Nosed Leopard Lizard

The blunt-nosed leopard lizard (*Gambelia sila*) is a federally listed Endangered, State-listed Endangered, and a California Fully Protected species. No Critical Habitat has been designated for this species. Endemic to California, this species inhabits the San Joaquin Valley and nearby valleys and foothills, from extreme northwest Santa Barbara County and western Kern County north to southern Merced County. Elevation requirements extend from 100 to 2,400 feet above msl. It is no longer present throughout most of its former range as the habitat has been significantly altered by farming, urban development, overgrazing, oil wells, mining, reservoirs, and off-road vehicle use. At one time, it hybridized with long-nosed leopard lizard (*Gambelia wislizenii*) in the upper Cuyama drainage in Ventura County (near Santa Barbara County), but much of the habitat in this region has now been degraded. This species uses mammal dens and burrows for cover and shelter. The number of available burrows will determine the size of this lizard's population in an area (Stebbins 2003). Blunt-nosed leopard lizard inhabits relatively open wash habitat, floodplain, and grasslands (Warrick et al. 1998) with sparse open vegetation comprised of bunch grass, alkali bush, sagebrush, creosote bush, or other scattered low plants (Germano et al. 2001). It avoids dense grass and brush, which interfere with running (Stebbins 2003). The blunt-nosed leopard lizard has a current range that stops north of the Tehachapi Range. It has not been observed and is not expected to occur on the site.

### Coast Horned Lizard

The coast horned lizard is a California Species of Special Concern. It occurs throughout much of California, west of the desert and Cascade-Sierra highlands south to Baja California, Mexico (Stebbins 2003); however, many of the populations in lowland areas have been reduced or eliminated due to urbanization and agricultural expansion (Stebbins 2003). It is a small, spiny, somewhat rounded lizard that occurs in scrubland, grassland, coniferous forest, and broadleaf woodland vegetation types; it prefers open areas for basking and loose, friable soil for burrowing. Three factors have contributed to its decline: loss of habitat, overcollecting, and the introduction of exotic ants. In some places, especially adjacent to urban areas, the introduced ants have displaced the native species upon which the lizard feeds (Fisher et al. 2002; Suarez and Case 2002; Suarez et al. 2000). In addition to loss of habitat, this species is also threatened by fires, off-road vehicles, grazing and pets, especially domestic cats (Jennings and Hayes 1994). In the vicinity of the site, this species has been reported from Hungry Valley, Tejon Peak, Tehachapi Mountains, and two miles east of Gorman along SR-138 (CDFW 2015a). This species was observed in several drainages scattered across the Project site in 2003 (Impact Sciences) and in washes and upland scrub habitat during various surveys on the Project site in 2015.

### Two-Striped Garter Snake

The two-striped garter snake is a California Species of Special Concern. It occurs from Monterey County, south to Rio Rosario in Baja California, Mexico at elevations between sea level and approximately 8,000 feet above msl (Stebbins 2003). It is considered locally rare in southwestern California. The two-striped garter snake is highly aquatic and occurs primarily in or near perennial or intermittent freshwater streams with rocky beds in riparian habitats bordered by oak woodlands, willows (*Salix* spp.), or other dense vegetation (Jennings and Hayes 1994; Stebbins 2003). The two-striped garter snake feeds on small fishes, frogs, tadpoles, and earthworms. It is estimated that development and other human impacts have reduced the historic range of this species in California by 40 percent (Stebbins 2003). A two-striped garter snake was observed in Oso Canyon (Impact Sciences 2003). Due to the suitable aquatic habitat and the known reported occurrence, it is determined that this species is expected to occur on the Project site.

## **Birds**

### Tricolored Blackbird

The tricolored blackbird is a California Species of Special Concern and a California Candidate for listing as an Endangered Species. These colonially nesting birds prefer to breed in marsh vegetation of bulrushes (*Schoenoplectus* spp.) and cattails (*Typha* sp.) and have also been recorded nesting in willows (*Salix* spp.), blackberries (*Rubus* spp.), and mustard (*Brassica* spp.) (Beedy et al. 1991). During winter months, they are often found foraging in wet pastures, grasslands, agricultural fields, and seasonal wetlands. Tricolored blackbirds are nomadic, wandering during the nonbreeding season and occupying colony sites intermittently (Unitt 1984). There are reported occurrences of this species in the vicinity of the site along the southern edge of Quail Lake (north of SR-138) and on the shores of Holiday Lake approximately five miles east of the Project site (CDFW 2015a). The Project site provides suitable foraging and small amounts of suitable nesting habitat, which consists of

areas of dense reeds (*Typha* spp.) and nettles (*Urtica dioica*). The tricolored blackbird was observed nesting in large numbers along the north-central edge of the Project site and was also observed in Oso Creek (BonTerra Consulting 2008; Impact Sciences 2004a). Most recently, focused surveys for tricolored blackbird were conducted in 2015 and they were observed nesting off site along the northern shore of Quail Lake and at Holiday Lake, and these birds were observed foraging on the Project site (BonTerra Psomas 2015d).

Tricolored blackbird breeding was detected at Quail Lake and approximately 3.4 miles east at Holiday Lake. No evidence of tricolored blackbird breeding was detected on the Project site. However, tricolored blackbirds from the Quail Lake and potentially the Holiday Lake breeding locations were detected foraging on the Project site. The breeding birds at Quail Lake were observed foraging on caterpillars and grasshoppers in the grasslands and rabbitbrush scrub on the Project site, while the breeding birds potentially from Holiday Lake were observed foraging on unknown insects in the agriculture fields in the easternmost portion of the Project site. The assumption that birds from Holiday Lake may have been feeding at the agricultural fields on the Project site was made based on flight direction, while the birds from Quail Lake were directly observed foraging on the Project site. Flocks of what appeared to be unpaired males were also observed foraging throughout the Project site during these surveys. Areas where these flocks were detected with high frequency included the Oso Canyon portion of the Project site; the rabbitbrush scrub along the length of the East Branch of the California Aqueduct (east-west alignment); in the northern section of the Project site immediately east of the Aqueduct; and the agricultural fields. Details on breeding colonies and population counts are provided below.

Five distinct breeding colony locations were detected in the bulrush vegetation on the shores of Quail Lake. The breeding colony with the closest proximity to the Project site was Location 1 at 50 feet (west), while the farthest proximity was Location 5 at approximately 2,030 feet (southwest). All other locations fall between those proximities. Breeding tricolored blackbirds along the northern shore of Quail Lake were detected foraging on the Project site, while birds from Location 5 were observed foraging south of SR-138, off site.

Population counts for breeding tricolored blackbirds at the Quail Lake locations numbered as high as 1,000 adults on March 31, 2015. By June 11, 2015, this number had dropped to approximately 200 birds; a mix of adult males, females, and juvenile birds were observed. Adults were still observed feeding nestlings and fledglings at this time. No feeding of nestlings was detected during the June 26, 2015, survey and it was determined that all birds had fledged. The Holiday Lake colony had an estimated population count of approximately 3,500 adult birds. Breeding was detected there from March 31, 2015 to June 26, 2015.

On February 26, 2016, the CDFW issued a Public Notice that announced the tricolored blackbird as a Candidate Threatened or Endangered species under the CESA (CDFW 2016). The CDFW has initiated a status review of the tricolored blackbird and will review data and comments on the petitioned action (listing of the species). The CDFW has 12 months to review the petition; evaluate the available information; and report whether or not the petition action is warranted. A 30-day public comment period will be allowed prior to taking any action on the CDFW recommendation. According to the Notice, as a Candidate

Threatened or Endangered species, the tricolored blackbird receives the same legal protection afforded to an Endangered or Threatened species.

### Grasshopper Sparrow

The grasshopper sparrow (*Ammodramus savannarum*) is a California Species of Special Concern. This sparrow is an uncommon and very local summer resident along the coastal slope of Southern California (Garrett and Dunn 1981). This is an inconspicuous bird of grasslands with an insect-like song; it is declining throughout North America due to loss of habitat and inhibition of fire. In the southwestern part of its breeding range, this sparrow prefers more lush areas with some shrub cover in arid grasslands (Vickery 1996). Reports of this species at Gorman Ranch, including a recent CNDDDB report of 1 adult observed in grasslands 0.8 mile northeast of the I-5/SR-138 interchange, are believable since this species is migratory and can appear in places previously unknown (CDFW 2015a). Potentially suitable habitat for this species is present in the grassland vegetation types of the Project site. It has not been observed during the surveys and, since the Project site is outside the historic and current known breeding range for the species, it is not expected to occur to breed, though it may migrate through the site.

### Golden Eagle

The golden eagle is a California Fully Protected Species, a California Species of Special Concern Watch List Species, and is also protected by the Federal Bald Eagle Act. Habitat for this species generally consists of grasslands, deserts, savannas, and early successional stages of forest and shrub habitats. Broad expanses of open country are required for foraging, while nesting is primarily restricted to rugged mountainous areas with large trees or cliffs (Johnsgard 1990). The golden eagle is an uncommon resident throughout Southern California, except in the Colorado Desert and Colorado River, where it is a casual winter visitor (Garrett and Dunn 1981). This species is threatened by habitat destruction, shooting, and human disturbance at nest sites (Remsen 1978). This species has been reported from the Tehachapi Mountains two miles west-northwest of Quail Lake (CDFW 2015a). Potentially suitable foraging habitat is present for this species throughout the Project site; however, only limited nesting opportunities are present in woodland areas of the site. The golden eagle was observed on multiple occasions soaring over the site (BonTerra Consulting 2008; Impact Sciences 2004a; BonTerra Psomas 2013). Golden eagle is expected to occur on-site for foraging, and may occur on site for nesting.

### Long-Eared Owl

The long-eared owl is a California Species of Special Concern. The breeding range of this species in California includes Central and coastal Southern California (AOU 1998). This species occupies coniferous, deciduous and evergreen forests, orchards, wooded parks, farm woodlots, river woods, and desert oases. Wooded areas with dense vegetation are needed for roosting and nesting, while open grasslands or shrublands are needed for hunting (Marks et al. 1994; AOU 1998). Population declines in Southern California are attributed to loss of riparian and grassland habitats to development (Marti and Marks 1989; Bloom 1994). This species has not been detected on site; however there are records for this species in the Project region (eBird 2016). The western portion of the Project site provides a limited



amount of potentially suitable wintering and breeding habitat for this species; therefore, the long-eared owl has a low potential to occur.

### Burrowing Owl

The burrowing owl is a California Species of Special Concern. Although the burrowing owl was proposed as a State Candidate for listing, it was determined that the species did not warrant listing. This species is considered a Species of Local Concern, however, because it is much less common in Southern California than in the Central Valley. In Southern California, burrowing owls breed and forage in grasslands and prefer flat to low rolling hills in treeless terrain; this species has declined in many other areas due to habitat modification, poisoning of its prey items, shooting, and human disturbance (Remsen 1978). In the vicinity, this species has been reported approximately eight miles east of the Project site in the Antelope Valley (CDFW 2015a). Potentially suitable conditions for foraging and nesting for this species are present throughout most of the Project site. One pair of burrowing owls was observed on the site in 2001 (Impact Sciences 2004a); one individual was observed just off the site to the north during surveys in 2006 (BonTerra Consulting 2008). Due to the lack of incidental observations of burrowing owls by biologists conducting other surveys on the site over multiple years, burrowing owls are expected to occur in very low numbers.

### Redhead

The redhead (*Aythya americana*) is a California Species of Special Concern. The redhead is a duck that breeds in open water areas from central Alaska, British Columbia, central Canada, and the midwestern United States south to southern California, Arizona, New Mexico, and north-central Texas; also sporadically in the northeastern United States, southeastern Canada, and interior Mexico (Shuford and Gardali 2008). Since the mid-1940s breeding populations in California have been greatly reduced, with the largest breeding populations occurring in northeastern California. Breeding redheads have been documented in Southern California in Bishop, Inyo County, Antelope Valley, and eastern Kern County. Redheads continue to breed in small numbers at the Salton Sea. Redheads have been observed at Quail Lake and Holiday Lake (approximately 3.4 miles east of the project site) during migration (eBird 2016). The Project site is within the current breeding range for the redhead (Shuford and Gardali 2008). The Project site does not contain suitable breeding habitat for the redhead, not expected to occur for breeding but may occur as an occasional visitor.

### Swainson's Hawk

The Swainson's hawk is a State-listed Threatened species. The Swainson's hawk is a Neotropical migrant that breeds in grassland and savannah habitats in western North America east to the Great Plains and from southwest Alaska and southern Canada south to northern Mexico. This is a gregarious species that is often observed in migrating flocks, sometimes numbering in the thousands (England et al. 1997). Although the total population has been conservatively estimated at 40,000 to 55,000 breeding pairs, the Swainson's hawk has experienced serious local declines in parts of its breeding range such as in Oregon and California (del Hoyo et al. 1994). In California, the Swainson's hawk is considered to be a locally common to rare breeder with the majority of breeding territories located in the Central Valley and Great Basin regions. Most breeding pairs are located in the middle of the

Central Valley between Sacramento and Modesto, and in the northern San Joaquin Valley (Woodbridge 2004).

Swainson's hawks are now absent from most of their historic range in the central and southern parts California (Woodbridge 2004). Bloom (1980) estimated the California breeding population to be 375 pairs and found this to represent a 91 percent decline from historical population estimates. More recent surveys have shown an increase with estimates as high as 1,000 pairs (Woodbridge 2004). Unpublished data from Pete Bloom and Woodridge (2004) indicates that there has been recent recolonization of historic habitats in the Antelope Valley and population increases in the Owens Valley. In addition, recent surveys in 2008, 2009, and 2010 in the western Antelope Valley, east of the Project region, have found nesting Swainson's hawks at new sites (CEC and CDFG 2010). This species is threatened by loss of habitat, habitat deterioration at the South American wintering grounds, human disturbance at nest sites, shooting, and possibly pesticides (Remsen 1978). Potentially suitable foraging and nesting habitat for this species occurs on the site, and this species nests in high desert areas such as the Antelope Valley. Swainson's hawk was observed on the Project site as a spring migrant (Impact Sciences 2004a) and as a non-breeding summer visitor. A Swainson's hawk group of five individuals, which was observed during the 2008 breeding season (July 2008), was considered to be summering outside their known breeding range (BonTerra Consulting 2008). Focused surveys for Swainson's hawk were conducted on the Project site in 2013. No breeding Swainson's hawks were detected during the focused surveys; however, migrating Swainson's hawks were detected then and were detected incidentally during tricolored blackbird surveys (BonTerra Psomas 2013, 2015d). Swainson's hawk is expected to occur on site for foraging, but is not expected to occur on site for nesting.

### Mountain Plover

Mountain plover (*Charadrius montanus*) is a California Species of Special Concern. This species breeds from southern Alberta and southwestern Saskatchewan, Canada south through Montana and Wyoming to southeastern New Mexico and western Texas (AOU 1998). Most of these birds spend the winter in the Central and Imperial valleys of California (Knopf 1996). Its winter range in California was previously described as interior valleys and plains at low elevations from the Sacramento Valley and eastern parts of the San Francisco Bay region south to the coastal counties of Southern California and the Imperial Valley (Grinnell and Miller 1986). The largest numbers of mountain plovers currently winter in the Imperial Valley and in the Central Valley from Colusa County south to Kern County. Relatively small populations also occur in the Panoche Valley and Carrizo Plains west of the San Joaquin Valley (or southern Central Valley), in the Colorado River Valley near Blythe, and the western Antelope Valley (Shuford and Gardali 2008). For both breeding and wintering, mountain plovers are strongly associated with short-grass prairie habitats or other similar habitats that are flat and generally lack vegetation (Knopf 1996). They also occur on more natural, non-cultivated sites, such as alkali sink scrub, valley sink scrub, alkali playa, and annual grasslands (USFWS 1999). Grazed or burned agricultural fields also provide suitable habitat for this species, as well as Bermuda grass fields (Knopf 1996). Flocks of this plover have been detected on about 75 percent of the National Audubon Society's (NAS) Christmas Bird Counts conducted annually at Lancaster since 1990 (NAS 2017). The Project site contains

grasslands and agricultural fields on relatively gentle terrain that provide potentially suitable wintering habitat; however, due to a lack of detections during focused surveys or otherwise, the mountain plover is not expected to occur on site.

#### Northern Harrier

The northern harrier is a California Species of Special Concern. It is a regular winter migrant in marshes and fields throughout Southern California, but is very scarce as a local breeder (Garrett and Dunn 1981). This species nests in protected marshes or open grassy meadows. Northern harriers can be expected at any month of the year and can be seen foraging in grassland, scrub, and riparian vegetation types. While once a relatively common species during fall, winter, and spring in undeveloped areas of Los Angeles County, the northern harrier population is now greatly reduced and localized in distribution. This species is threatened by loss of suitable breeding habitat (Grinnell and Miller 1986). Potential foraging and nesting conditions for this species are present on the site. In addition, the northern harrier was observed on the site near Oso Canyon (Impact Sciences 2003) and observed during the summer season (BonTerra Consulting 2008; BonTerra Psomas 2013). Northern harrier is expected to occur on site for foraging, and may occur on site for nesting.

#### Western Yellow-Billed Cuckoo

The western yellow-billed cuckoo is a federally Threatened and a California Endangered species. There is currently no designated Critical Habitat for this species. California's population of western yellow-billed cuckoo was once estimated to be over 15,000 pairs, but in less than 100 years, it has declined to less than 30 pairs with most cuckoos concentrated at 3 locations: the Sacramento River, the South Fork of the Kern River, and the lower Colorado River (Hughes 1999). Cuckoos appear to have been extirpated from other locations such as at the Santa Ana River in the Prado Basin where small numbers (three to seven) were reported annually prior to 1995 (Pike et al. 2004). Breeding western yellow-billed cuckoos require relatively large (i.e., greater than 20 hectares or 50 acres) contiguous patches of multilayered riparian habitats (Daw 2014). They require broad areas of old-growth riparian vegetation dominated by willows and Fremont's cottonwoods (*Populus fremontii*) with dense understories. Mature riparian woodlands with cottonwoods (*Populus* sp.) and willows exist on the Project site in just a few scattered small patches. These are not considered substantial enough to support breeding cuckoos. A Western yellow-billed cuckoo was reported during surveys in June 2003 in the north-central portion of the site (Impact Sciences 2004a). This observation was considered most likely a rare migrating individual. Follow-up visits in the following weeks to the location where the bird was observed were negative for the cuckoo (Babcock 2005). Avian surveys conducted in 2006 by BonTerra Consulting did not detect this species on the Project site, and it has not been observed on the Project site to date. Western yellow-billed cuckoo may occur onsite as a rare migrant, but it is not expected to occur on site for nesting.

#### White-Tailed Kite

The white-tailed kite is a California Fully Protected Species. This species is an uncommon to common resident in coastal Southern California, and a rare visitor on the western edge of the deserts (Garrett and Dunn 1981). This raptor has been slowly increasing in interior

regions in recent years and small numbers breed locally in the Antelope Valley. Kites nest primarily in oaks, willows and western sycamores (*Platanus racemosa*), and forage in grassland and scrub vegetation types. White-tailed kites show strong site fidelity to nest groves and trees. Conditions suitable for foraging and nesting are present throughout the site. The Project site provides potentially suitable nesting habitat and there is potential for this species to breed on the site. It has been observed flying over the grasslands in the western portion of the Project site. White-tailed kite is expected to occur on site for foraging, and it may occur on site for nesting.

#### Southwestern Willow Flycatcher

The southwestern willow flycatcher is a federally and State-listed Endangered Species. This subspecies was once considered a common breeder in coastal Southern California; however, it has declined drastically due to losses of breeding habitat and nest parasitism by the brown-headed cowbird (*Molothrus ater*). This species occurs in riparian habitats along rivers, streams, or other wetlands where a dense growth of willows, baccharis (*Baccharis* sp.), arrowweed (*Pluchea* sp.), tamarisk (*Tamarix* sp.), or other riparian plants are present, often with a scattered overstory of cottonwood (USFWS 1995). Critical Habitat for this species was originally designated on July 22, 1997, and was updated on October 19, 2005. In 2007, the USFWS announced that it would review the 2005 designation; then, in November 2007, the USFWS declared that it would maintain the 2005 designation. The USFWS designated final Critical Habitat in Arizona, California, Nevada, New Mexico, and Utah. Counties containing Critical Habitat in California include Kern, Santa Barbara, San Bernardino, and San Diego. Of the 48,896 USFWS-designated acres of Critical Habitat for the southwestern willow flycatcher, 17,212 acres are located in California (USFWS 2013). Limited suitable habitat for this species is present in the riparian vegetation types on the site. The Project site is not located within the final 2013 USFWS-designated Critical Habitat. Focused surveys were completed and, although transient willow flycatchers (unknown subspecies) were detected, no breeding southwestern willow flycatchers were detected (Impact Sciences 2003; BonTerra Consulting 2008). The southwestern willow flycatcher may occur on site during migration, but it is not expected to occur for nesting due to extreme rarity of the subspecies in the region.

#### California Condor

The California condor is a federally and State-listed Endangered Species. It has broad habitat and climatic tolerances. Suitable habitat for the condor includes adequate food supply, open areas to locate food, and reliable air movements to allow for extending soaring (Bloom 2009). Foraging habitat consists of vast expanses of open savannah and grassland, including potreros (cattle ranches or pastures) within chaparral with cliffs, large trees, and snags that are often separated by far distances from the nesting sites. Roosting habitat is located near important foraging grounds, often near a previously discovered carcass. Nesting habitat ranges from chaparral to forested montane regions, including redwood forests. The California condor nests in caves, crevices, and large ledges on high sandstone cliffs. Expending very little energy, these scavengers soar on thermal updrafts and wind currents until they spot potential food sources. Breeding birds typically forage within 50 to 70 kilometers (31 to 43.5 miles) of their nesting areas, with core foraging areas ranging from 2,500 to 2,800 square kilometers (970 to 1,100 square miles) (Bloom 2009).

In the early 1980s, the total population for this species was estimated at fewer than 20 individuals. By the end of 1986, all but two condors had been taken into captivity. On April 19, 1987, the last wild condor was captured and taken to the San Diego Wild Animal Park (Bloom 2009). Decline of this species has been attributed to many factors, including reduction or modification of foraging habitat, decrease in available food, disturbance around nest sites, shooting, poisoning, pesticide residues, and general senescence (growing old; aging) of the species (Garrett and Dunn 1981). A captive breeding program was initiated and birds have since been reintroduced into the wild at the Sespe Reserve, at Big Sur, and in the Grand Canyon. Currently, there are over 400 condors in the world population (both captive and wild), 128 of whom are in California (CDFW 2015a). Due to the combination of captive breeding and limited wild nest reproduction, the condor population is steadily increasing (Bloom 2009). In more recent years, the greatest cause of death is believed to be lead poisoning from eating carcasses with lead shot in them. Efforts to reduce lead poisoning in the region have been led by Tejon Ranch by voluntarily placing a ban on lead shot ammunition on Tejon Ranch lands. Most recently, the State of California has followed suit by enacting into law the Ridley-Tree Condor Preservation Act, which bans lead shot ammunition within the range of the California condor (Bloom 2009).

Nesting California condors, prior to the use of radio telemetry in the wild, were not known to travel more than 50–75 kilometers (31–43.5 miles) from an active nest. As opportunistic scavengers, California condors may travel tremendous distances in search of food (Bloom 2009); in some instances they can travel up to 225 kilometers (about 140 miles; Meretsky and Snyder 1992). As a resident, non-migratory species, the California condor has the largest home range of any terrestrial bird in North America studied to date. The Centennial Project site is about 30 kilometers (18.5 miles) from current active nest sites known since 2000, and approximately 10 kilometers (6 miles) from the closest known historical nesting site (Bloom 2009). Current satellite and radio-telemetry location data have shown that California condors occasionally travel in the perimeter of the Project site, but rarely occur actually on the Project site. There is one recorded instance of a bird landing on the site (Bloom 2009).

Condors apparently avoid valley floors for foraging; they rarely fly over valley floor habitat and almost never land there (Bloom 2009). By example, from 1982 to 1987, no condors with transmitters were known to cross the Central Valley. Instead, all birds followed the foothills and mountains surrounding the valley floor to move from the Sierra Nevada foothills to the Coast Ranges and back. Observations of flying condors prior to 1987 indicate that, on the few instances that they were known to have flown over valley floor habitat (including the Centennial Project site), the birds were usually flying high over the landscape, probably at an altitude of over 1,000 feet. During these flights, the condors rarely, if ever, landed and their movements appeared transitory. To date, four GPS location points out of many thousands were in the vicinity of the Centennial Project site. Numbers of GPS locations of released birds are increasing in the region as the number of condors in the wild increases (Bloom 2009).

Observations and data from telemetered birds (by radio and satellite) indicate that the Project site is not used for diurnal or nocturnal roosts, but may rarely be used for foraging or flyovers. It contains no features suitable for nesting, no cliffs or large trees of the height

and stature typical of condor nests. As the condor population increases, the Project site may receive flyovers by California condors; however, based upon known condor movements, flyovers would likely be rare events. Possibly as a result of limited big-game hunting or reduced wind currents and thermals, the Centennial Project site appears not to have the essential elements needed to attract condors (Snyder and Snyder 2000; Bloom 2009). Unreliable seasonal winds and/or thermals may be the reason for the area's limited use by past and present condors.

In the Project region, condors have been reported from the Sespe Reserve, Tejon Ranch, and Redrock Mountain (CDFW 2015a); On the Project site, a few hundred records,<sup>4</sup> representing high flying birds, exist including one landing (CDFW 2015a; Bloom 2009). Relative to the plethora of observation data that have been gathered for this species over the past 20 years, occurrence on the Project site is extremely rare. The thousands of other records for this species in the region are almost entirely located more than ten miles from the site. A study of all available California condor data gathered by the USFWS in recent years shows a preference for several high elevation areas in the region and an obvious avoidance of the low-lying western Antelope Valley, including the Project site (Bloom 2009). The California condor is not expected to occur on site for nesting or foraging.

On September 24, 1976, the USFWS designated Critical Habitat for the condor consisting of 9 areas that encompass approximately 600,000 acres (USFWS 1976). These areas occur in the following counties: Tulare, San Luis Obispo, Ventura, Kern, Santa Barbara, and Los Angeles. The Sespe-Piru, Matilija, Sisquoc-San Rafael, and Hi Mountain-Beartrap condor areas were considered critical for nesting and related year-long activity and the Mt. Pinos and Blue Ridge condor areas were considered critical for roosting. Tejon Ranch, Kern County rangelands, and Tulare County rangelands were considered important for feeding and related activities. Tejon Ranch and the Bitter Creek Wildlife Refuge were considered to be important because they contained the only significant feeding habitat remaining in close proximity to the Sespe-Piru condor nesting area (USFWS 1976). The Project site is not located within designated Critical Habitat for this species.

### Bald Eagle

The bald eagle was a federally listed Endangered species until 2007 when USFWS removed the bald eagle from the federal Endangered species list (USFWS 2007b). It does remain a California State-listed Endangered and California Fully Protected species; and it is also protected by the Federal Bald Eagle Protection Act of 1940 and the Migratory Bird Treaty Act of 1918 (U.S. Congress 1994, 2005). Several recovery plans from 1982 to 1990 were used to help the bald eagle populations recover. California is located within the Pacific Recovery Plan approved in 1986. Currently, there is no Critical Habitat designated for this species. Bald eagles usually nest in trees near water, but are known to nest on cliffs and are rarely on the ground. Fish are the major component of its diet, but waterfowl, gulls, and carrion are also eaten. The species may also use prairies if adequate food is available. Bald eagles frequent estuaries, large lakes, reservoirs, major rivers, and some seacoast habitats. Conditions marginally suitable for nesting and foraging are present on the Project site. The bald eagle

---

<sup>4</sup> It is important to note that hundreds of records does not equate to hundreds of condors. Rather, multiple data points for one bird would be recorded as it flew over the site.

has not been observed on the site, but has been observed adjacent to the site at Quail Lake (Impact Sciences 2004a). Due to the proximity of potentially suitable foraging habitat just off the site at Quail Lake and along the California Aqueduct, the bald eagle may occasionally occur and may potentially nest in trees on the site. Success of any potential future breeding at Quail Lake would be dependent on the quality of the foraging opportunities provided by available aquatic habitats regardless, to some degree, of adjacent upland habitats. This species would be expected to opportunistically scavenge on available carrion (i.e., dead prey including mammals), as it does elsewhere, but this behavior is more common in the non-breeding season. The bald eagle may occur for foraging and nesting.

#### Yellow-Breasted Chat

The yellow-breasted chat (*Icteria virens*) is a California Species of Special Concern. This species occurs as an uncommon and local summer resident in Southern California along the coast and in the deserts (Garrett and Dunn 1981). This large warbler was once a fairly common summer resident in riparian woodlands throughout California, but is now much reduced in numbers, especially in Southern California (Remsen 1978). For nesting, this species requires dense, brushy tangles near water and riparian woodlands supporting a thick understory. Singing males that were present in the Oso Canyon drainage during May 2006 and in 2008 did not remain to breed. The Project site provides potentially suitable habitat, and the yellow-breasted chat may occur during migration and for nesting on the site.

#### Loggerhead Shrike

The loggerhead shrike (*Lanius ludovicianus*) is a California Species of Special Concern. This species is now a fairly uncommon resident of lowlands and foothills in Southern California. Shrikes inhabit grasslands and other dry, open habitats. They can often be found perched on fences and posts from which prey items (e.g., large insects, small mammals, and lizards) can be seen. This species is threatened by habitat loss and pesticides (Ehrlich et al. 1988). The loggerhead shrike was observed on the site to the east and west of the California Aqueduct near the central portion of the site; it was also observed during summer season 2006 and 2008 surveys, and was seen incidentally during 2015 site visits (BonTerra Consulting 2008; Impact Sciences 2004a). The loggerhead shrike is expected to occur on site for foraging and nesting.

#### Summer Tanager

The summer tanager (*Piranga rubra*) is a California Species of Special Concern. This tanager is an uncommon summer resident along the Colorado River and locally elsewhere in the desert riparian habitats of Southern California (Garrett and Dunn 1981). It is primarily a rare migrant and winter visitor to the Southern California coast (Garrett and Dunn 1981; Lehman 1994). Breeding habitat for the summer tanager in the west consists of low elevation riparian woodlands dominated by willows and cottonwoods (Robinson 1996). In particular, older dense stands of willows and cottonwoods along rivers and streams provide suitable nesting habitat (Zeiner et al. 1990b). Riparian vegetation types on the Project site provide potentially suitable conditions for the summer tanager and it may occur, although the site is at the western edge of this species' breeding range.

### Coastal California Gnatcatcher

The coastal California gnatcatcher (*Polioptila californica californica*) is a federally listed Threatened species and a California Species of Special Concern. This species occurs in most of Baja California, Mexico's arid regions, but is extremely localized in the United States where it predominantly occurs in coastal regions of highly urbanized Los Angeles, Orange, Riverside, and San Diego Counties (Atwood 1992). In California, this species is an obligate resident of several distinct subassociations of the coastal sage scrub vegetation type. Brood parasitism by brown-headed cowbirds and loss of habitat to urban development have been cited as causes of the coastal California gnatcatcher population decline (Unitt 1984; Atwood 1990). On December 19, 2007, the USFWS published a final rule revising critical habitat for the coastal California gnatcatcher. The revised critical habitat designates 197,303 acres of land in Ventura, Los Angeles, Orange, Riverside, San Bernardino, and San Diego Counties, California (USFWS 2007a). The Project site is within the revised Critical Habitat for this species.

This species has been observed south of Lebec near the I-5/SR-138 interchange (CDFW 2015a); however, this was a highly unusual location for a sighting. There is no potentially suitable sage scrub habitat for this species on the Project site. Furthermore, the Project site is generally considered to be well north of the gnatcatcher's current range. Therefore, coastal California gnatcatcher is not expected to occur on the Project site.

### Purple Martin

The purple martin is a California Species of Special Concern. This large swallow is a rare and local summer resident in the region (Garrett and Dunn 1981). It breeds in woodlands of the foothill regions, often found in open or semi-open country near water. The purple martin was observed in the oak woodlands and grasslands on the Project site and may occur for nesting on the site (Impact Sciences 2004a).

### Yellow Warbler

The yellow warbler is a California Species of Special Concern. Most yellow warblers in Southern California are migrants, occurring in coastal areas south to western Baja California, Mexico (Dunn and Garrett 1997). Yellow warblers breed locally in riparian woodlands, but during migration they can forage in a variety of different habitat types. This species is threatened by loss of habitat and nest parasitism by brown-headed cowbirds (Remsen 1978). It was a common migrant during 2006 surveys for riparian habitats along the Oso drainage and its tributaries, but none remained to breed (BonTerra Consulting 2008). Yellow warbler is expected to occur on site during migration, and it may occur on site for nesting.

### California Spotted Owl

The California spotted owl (*Strix occidentalis occidentalis*) is a subspecies of the spotted owl (*Strix occidentalis*) and is a California Species of Special Concern. It is a non-migratory bird and is one of three subspecies of spotted owl. This medium-sized owl ranges from 16 to 19 inches in length with a wingspan of 42 to 45 inches. California spotted owls do not build their own nests; instead they rely on naturally occurring nest sites or nests built by other animals (Gutierrez et al. 1995). Historically, the California spotted owl has ranged



throughout most of California and has been known to occur from Monterey to San Diego Counties. A year-long resident of California, this nocturnal species is usually observed between elevations of 2,500 feet to 6,000 feet above msl, but has been observed from 1,000 feet to 7,700 feet above msl (Grinnell and Miller 1986). This uncommon bird is found in dense forested or woodland areas, adjacent to cliffs or steep-sided wooded canyons that generally consist of oak/bigcone Douglas-fir forest, redwood/California laurel forest, mixed conifer forest, and riparian/hardwood areas on the western side of the Sierra Nevada Mountains from Shasta County south to the Tehachapi Mountains; it is also found in all major mountains of Southern California with isolated observations on the eastern side of the Sierra Nevada Mountains and the central Coast Ranges as far north as Monterey County (USFWS 2006b; Grinnell and Miller 1986). A search of the CNDDDB showed no historic records for the California spotted owl. However, within the vicinity (i.e., ten miles) of the site, this species has been reported from Tejon Ranch north of the Project site (CDFW 2015a). Focused surveys for the spotted owl were conducted on the site in 2006, and results were negative (BonTerra Consulting 2006a). Due to survey results, limited potentially suitable habitat, and nearby range limits, this species is not expected to occur on the Project site. There is currently no CDFW-designated Critical Habitat for the California spotted owl.

#### Least Bell's Vireo

The least Bell's vireo is a federally and State-listed Endangered Species. The vireo is now a rare and local summer resident of Southern California's lowland riparian woodlands. While destruction of lowland riparian habitats has played a major role in driving this species to its present situation, brood parasitism by brown-headed cowbirds is the most important factor in its decline (Garrett and Dunn 1981). Local cowbird-control programs have been effective in maintaining some populations (Small 1994), and the species has begun to recover. The least Bell's vireo breeds primarily in riparian habitats dominated by willows with dense understory vegetation (USFWS 1986). Sharon Goldwasser found that a dense shrub layer two to ten feet above ground is the most important habitat characteristic for this species (Olson and Gray 1989). On February 2, 1994, the USFWS designated Critical Habitat for the least Bell's vireo at ten different locations. The designated Critical Habitat includes approximately 38,000 acres in Santa Barbara, Ventura, Los Angeles, San Bernardino, Riverside, and San Diego Counties, California. These areas account for nearly 49 percent of the least Bell's vireo population in the United States (USFWS 1994a). Conditions potentially suitable for this species are present in riparian vegetation on the site. The Project site is not located in the Critical Habitat designated for this species by the USFWS (USFWS 1994a). Focused surveys were completed in 2006 and 2008, and the only observation of the species consisted of a single male least Bell's vireo singing on June 22, 2006, in the Oso drainage portion of the Project site; it did not remain and was presumed to be a wandering unmated male (BonTerra Consulting 2008). The least Bell's vireo is expected to occur only as an occasional migrant and is not expected to occur for nesting based on negative results from multiple years of focused surveys.

#### Yellow-Headed Blackbird

Yellow-headed blackbird (*Xanthocephalus xanthocephalus*) is a California Species of Special Concern. Depending on availability of food resources, these blackbirds are either territorial or form loose colonies. Male yellow-headed blackbirds are typically polygynous, generally

mating with two to six females (Twedt and Crawford 1995). These blackbirds typically nest in marshes with tall emergent vegetation such as tules (*Scirpus* spp.) and cattails adjacent to open water (Shuford and Gardali 2008). A common summer resident at the Salton Sea and in the Colorado River Valley, this species is an uncommon to fairly common migrant that remains to breed irregularly at just a few locations elsewhere in Southern California (Garrett and Dunn 1981). This species breeds in the Antelope Valley, including the Lancaster area (Jaramillo 2008). The Project site does not provide suitable breeding habitat for the yellow-headed blackbird (although they have been documented breeding immediately off site at Quail Lake), but does provide suitable foraging habitat and this species has been observed foraging in the agricultural fields on the east of the Project site.

## ***Mammals***

### **Nelson's Antelope Squirrel**

The Nelson's antelope squirrel (*Ammospermophilus nelsoni*) is a California Threatened species. The current and historical geographic distribution includes portions of Kern, Kings, Merced, San Luis Obispo, Santa Barbara, and Tulare Counties (CDFW BDB 2014). This species resides primarily in the western San Joaquin Valley from 200 to 1,200 feet above msl. Suitable habitat for Nelson's antelope squirrel is frequently found in areas with sandy loam soils, widely spaced alkali scrub vegetation, and dry washes. This species prefers broken terrain with small gullies and washes with slopes that are 20 degrees or less (Harris and Stearns 1991). Loss of suitable habitat for this species is a result of cultivation, overgrazing, and rodenticides (CDFW BDB 2014). These squirrels dig burrows or use existing kangaroo rat burrows. They also use cover provided by rocks and other topographic features (CDFW BDB 2014). Both the historical and recent distributions of the Nelson's antelope squirrel do not include the Project site (CDFW 2015a). The Nelson's antelope squirrel has not been observed on the Project site; therefore, it is not expected to occur.

### **Pallid Bat**

The pallid bat (*Antrozous pallidus*) is a California Species of Special Concern. This species occurs throughout California except for the high Sierra Nevada from Shasta to Kern Counties and the northwestern portion of the state. The Project site is within this species' known geographical range. It most commonly occurs in mixed oak and grassland habitats. This large bat roosts in rock crevices and in cavities of trees, especially oaks. The pallid bat is very sensitive to disturbance at its roosting sites (Zeiner et al. 1990a). Neither the historical nor recent distributions of pallid bat include the Project site (CDFW 2015a). Potentially suitable foraging and roosting conditions are present on the site. Due to its presence in the region and potentially suitable habitat, the pallid bat is expected to occur on the site.

### **Townsend's Big-Eared Bat**

The Townsend's big-eared bat (*Corynorhinus townsendii*) is a Candidate for listing as a California Threatened species, and a California Species of Special Concern. Townsend's big-eared bat is considered an uncommon, year-round resident throughout the state (Zeiner et al. 1990a). In California, the species is found throughout most of the state, from the inland deserts to the coastal redwood forests, in oak woodlands of the inner Coast Ranges and Sierra Nevada foothills, and lower to mid-elevation mixed coniferous-deciduous forests.

Distribution is patchy and strongly correlated with the availability of caves and cave-like roosting habitat, with population centers occurring in areas dominated by exposed, cavity-forming rocks and/or historic mining districts. Townsend's big-eared bat prefers open surfaces of caves or cave-like structures (e.g., subsurface hard rock mines) and large undisturbed spaces in buildings, bridges, and water diversion tunnels. Specific roosts may be used only one time of year or may serve different functions throughout the year (such as for maternity roosts, hibernation, or during the breeding season). Maternity colonies may use multiple sites for different stages (pregnancy, birthing, and rearing). Males remain solitary during the maternity season. Townsend's big-eared bat appears to have fairly restrictive roost requirements with temperature appearing to be critical. Townsend's big-eared bat is highly sensitive to human disturbance; however, in some instances it can become habituated to reoccurring and predictable human activity (CDFW 2013). The Project site is within this species' known geographical range (Zeiner et al. 1990a). The Project site contains suitable foraging habitat; however, no suitable maternity or hibernation roost locations are known to be present on or in the immediate vicinity of the site. Therefore, the Townsend's big-eared bat has low potential to occur on the site for foraging.

### Tipton Kangaroo Rat

The Tipton kangaroo rat (*Dipodomys nitratooides nitratooides*) is a federal and California Endangered Species. It is one of three subspecies of the San Joaquin kangaroo rat (*Dipodomys nitratooides*). The historical geographic range of Tipton kangaroo rat had a southern extent to the northern foothills of the Tehachapi Mountains (Williams 1985). By 1986, the distribution had been reduced to 3.7 percent of its historical acreage as a result of cultivation and urbanization (Williams 1986). The 1986 range was primarily located in northwestern Kern and southwestern Tulare Counties. The current acreage of occupied habitat is unknown, but it probably does not differ much from the 1985 estimate (USFWS 1998). Tipton kangaroo rat habitat is limited to arid-land communities occupying the valley floor of the Tulare Basin on level or nearly level terrain. It occupies alluvial fan and floodplain soils ranging from fine sands to clay-sized particles with high salinity. Much of the currently occupied habitat has one or more species of sparsely scattered woody shrubs and a ground cover of mostly introduced and native annual grasses and forbs. Woody shrubs commonly associated with Tipton kangaroo rats are: spiny and common saltbushes, arrowscale (*Atriplex phyllostegia*), quailbush (*Atriplex lentiformis*), iodine bush (*Allenrolfea occidentalis*), goldenbush (*Ericameria* spp.), and honey mesquite (*Prosopis glandulosa* var. *torreyana*) (Williams 1985). Tipton kangaroo rats live in ground burrows probably dug by the occupant or a predecessor of the same species (Germano and Rhodehamel 1995). Neither historical nor recent distributions of the Tipton kangaroo rat include the Project site (CDFW 2015a). The Tipton kangaroo rat has not been observed on the Project site. It is not expected to occur due to the large distance from the site to its current known range.

### Western Mastiff Bat

The western mastiff bat (*Eumops perotis*), the largest bat in the United States, is a California Species of Special Concern. The subspecies that occurs in Southern California is the California mastiff bat (*E. p. californicus*). The western mastiff bat is a very wide-ranging and high-flying insectivore that typically forages in open areas with high cliffs. This species roosts in small colonies in crevices on cliff faces with a vertical drop of at least ten feet below the roost to

achieve flight speeds when emerging (Brylski et al. 1998). It occurs in the southeastern San Joaquin Valley and Pacific Coast Ranges from Monterey County southward through Southern California, and from the coast eastward to the Colorado Desert. The Project site is within this species' known geographical range. The western mastiff bat is found in many open, semi-arid to arid habitats including conifer and deciduous woodlands, coastal scrub, grasslands, palm oases, chaparral, desert scrub, and urban areas (Zeiner et al. 1990a). Threats to this species include loss of habitat due to development, drainage of marshes, and conversion of land to agriculture (Williams 1986). Although not observed, this species may forage on the Project site. Due to the lack of suitable roosting habitat, it is not expected to roost on site.

#### Southern Grasshopper Mouse

The southern grasshopper mouse (*Onychomys torridus ramona*) is a California Species of Special Concern. It is a territorial, predatory rodent of grassland and sparse scrub vegetation types and prefers sandy soils. It has been found to occur in Los Angeles County south to northwestern Baja California, Mexico (McCarty 1975). Threats to this species include the loss of habitat due to development. This species was not observed during small mammal trapping in 2001 and 2003. Although not observed in the region since 2003, the southern grasshopper mouse may occur on the site in potentially suitable areas.

#### Tehachapi Pocket Mouse

The Tehachapi pocket mouse is a California Species of Special Concern. This species occurs in arid annual grassland and desert shrub vegetation types in the region. This species has been reported in the vicinity of the Project site two miles east of Gorman and two miles west of Quail Lake (CDFW 2015a). This species was not observed during small mammal trapping in 2001 and 2003 (Impact Sciences 2001d, 2003), but conditions potentially suitable for this species are present throughout the grasslands on the Project site. Focused surveys for this species were completed in 2006, and one individual was detected on the Project site as shown in Exhibit 5.7-7b, Special Status Wildlife Species Observations (Ecological Sciences 2006).

#### American Badger

The American badger is a California Species of Special Concern. This species occupies a wide variety of habitats and ranges throughout the state except for the coastal redwood forests of the extreme northwest. In Southern California, this species is most commonly associated with grasslands and other relatively open habitats with friable, uncultivated soils. In the vicinity of the Project site, this species has been reported from Quail Lake, Liebre Gulch, and Pastoria Creek (CDFW 2015a). The American badger has been observed on the site in several areas east and west of the West Branch of the California Aqueduct, and is expected to occur across most of the site (Crawford 2003).

#### San Joaquin Kit Fox

The San Joaquin kit fox (*Vulpes macrotis mutica*) is a federally Endangered and California Threatened species. The historic range of the San Joaquin kit fox included most of the San Joaquin Valley from southern Kern County north to Tracy in San Joaquin County (on the west side) and near La Grange in Stanislaus County (on the east side) (Grinnell et al. 1937). More

than 50 percent of the suitable kit fox habitat has been lost as a result of habitat conversion from valley and foothill grassland, arid shrub, and oak savanna to irrigated agriculture, urban development, and oil fields. Habitat loss and degradation by agricultural, industrial, and urban development within and among kit fox populations are negatively affecting kit fox movement and population connectivity, leading to isolated and unconnected kit fox populations. The San Joaquin kit fox prefers open habitats including grasslands and open scrubland. In the southernmost portion of the range, the kit fox is commonly associated with valley sink scrub, valley saltbush scrub, upper Sonoran subshrub scrub, and annual grassland. Kit foxes also inhabit grazed grasslands, petroleum fields, urban areas, and survive adjacent to tilled or fallow fields. Kit foxes use some types of agricultural land where uncultivated land is maintained, allowing for denning sites and a suitable prey base. Kit foxes also den on small parcels of native habitat surrounded by intensively maintained agricultural lands and adjacent to dryland farms. They prefer loose-textured soils for denning, but are found in virtually every soil type (USFWS 1998). The diet of kit foxes varies geographically, seasonally, and annually, based on variation in abundance of potential prey, and abundance of a prey base significantly influences reproductive success in kit foxes (USFWS 1998; Egoscue 1975). Kit foxes in the southern portion of their range feed on a variety of prey including small mammals, ground-nesting birds, and insects (USFWS 1998; ECCCHC 2007). The southernmost edge of the San Joaquin kit fox is north of Los Angeles County in Kern County. Therefore, this species is not expected to occur on the site.

### ***Other Regionally Limited Wildlife***

In addition to the species listed above, which have a special status designated by the CDFW and/or the USFWS, one additional species warrants consideration as a result of its limited population size in the region: the pronghorn antelope.

#### Pronghorn Antelope

Although resource agencies have not assigned the pronghorn antelope with any special status designation due to the abundance of the species throughout most of its range, numbers in California have been in decline (Morton et al. 2008) and pronghorn are uncommon in the Project region. Donald McLean describes that pronghorn were extirpated from the Project region by 1940 as a result of over-hunting (Ferrel and Leach 1950). In 1985 and 1987 the CDFG re-introduced a group of pronghorn into the region (Autenrieth et al. 2006; Koch and Yoakum 2002). The re-introduced pronghorn population in the Antelope Valley consisted originally of 93 individuals translocated from an existing, wild population in the northeastern portion of California extending into Oregon (Autenrieth et al. 2006). This translocated population originally increased in number until about 2000 (Geivet 2009); however, the known population size in the Antelope Valley around 2006 was considered to be approximately 70 individuals (Autenrieth et al. 2006). Reasons for this decline are as yet unknown. Currently, in the larger regional area, pronghorn occur not only in Antelope Valley but also in nearby Carrizo Plain and in the Central Valley.

While pronghorn are capable of long-range movements, it is unknown whether there is genetic exchange between subherds. Topography, vegetation community composition, developments, range conditions, and fencing are likely reducing the ability of regional pronghorn populations to intermix. Pronghorn do not typically jump over fences, although

they are known to go under or around fences wherever they come across them (Wilson and Ruff 1999). A habitat suitability assessment for pronghorn was recently completed for the Carrizo Plain/Shandon area. However, a similar analysis has not been initiated for the area between the Carrizo Plain and the Antelope Valley.

This 90-pound to 130-pound horned mammal uses flat or rolling, expansive grass-, shrub-, and range-lands from sea level to 11,000 feet above msl. High-quality forage is considered to include succulent and nutritious grasses, forbs, and shrubs (Wilson and Ruff 1999). They prefer to consume the new, green growth on plants, and they are capable of consuming plants that are considered toxic or lethal to livestock (Autenrieth et al. 2006; Wilson and Ruff 1999). However, the CDFG found the re-introduced population to be heavily dependent on less typical scrub species for forage such as rabbitbrush (Mohr 2008). Adult pronghorn rely primarily on speed and ability to detect moving predators at long distances rather than vegetative cover for protection (CDFW BDB 2014; Wilson and Ruff 1999). However, low shrubs in otherwise open habitat are a very important feature for concealing young fawns. In the vicinity of the Project site, this species has been reported in the Fish Creek Area, Northrup Area, and upper Oso Canyon (Geivet 2009). The pronghorn is occasionally observed on the Project site in suitable habitat areas. Pronghorn have reportedly been seen on rare occasions in random locations in the region, but have been commonly observed and are known to primarily occupy the western portion of the site (upper Oso Canyon in particular) and other locations along the foothills continuing to the northeast.

## **Drainages and Wetlands**

The waters and wetlands on the Project site were identified as primarily riverine with an intermittent streambed, or as palustrine (non-tidal marsh without flowing water), forested, or emergent (one stream section was classified as scrub shrub). The small pond near the northern boundary of the site, just southeast of the fork in the Aqueduct, is classified as palustrine with an unconsolidated bottom.

The dominant water sources for the site are runoff from the mountains to the west and north, surface water runoff, and groundwater discharge. Oso Canyon, the prominent drainage in the northern portion of the site west of the Aqueduct, often has a significant flow from snowmelt and subsequent groundwater discharges.

The Project site contains a number of riverine and palustrine systems and riverine, slope, flat, and depression wetland types (these are known as Hydrogeomorphic [HGM] classes). Several distinct watersheds are present on the site with the directional flows of their drainages oriented to the northeast. These drainages flow into the previously mentioned large alluvial fan composed of deep sand to the east. All of the water infiltrates into the substrate; the distance that flows remain on the surface before infiltrating into the sand depends on the amount of rainfall.

Short drainages (less than 0.1 mile) on the western side of the Aqueduct flow into or toward Quail Lake. No surface waters from the Project site enter the lined portions of the California Aqueduct. Culverts under the Aqueduct facilitate eastward-flowing drainage courses.

Several small areas of impounded water or depressions are present on the site and are generally associated with springs or flats.

The descriptions below provide more detail about the various drainage features in the Project site.

### ***Oso Creek***

Oso Creek begins in the higher elevations to the north and west of the Project site and drains from west to east. The creek has a number of tributaries that feed into the main drainage. Segments of this creek have perennial flowing water; however, portions of the drainage course appear to be subsurface, particularly during the dry summer months. Oso Creek eventually infiltrates into the alluvial fan to the east, which (in normal years) is approximately 200 feet west of 300<sup>th</sup> Street West, just north of the Project site and the California Aqueduct. Oso Creek is a seasonally high-energy stream with eroded, generally vertical banks that clearly define the ordinary high water mark along most of its reach. On the Project site mainly west of the West Branch of the Aqueduct, arroyo willow trees, with occasional other willow species and, periodically, mule fat (*Baccharis salicifolia*) occur in areas not subject to scouring by high-water flows. Exposed flow lines are dominated by water speedwell (*Veronica* sp.), a perennial emergent aquatic plant. In areas of lesser flow energy, stinging nettles (*Urtica* sp.) form a vegetation zone along the upper banks.

Eight larger tributaries to Oso Creek are present on the site, several of which maintain flows well into the summer. The recent erosional channels are actively eroding along steeper slopes and are occurring at such a pace that riparian vegetation is unable to become established. Consequently, the grassland vegetation in these areas, which does not stabilize deeper sediments, is being lost at a relatively rapid rate.

Non-eroded channels associated with Oso Creek support a variety of plants. Non-hydrophytic grasses and forbs occur in parts of channels that dry out or that have deeper subsurface flows. Herbaceous wetland vegetation is generally dominated by rushes (*Juncus* sp.), dock, sedge, spike rush, monkeyflower (*Mimulus* sp.), and giant wild-rye. Scattered riparian plants, dominated by willows and mule fat, also occur in and adjacent to the streambeds.

Most of the tributaries begin on the southern side of Oso Creek and on north-facing, sloped wetlands vegetated by rushes, spikerush, and monkeyflower. Several of the headwater tributaries begin at springs (identified on the USGS topographic quadrangle maps). Most of these springs have been dammed to provide a source of water for livestock. Slope wetlands have sandy loam soils that may remain saturated or moist near surfaces into the late spring in years with average rainfall (Impact Sciences 2003).

### ***Watersheds East of the National Cement Plant Access Road***

The main watershed in the eastern portion of the Project site is located just north of SR-138 and east of the National Cement Plant Road. Its upper source is near the National Cement Plant Road and flows toward the east, ending in the sandy alluvial fan where it infiltrates into subterranean flows or aquifers. This watershed has a number of tributaries. Tributaries

entering from the north begin at seeps and springs on hillsides, while those from the south emerge from hills south of SR-138 and flow northward through culverts under the highway. The major creek from the south is Tentrock Canyon Creek, which crosses north under SR-138 and joins the watershed near its eastern terminus.

Several segments of these drainages are dominated by willows, while a few localized sites along the channels are dominated by large cottonwoods. Most of the channel reaches are dominated by emergent vegetation, specifically watercress (*Nasturtium officinale*) and water speedwell. Adjacent to the channels, several areas of the wet flats and depressions are associated with Chino loam soils. These areas are dominated by Baltic rush, sedge, spike rush, wild-rye (*Elymus* [*Leymus*] sp.), and dock. The wettest depressions, primarily where berms have been created to provide water for cattle, support California bulrush (*Schoenoplectus* [*Scirpus*] *californicus*) and broad-leaved cattail (*Typha latifolia*). In most of the dry areas of this watershed, grasslands are present, with varying cover of native perennial grasses, forbs, and non-native annual grasses.

To the north of this watershed are ten additional “blue-line” streams (as indicated on the USGS topographic quadrangle maps). Seven of these drainages have natural channels (bed and banks), while the other three are broad swales between ridges. These drainages have ephemeral or intermittent flows from west to east. Most of these drainages begin east of the Aqueduct; however, two begin to the west, flowing through culverts under the Aqueduct. These drainages vary from shallow and narrow, to wide and deep (when flowing), but all end on the site, and infiltrate into the sandy alluvial fan to the east. Several springs are present on slopes adjacent to the drainages, and several drainages have eroded deeply enough to possibly reach groundwater. In both cases, these areas remain wet long into the summer. The drainage systems beyond the first ridge north of SR-138 are less diverse botanically than the watershed along SR-138, with increasing non-native vegetation to the north. In contrast to the drainage along SR-138, these drainages lack willow riparian and rush vegetation.

### ***Ponds and Impoundments***

Surveys conducted on the Project site have identified ten seasonal pools/depressional features in the Project site (GLA 2005a, 2005b, 2005c, 2006a, 2006b; see Appendix 5.7-B). Most, if not all, these sites were created to provide water for livestock and some have been disturbed by livestock grazing. These features are described in a fairy shrimp habitat assessment, most as roadside depressions that receive local watershed runoff and direct rainfall; the report contains detailed information on existing conditions, dimensions, ponding depth, and common vegetation for each feature (GLA 2005b).

The ponding depth of the identified depressional features varies from a few inches to over two feet. Ponding is associated with runoff, direct rainfall, slope discharge from shallow subsurface groundwater, and overbank connection to adjacent creeks during high flows. Although some depressional features are unvegetated, others support vegetation, including black mustard, bromes, small-flowered melic grass (*Melica imperfecta*), willow-herb (*Epilobium pygmaeum*), toad rush, common knotweed (*Polygonum arenastrum*), everlasting (*Gnaphalium* sp.), Mexican rush (*Juncus mexicanus*), black willow, spike rush (*Eleocharis acicularis*), perennial spike rush (*Eleocharis macrostachya*), alkali plagiobothrys (*Plagiobothrys leptocladus*), and woolly-heads (*Psilocarphus tenellus* var. *tenellus*).



### ***Small Drainages***

A number of short, isolated drainages originating at seeps occur on steep slopes on the Project site, primarily west of the Aqueduct. Most of the smaller drainages either evaporate or infiltrate within a short distance of the source. Because of the erosive character of the soils, channels are often incised. In a few cases, one or several riparian trees or shrubs may be present along the channel.

### ***Ecological Functions Associated with Drainages and Wetlands in the Project Area***

#### Potential Wildlife Habitat

A functional assessment of the drainages and other aquatic features on the Project site was completed by Glenn Lukos Associates (GLA 2006b, 2009a) using a combined assessment approach and subsequently refined by BonTerra Psomas (BonTerra Psomas 2015a) using the California Rapid Assessment Method (CRAM). The results of these assessments indicate that the wetlands on the site provide potentially suitable habitat for a variety of invertebrate and vertebrate species. The riparian, palustrine, and small lacustrine systems also provide potential wildlife habitat for several species. For the wetland functional assessment, the functional capacity of jurisdictional resources was determined using a Functional Capacity Index, which is a ratio of the functional capacity of a wetland under an existing condition, and the functional capacity of a wetland under attainable conditions. The Functional Capacity Index provides a measure of a wetland's ability to perform a function relative to similar wetlands in the region, as evaluated in the field based on multiple metrics (indicators of wetland function). Functional capacity units, therefore, provide a measure of a wetland's ability to perform a function and are calculated by multiplying a Functional Capacity Index by the area of wetland it represents.

The wetland vegetation includes monkeyflowers, which provide nectar resources for adult hawkmoths (feeding on nectar) and other pollinators. The hawkmoths (white-lined sphynx moth [*Hyles lineata*] and tobacco hornworm sphinx [*Manduca sexta*]) are abundant during the summer, and were observed visiting flowers for nectar. Dragonfly and damselfly species (e.g. common green darner [*Anax junius*] and damselfly [*Enallagma* sp.]) are abundant around open water. Several pools appear to be densely populated by microcrustaceans (Impact Sciences 2003).

The drainages, ponds, and pools provide potentially suitable habitat for a number of frog and toad species. In turn, a number of snakes and lizards have been observed adjacent to open water feeding on the frogs, toads, and their tadpoles. The sand deposition downstream has created potential habitat for coast horned lizards (which were observed) along the lower reaches of dry sandy streambeds, and continuing into the alluvial fans. Waterbirds (mallard [*Anas platyrhynchos*], bufflehead [*Bucephala albeola*], black-necked stilt [*Himantopus mexicanus*], Wilson's phalarope [*Phalaropus tricolor*], and lesser yellowlegs [*Tringa flavipes*]) and a variety of swallow species [e.g. violet-green swallow [*Tachycineta thalassina*], northern rough-winged swallow [*Stelgidopteryx serripennis*], cliff swallow [*Petrochelidon pyrrhonota*], and barn swallow [*Hirundo rustica*]) have been observed on or using open water on the site. Bullock's orioles have been frequently observed among the mature valley oaks adjacent to Oso Creek. Livestock and other mammals also utilize the ponds as water

sources. Large and small mammal tracks were observed along the sandy banks and within both wet and dry washes of many of the drainages on the site. Coyotes, including two pups, were observed using the Baltic rushes in moist to seasonally dry drainage channels at den sites (Impact Sciences 2003).

The opportunity for plant diversity in the riverine, palustrine, and small lacustrine environments appears to be limited, likely due to water stress during dry periods and scouring flows during the rainy season. All wetland and drainage communities on the site exhibit generally low species diversity, except for Oso Creek in the northwestern portion of the site and the drainage north of SR-138 and east of the National Cement Plant Road. Limiting factors for diversity may be livestock grazing and the presence of invasive, non-native plants.

### ***Stream Shoreline Stabilization/Sediment Retention, Storm Water Attenuation, and Groundwater Recharge***

Stream shoreline stabilization is occurring where sufficient vegetation is present along the drainages to control stream bank erosion. Most of the sparsely vegetated stream banks are eroding and contribute to the quantity of sediment moving downstream. The translocation of sediments is evident in the size of the alluvial fans and by direct observation of sediment movement, even during periods with low stream flows. Storm water attenuation is limited in the systems because the on-site sandy soils do not retain significant water and stream gradients encourage water to move through the site rapidly. The wetlands associated with the loam soils retain some of the peak runoff and release the water into the drainages at a slower rate than do the adjacent sandy soils (see Table 5.7-1, Soil Types and their Hydrological Characteristics, for permeability and runoff rates of each soil type).

Groundwater recharge has a high degree of opportunity to occur and a high degree of effectiveness since all the water flowing through the site infiltrates in the alluvial fans at the downstream ends of each in the watershed. All of the water from the drainages assist in recharging groundwater, as discussed in greater detail in Section 5.2, Hydrology and Flood, which apparently moves in a subterranean manner toward the east, where a large quantity is extracted for agricultural irrigation.

## **Jurisdictional Resources**

Wetlands and permanent and intermittent drainages, creeks, and streams are generally subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE) under Section 404 of the Federal Clean Water Act (CWA) (U.S. Congress 2008). By USACE definition, all aquatic or riverine habitats between the ordinary high water mark (OHWM) of rivers, creeks, and streams, are considered “waters of the U.S.” and may fall under USACE jurisdiction. If adjacent wetlands occur, the jurisdictional limits extend beyond the ordinary high water mark to the outer edge of the wetlands. The USACE defines wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency or duration to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (Environmental Laboratory 1987). The presence and extent of wetland areas are normally determined by examination of the vegetation, soils, and

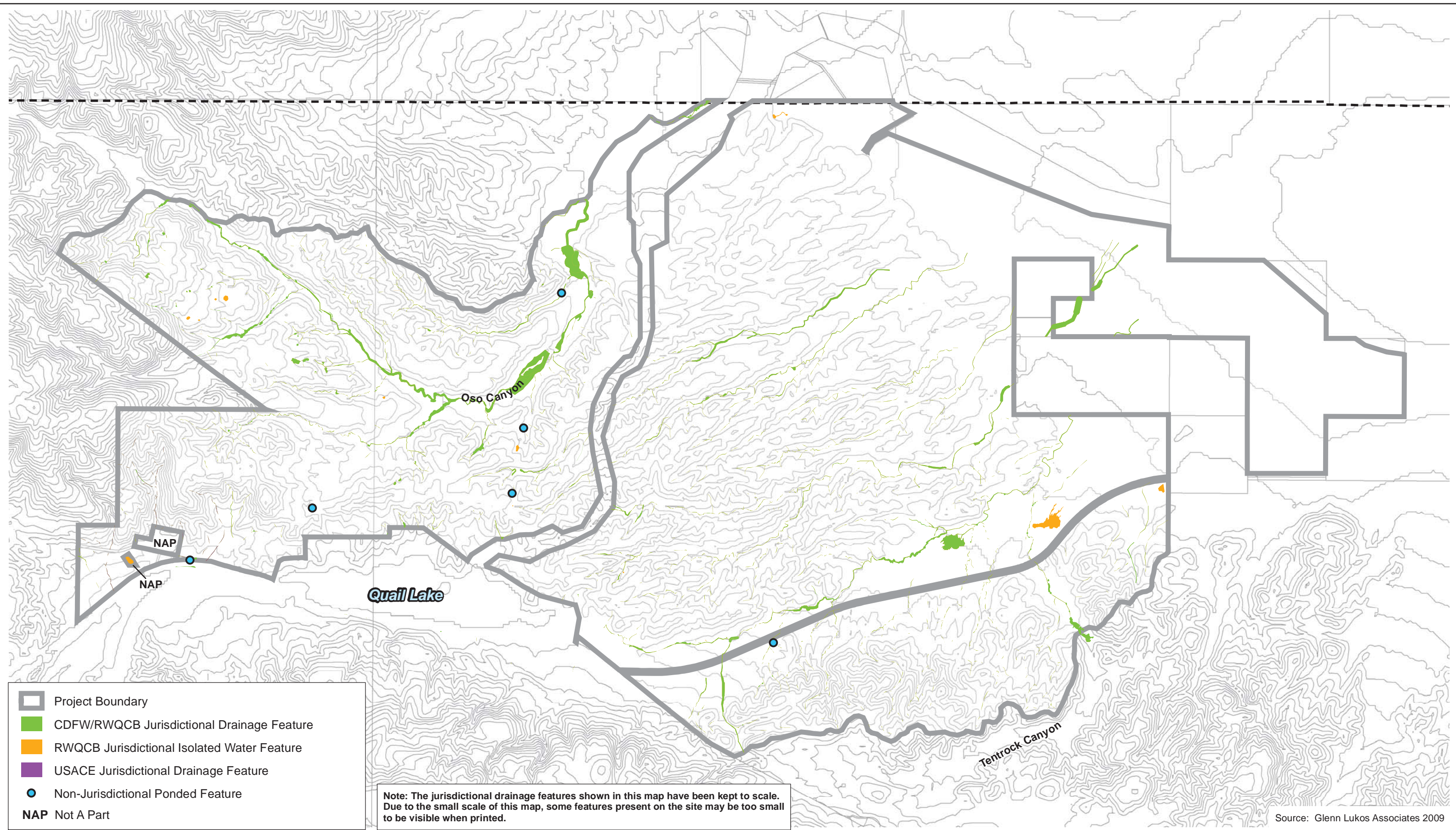
hydrology of a site. The USACE definition of wetlands requires that all three wetland identification parameters be met.

Streambeds in the Project site are also subject to CDFW regulation under Sections 1600 et seq. of the *California Fish and Game Code*. A stream is defined under these regulations as a body of water that flows at least periodically or intermittently through a bed or channel having banks and that support fish or other aquatic life. This definition includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation. The CDFW jurisdiction typically extends to the edge of the riparian vegetation canopy. In addition, groundwater, surface water, and wetlands fall under RWQCB jurisdiction.

Table 5.7-10, Jurisdictional Wetlands and Waters Summary, provides the acreages associated with aquatic resources on the site. This table summarizes the results of a delineation of features under the jurisdiction of the CDFW, the Regional Water Quality Control Board (RWQCB), and/or the USACE. The results summarized below are based on field surveys conducted by Glenn Lukos Associates in 2006 and 2009 (GLA 2005c, 2006b, 2009b) and refined by field surveys conducted by BonTerra Psomas in July 2015 (BonTerra Psomas 2015a). Exhibit 5.7-9, Jurisdictional Drainage Features, depicts the location and extent of jurisdictional features on the Project site. Water runoff from the Project site generally originates in the western portion of the site and flows east toward the Antelope Valley. The drainages historically infiltrated into the groundwater on the site; however, six short on-site drainages and three short off-site drain toward Quail Lake. These drainages were determined to be Non-Relatively Permanent Waters without a Significant Nexus to a Traditional Navigable Water, and therefore not under the jurisdiction of the USACE. Since Quail Lake is connected to the California Aqueduct, these drainages have a tenuous connection to the aqueduct. Much of the water that flows on the surface in drainages on the site eventually infiltrates into the alluvial sandy soils before exiting the site, while the remainder infiltrates the soils soon after exiting the site (Impact Sciences 2002b). A functional assessment of the jurisdictional features on the site was conducted by Glenn Lukos Associates (GLA 2006b, 2009a) and subsequently refined by BonTerra Psomas (2015a). The delineation of jurisdictional drainage features is subject to change at the discretion of permitting agencies as part of the permitting process. Changes in the determination of jurisdiction, if any, would be expected to be relatively minor. The jurisdictional delineation verification provided by the USACE indicates general consensus in the determination at that time.








D:\Projects\CEN\Centennial\MXD\ER\Ex\_JD\_Features\_20170418.mxd



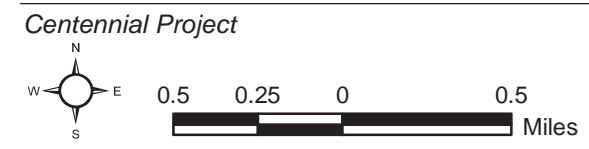
**Note:** The jurisdictional drainage features shown in this map have been kept to scale. Due to the small scale of this map, some features present on the site may be too small to be visible when printed.

Source: Glenn Lukos Associates 2009

-  Project Boundary
-  CDFW/RWQCB Jurisdictional Drainage Feature
-  RWQCB Jurisdictional Isolated Water Feature
-  USACE Jurisdictional Drainage Feature
-  Non-Jurisdictional Pondered Feature
- NAP** Not A Part

### Jurisdictional Drainage Features

### Exhibit 5.7-9





**TABLE 5.7-10  
JURISDICTIONAL WETLANDS AND WATERS SUMMARY**

Agency with Jurisdiction		On Site	Off Site	Total Project Area (acres)
USACE *	acres	1.7	0.1	<b>1.8</b>
	linear feet	21,896	23	<b>21,919</b>
CDFW	acres	165.3	0.3	<b>165.6</b>
	linear feet	551,061	2,273	<b>553,334</b>
RWQCB	acres	148.9	0.3	<b>149.2</b>
	linear feet	551,061	2,273	<b>553,334</b>
USACE: U.S. Army Corps of Engineers; CDFW: California Department of Fish and Wildlife; RWQCB: Regional Water Quality Control Board * All of the USACE acreage consists of non-wetland waters Source: BonTerra Psomas 2015a				

### ***U.S. Army Corps of Engineers Jurisdiction***

Several surveys were conducted to delineate the jurisdictional waters and streambeds in accordance with the USACE regulatory definition of “waters of the U.S.”. The definition of a wetland, as summarized above, is included in the 1987 USACE manual and streambed criteria from the *California Fish and Game Code* (Impact Sciences 2002b; GLA 2005c, 2006b, 2006c, 2009b). The results of the original jurisdictional delineations for the Project site have been verified by the USACE (Impact Sciences 2002b; USACE 2002). Three on-site drainages that flow toward Gorman Creek have been determined to be jurisdictional under the CWA due to hydrologic connection with navigable waters. The remaining drainages and associated wetlands on the site infiltrate into the alluvial sandy plain to the east of the site and do not connect to navigable waters. Therefore, these features have been determined to be non-jurisdictional under current USACE regulations. The estimated total USACE jurisdictional “waters of the U.S.” on the Project site is 1.7 acres (BonTerra Psomas 2015a).

As described in Section 5.7.2, the USACE and USEPA issued a Final Clean Water Rule whose implementation has since been blocked by a federal court. If the USACE interprets “waters of the U.S.” as defined in the Final Clean Water Rule when the Project enters a regulatory permit processing phase, no changes to the amount of “waters of U.S.” on the Project site are expected. Though there are waters that exist within 4,000 feet of the OHWM of a covered tributary (thereby subject to a case-specific significant nexus determination), these waters flow to the east and do not have a significant nexus with a downstream Traditional Navigable Water (TNW) (i.e., they do not provide chemical, physical, or biological functions to downstream waters).

### ***California Department of Fish and Wildlife Jurisdiction***

All the drainages, adjacent wetlands, and riparian areas on the Project site are under the jurisdiction of the CDFW pursuant to Sections 1600–1616 of the *California Fish and Game Code*. CDFW jurisdiction extends to the top of the bank, at a minimum, and to the outer edge

of the canopy of riparian vegetation, if a canopy is present. Many of the stream banks exhibit nearly vertical slopes. The total CDFW jurisdictional “streambeds and riparian vegetation” on the Project site is 165.5 acres (BonTerra Psomas 2015a).

### ***Regional Water Quality Control Board Jurisdiction***

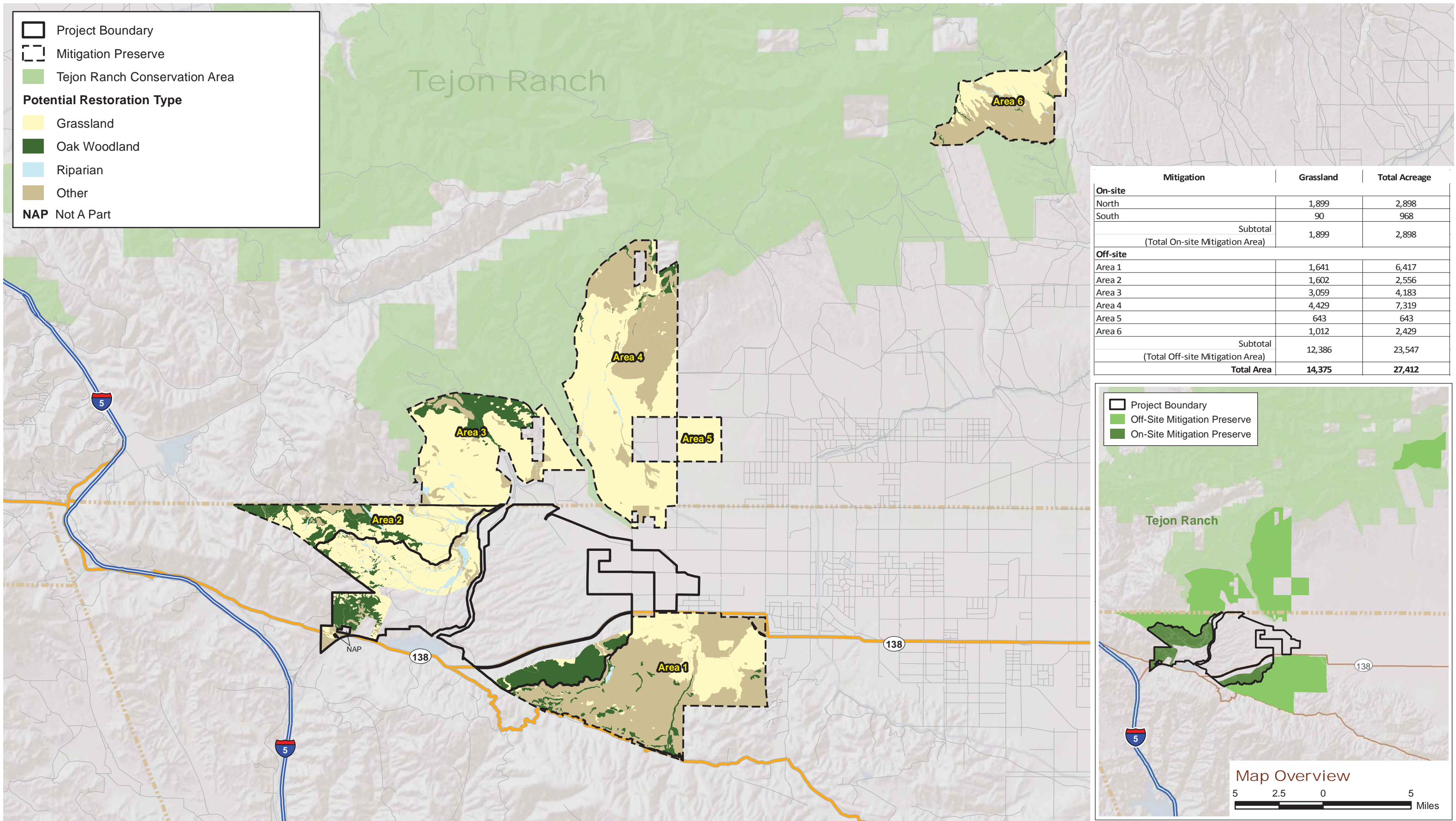
All the groundwater, surface water, and wetlands on the Project site are under the jurisdiction of the two RWQCBs that govern the site (i.e., Lahontan and Los Angeles), pursuant to the Porter-Cologne Water Quality Control Act (*California Water Code*, Section 13000 et seq.) (SWRCB 2009). The extent of their jurisdiction tracks that of the CDFW with regard to the drainages on the Project site, but does not include some CDFW-regulated riparian vegetation. The RWQCB jurisdiction does extend, however, to isolated wetlands and discharges to groundwater that the CDFW does not cover. The surface waters on the Project site that are under the RWQCBs’ jurisdiction total 149.2 acres (BonTerra Psomas 2015a).

## **5.7.4 PROJECT DESIGN FEATURES**

**PDF 7-1** The dedication schedule for the Mitigation Preserve program is designed to accommodate full Project implementation, which would occur over an approximate 20-year timeframe. The Mitigation Preserve program distinguishes two components: (1) preservation via open space dedication and (2) enhancement and management of certain resources (such as oak woodlands and riparian habitats) to maintain biological resource values. The overall concept is to retain biological resources in a manner that is feasible and maximizes the potential for success.

The Project’s Mitigation Preserve program is designed to maintain regional biological resource functions and values. In this way, the biological impacts of developing the Project are being mitigated to levels that are less than significant under CEQA at a Project-specific level.

The Mitigation Preserve program includes preservation of grasslands as well as preservation, enhancement, restoration, and creation of other special status resources. The level of mitigation necessary will correspond to the quality of the affected habitats and to the quality of habitats that are currently present in the specified mitigation areas. Each individual resource mitigation plan will describe the areas for proposed mitigation for that particular resource which occur both within Significant Ecological Area (SEA) 17; within the Project boundary; and within off-site mitigation areas. These areas combine to form an extensive regional mitigation preserve system of 27,408 acres (see Exhibit 5.7-10, Mitigation Preserve). Detailed floral sampling was conducted within grasslands on the Project site including impact areas, as well as within the Mitigation Preserve (NRC 2006a, 2007a, 2007b, 2007c, 2008b). Generally, studies consisted of quadrat sampling (338 total quadrats) and analysis of data generated results on regional species composition, between-site species composition, and plant community-based analysis. within grasslands on the Project site within the impact area and mitigation areas (NRC 2008b) and



Mitigation Preserve

Centennial Project

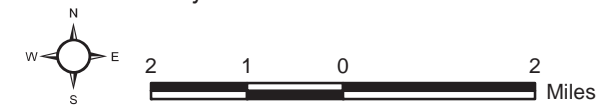


Exhibit 5.7-10

2016 site reconnaissance surveys over a period of four days, within mitigation areas. Both the detailed floral sampling and the site reconnaissance surveys indicate the presence of similar vegetation and habitat types, species composition, and special status species presence throughout the Preserve in varying degrees similar to the range of impacted areas.

The proposed 27,408-acre preserve system contains all major habitat types affected by the Project, as well as particular individual biological resource values which are described in each of the corresponding mitigation plans. In addition, the overall value of the preserve system is enhanced by configuration of the preserved areas within large and contiguous biological core areas (see Exhibit 5.7-10). The biological value of the proposed preserve system is further enhanced by its continuity with other open space areas. Most of the core is immediately bordered by additional existing and proposed preserved lands, which increases the conservation value of the dedication areas. When a preserve is comprised of many small areas within a larger unpreserved area, there are greater edge effects, even when the overall acreage may seem substantial. Edge effects include indirect effects from adjacent land uses such as noise from roadway traffic or night lighting from development. The lands proposed for preservation, especially those occurring off site, have been chosen with the intent to minimize such edge effects so that the biological resources within them are not jeopardized by the Project or potential future development in the region. In addition, the adjacent open space lands include Los Angeles County SEAs and National Forest Lands that would similarly benefit from the preservation of adjacent lands.

An additional factor in the high value of the proposed preservation lands is buffering of the regional landscape linkage through the region. The open space areas in the northwestern and southeastern portions of the site and the off-site preservation lands in these areas provide a layer of protection for the potential wildlife linkage to the immediate northwest, which may be an essential part of sustaining healthy populations of a wide variety of wildlife species in the surrounding mountainous regions. Additionally, several smaller local linkages between open space on site and preservation areas off site and in contiguous lands have been preserved.

Based on the large size of the Mitigation Preserve, the connectivity of this area to other regionally important open space areas, and the similarity to resources removed by development of the Project, the proposed mitigation preserve system provides a core for biological mitigation planning. The resources preserved in the reserve area, when supplemented by individual programs for special-status resources, would mitigate all significant impacts to biological resources on the Project site.

Each of the resource mitigation plans, required per mitigation measures below, will be incorporated into an overall Mitigation Monitoring and



Reporting Program (MMRP). This document will describe the procedures for mitigation implementation, success criteria, and reporting requirements.

**PDF 7-2**

Mitigation for impacts to vegetation types, such as native grasslands, would require preservation with minimal management. Other resources, such as jurisdictional riparian habitats and wetlands, would require more intensive creation, restoration, and/or enhancement efforts to mitigate for Project impacts. The acreages of the primary resources identified in the mitigation areas are listed in Table 5.7-11, Primary Biological Resources within the On-Site and Off-Site Preserve System, below.

Mitigation lands for impacts to biological resources would consist of approximately 3,861 acres of unimpacted/SEA lands on the site and 23,547 acres within additional off-site areas, including areas on Tejon Ranch, referred to as Areas 1 through 6. These mitigation lands comprise six areas which would provide sufficient land and biological resources to implement mitigation strategies to fully mitigate for Project impacts. Two of these areas, Areas 3 and 4, are the subject of conservation easements that expressly allow for such mitigation use of these lands. The dominant biological resources within these mitigation lands (such as the vegetation types and jurisdictional drainages) are depicted on Exhibit 5.7-10. The acreages of the dominant biological resources identified within the mitigation areas are listed in Table 5.7-11 below.

It should be noted that the similarity of the biological resources contained within the impact areas and mitigation areas is relative. The greater the level of detail available for a particular resource, the greater potential for variability between sites. Although intensive studies may reflect differences between the impacted grasslands and preserved grasslands, this is to be expected. The understanding of the general similarity and the long-term preservation goals for regional native species biodiversity should dictate the appropriateness of preservation lands. Grassland and wildflower studies of mitigation areas also indicate an acceptable degree of similarity in vegetation species composition at varying degrees consistent with Project impact areas (NRC 2008b). For a detailed analysis and representative photographs of mitigation lands see Appendix 5.7-D.

Area 1 consists of 6,417 acres located adjacent to and immediately east of the southeastern corner of the Project site. These lands are located within Significant Ecological Area (SEA) No. 17 and support many resources including a relatively undisturbed north-to-south running riparian corridor that provides connectivity to the wildlands to the south of the site. This drainage is likely to function as an important wildlife movement corridor for wildlife moving between the higher elevations of Liebre Mountain in the Angeles National Forest and grassland and scrubland resources in the lower foothills.

Area 2 consists of 2,556 acres located adjacent and contiguous to the northwestern portions of the Project site. These lands are also located within SEA No. 17. This area has experienced minimal disturbance and contains a complement of resources similar to the Project site, but it generally has a higher quality. This area contains extensive grasslands, oak woodlands, and riparian corridors. The woodlands and riparian zones include degraded and disturbed areas that are suitable for restoration and enhancement. Additionally, this mitigation area contains several substantial drainages, including upper Oso Canyon. Preservation of these features would retain wildlife movement values, allowing wildlife to continue to use these pathways to move between the on-site mitigation preserve and the Tehachapi Mountains.

Area 3 consists of 4,183 acres; this mitigation area is located in Kern County, immediately north of the Project site. It consists almost entirely of grassland habitat on the alluvial fans of several major drainages that flow into the Antelope Valley from the Tehachapi Mountains. Oak and sycamore woodlands are found in these canyons. The California Aqueduct also runs through this parcel. A portion of the Pacific Crest Trail alignment parallels the northeastern boundary of Area 3.

Area 4 consists of 7,319 acres; this mitigation area is also located in Kern County on the northern slope of the Antelope Valley, northeast of both Area 3 and the Project site. This site contains similar biological resources as described for Area 3 above. A portion of the Pacific Crest Trail alignment parallels the southwestern boundary of Area 4.

Area 5 consists of 643 acres and is a square-shaped parcel located in Kern County on the northern slope of the Antelope Valley, immediately east of Area 4 and northeast of the Project site. It consists entirely of undifferentiated grasslands along the alluvial fans of several major drainages in the foothills of the Tehachapi Mountains. The lower flatter areas are divided into a number of grazing areas, and it is intensively grazed.

Area 6 consists of 2,429 acres and is located in Kern County on the northern slope of the Antelope Valley, farthest to the northeast of the Centennial Project site. Approximately half of Area 6 is dominated by undifferentiated grasslands. The area represents a transitional zone between the grasslands and forb-dominated habitats found in Areas 3, 4, and 5 to the more desert habitats consisting of Joshua tree woodland and various scrub lands. It has several major drainages that flow from the Tehachapi Mountains that provide for riparian habitat and, at higher elevations, oak woodlands.

The combined off-site mitigation preserve area amounts to 23,547 acres of mitigation lands. In total, the mitigation preserve system available for mitigation covers 27,408 acres and includes both on- and off-site mitigation areas.

- PDF 7-3** The primary features retained in the mitigation preserve are the western portion of Oso Canyon and the mountainous areas along the western and southern edges of the site. The western portion of Oso Creek and several large tributaries, which are considered high wildlife use areas, would be preserved as open space. At least three ephemeral ponds would also be preserved in the open space area; which may provide habitat for amphibians, invertebrates, and migratory birds. In addition, existing drainages have been incorporated into the Project's design as greenways and open space areas to buffer the riparian corridors from indirect impacts.
- PDF 7-4** The removal of oaks on the site has been minimized: of the estimated 181,070 oaks of all sizes on the site, and of the estimated 33,861 oaks under the jurisdiction of the County of Los Angeles Tree Ordinance (CLAOTO) on the site, only 91 regulated oaks [blue oak (*Quercus douglasii*) and hybrid oak species<sup>5</sup>] occur within the disturbance area. Of those, 49 (blue oak) are within the grading footprint and would presumably be directly impacted by the Project, while 42 occur within the temporary disturbance area and would potentially be unimpacted/preserved, or 99.99 percent of regulated oaks would be preserved. The majority of the mixed oak woodland located in the western portion of the site and nearly the entire mixed oak woodland area located in the southern portion of the site would be preserved as natural open space.
- PDF 7-5** Regulated oaks within the Project's temporary disturbance area shall be avoided to the maximum extent feasible. Construction activities will employ methods, such as temporary orange mesh fencing, to surround the regulated oak trees at the dripline in order to avoid impacts to regulated oak trees in these areas, when feasible.
- PDF 7-6** If a golf course is developed on the site, it will be built and managed in accordance with the Audubon Cooperative Sanctuary Program for Golf Courses (or equivalent), which is a cooperative effort between the United States Golf Association and Audubon International that is designed to promote ecologically sound land management and to conserve natural resources.
- PDF 7-7** As an additional Project feature, the Project Applicant will explore locating a wildlife-friendly crossing across the Aqueduct with the California Department of Water Resources. The ideal location for such a crossing would be adjacent to Quail Lake or adjacent to the new bridge proposed across the Aqueduct. Final design of any such crossing shall be reviewed and approved by Los Angeles County.

---

<sup>5</sup> Hybrid oak species are probably (*Quercus x alvordiana*) and (*Quercus x macdonaldi*) but hybridization within hybrids can even result in triple hybrids making positive identification of these species very difficult (Tree of Life 2008).

**PDF 7-8** To minimize the introduction and spread of invasive plants on the site, the *Centennial Specific Plan* contains a list of invasive plant species that will be prohibited from being planted on the site.

PDF 11-4 from Section 5.11, Air Resources, is also applicable to the analysis in this section.

## 5.7.5 THRESHOLD CRITERIA

### California Environmental Quality Act Criteria

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would have a significant impact related to biological resources if it would:

**Threshold 7-1** Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS.

**Threshold 7-2** Have a substantial adverse effect on any sensitive natural communities (e.g., riparian habitat, coastal sage scrub, oak woodlands, non-jurisdictional wetlands) identified in local or regional plans, policies, regulations or by CDFW or USFWS.

**Threshold 7-3** Have a substantial adverse effect on federally or state protected wetlands (including, but not limited to, marshes, vernal pools, coastal wetlands, and drainages) or waters of the United States, as defined by §404 of the federal Clean Water Act or California Fish and Game code §1600 et seq. through direct removal, filling, hydrological interruption, or other means.

**Threshold 7-4** Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

**Threshold 7-5** Convert oak woodlands (as defined by the state, oak woodlands are oak stands with greater than 10 percent canopy cover with oaks at least 5 inches in diameter measured at 4.5 feet above mean natural grade) or otherwise contain oak or other unique native trees (junipers, Joshuas, southern California black walnut, etc.).

**Threshold 7-6** Conflict with any local policies or ordinances protecting biological resources, including Wildflower Reserve Areas (L.A. County Code, Title 12, Ch. 12.36), the Los Angeles County Oak Tree Ordinance (L.A. County Code, Title 22, Ch. 22.56, Part 16), the Significant Ecological Areas (SEAs) (L.A. County Code, Title 22, §22.56.215),

and Sensitive Environmental Resource Areas (SERAs) (L.A. County Code, Title 22, Ch. 22.44, Part 6).

**Threshold 7-7** Conflict with the provisions of an adopted state, regional, or local habitat conservation plan.

An evaluation of whether an impact on biological resources would result in a “substantial adverse effect” must consider both the resource itself and how that resource fits into a regional context. For the Project, the regional setting includes the western portion of the Antelope Valley, including the slopes of the surrounding mountains that face the Valley. Impact analysis is based on the Project’s impact relative to the amount of the resource within the Project region.

For purposes of the impact analysis, “substantial adverse effect” is defined as the loss or harm of a magnitude which, based on current scientific data and knowledge, would (1) substantially diminish population numbers of a species or distribution of a habitat type within the region or (2) eliminate the functions and values of a biological resource in the region.

### **5.7.6 ENVIRONMENTAL IMPACTS**

The determination of direct impacts in this analysis is based on changes to the existing biological resources on the Project site (as previously described in Section 5.7.3, Environmental Setting) that would occur from Project implementation, which includes all on-site and off-site earth disturbing/grading activities (including staging, trenching, and equipment storage). Impacts on biological resources associated with the Project were evaluated with respect to common vegetation types and common plant and wildlife species and, in greater detail, special status biological resources.

Indirect impacts on biological resources as a result of Project implementation may include the following: (1) increased lighting and glare effects on wildlife species in the remaining and adjacent open space areas; (2) potential increase in use of pesticides, herbicides, and in release of pollutants into adjacent drainages, creeks, and wetlands as a result of landscaping maintenance, irrigation, and storm water runoff; (3) increase in non-native plant species that are adapted to more urban environments and can out-compete native species for available resources, thus reducing the distribution and population of native species; (4) increases in human activity and domestic animal presence that can disturb natural habitat areas by trampling and extirpating native vegetation and displacing wildlife populations; and (5) erosion and dust resulting from construction and grading activities.

**Threshold 7-1**      **Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?**

## **On-Site Impacts**

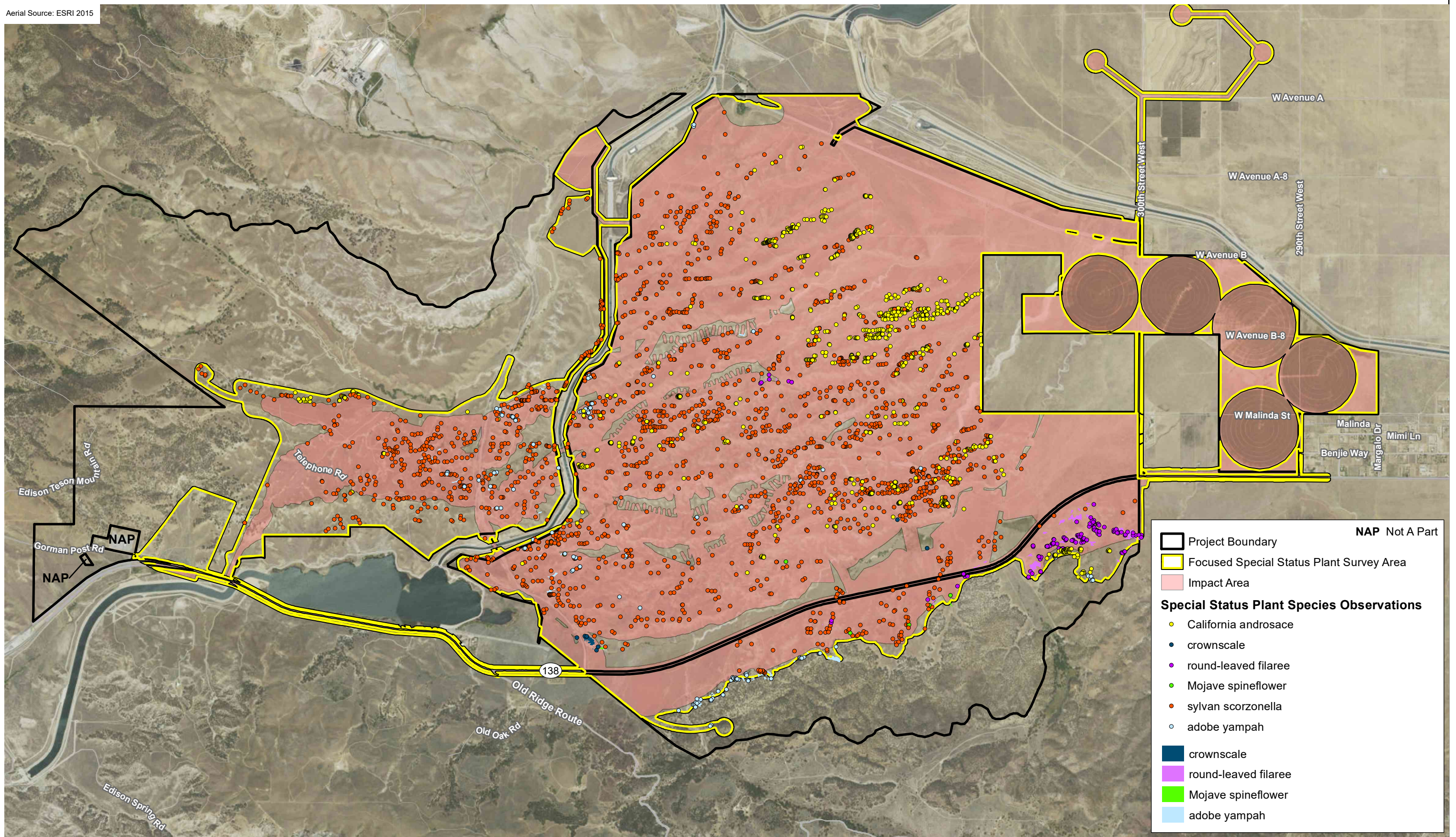
### ***Special Status Plant Species***

Most of the special status plants listed as having a potential to occur on the Project site in Table 5.7-5, Special Status Plant Species would not be impacted by the Project because of negative results of multiple focused botanical surveys and/or they are not expected to occur on the site due to lack of suitable habitat. However, six of the eight special status plant species found on the site, including California androsace, crownscale, round-leaved filaree, Mojave spineflower, sylvan scorzonella, and adobe yampah would be impacted by Project implementation, as shown in Exhibit 5.7-11a, Special Status Plant Species Observation with Impact Boundary. The two remaining special status plant species observed on the site, Piute Mountains navarretia and Lemmon's syntrichopappus, were found in locations that lie outside the proposed development footprint and would therefore not be directly impacted; indirect impacts are not expected due to their distance from proposed development and their occurrence within proposed open space.

California androsace is a CRPR 4.2 species. In 2008, 5 occurrences with 381 total plants were found on the Project site. In 2015, over 29,000 individuals on 320 locations were estimated during focused surveys, with the highest abundances on the lower hills in the northeastern section of the Project site. The on-site population is the largest known population of the species in the County. Project implementation would result in impacts to approximately 28,345 individuals (up to 97 percent of the on-site population) detected during focused surveys. On Liebre Mountain, this species has been described as "occasional in grassland and openings in scrub at the northern base of the range" (Boyd 1999). As discussed, the County of Los Angeles Department of Regional Planning typically does not require mitigation for impacts to CRPR 4.2 species. However, due to the lack of botanical knowledge in the region for this species, the level of impact is difficult to ascertain and impacts are considered potentially significant. Implementation of MM 7-1, proposed to mitigate for impacts to special status plants, would reduce the level of impact by promoting the distribution of this species in the Project region through the propagation of new populations in the Mitigation Preserve. The expansion of the local population of this species is expected to increase its potential to be sustained in perpetuity.

Crownscale has a CRPR of 4.2. Historically it has been known only from the Sacramento Valley, San Joaquin Valley, and the Inner South Coast Ranges (Jepson Herbarium 2015). The closest known location outside the Project boundary is approximately 30 miles to the north, near the town of Arvin (CCH 2016). On the Project site, 2015 surveys identified 8 populations with more than 16,000 estimated total individual plants. The largest populations were found on alkali scalds and dry pools near the intersection of SR-138 and National Cement Plant Road. Approximately 16,690 individuals (the entire on-site population) would be impacted by the Project. CRPR 4.2 species are considered naturally limited in distribution and have



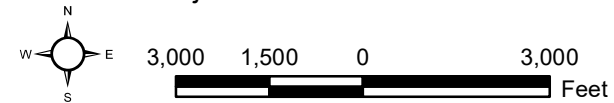


D:\Projects\3CEN\Centennial\MXD\EIR\Ex\_5\_SSPlant\_Impacts\_20160422.mxd

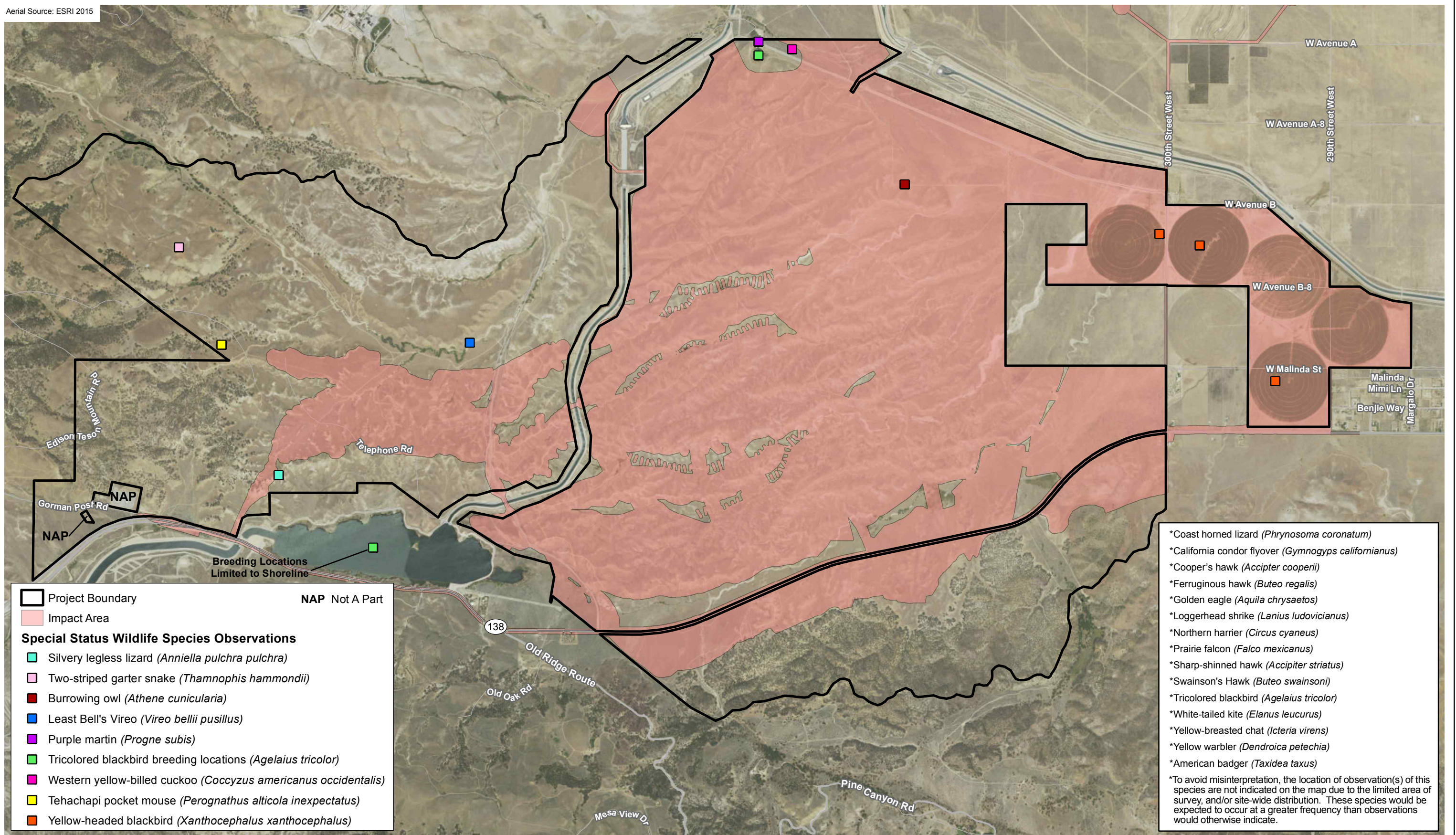
### Special Status Plant Species Observations with Impact Boundary

Exhibit 5.7-11a

Centennial Project







**Legend**

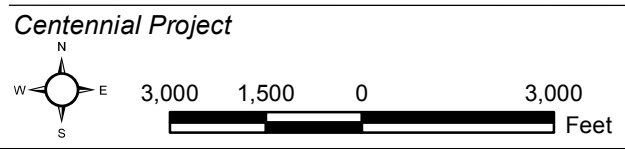
- Project Boundary
- Impact Area
- Special Status Wildlife Species Observations**
- Silvery legless lizard (*Anniella pulchra pulchra*)
- Two-striped garter snake (*Thamnophis hammondi*)
- Burrowing owl (*Athene cunicularia*)
- Least Bell's Vireo (*Vireo bellii pusillus*)
- Purple martin (*Progne subis*)
- Tricolored blackbird breeding locations (*Agelaius tricolor*)
- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*)
- Tehachapi pocket mouse (*Perognathus alticola inexpectatus*)
- Yellow-headed blackbird (*Xanthocephalus xanthocephalus*)

**NAP Not A Part**

- \*Coast horned lizard (*Phrynosoma coronatum*)
  - \*California condor flyover (*Gymnogyps californianus*)
  - \*Cooper's hawk (*Accipiter cooperii*)
  - \*Ferruginous hawk (*Buteo regalis*)
  - \*Golden eagle (*Aquila chrysaetos*)
  - \*Loggerhead shrike (*Lanius ludovicianus*)
  - \*Northern harrier (*Circus cyaneus*)
  - \*Prairie falcon (*Falco mexicanus*)
  - \*Sharp-shinned hawk (*Accipiter striatus*)
  - \*Swainson's Hawk (*Buteo swainsoni*)
  - \*Tricolored blackbird (*Agelaius tricolor*)
  - \*White-tailed kite (*Elanus leucurus*)
  - \*Yellow-breasted chat (*Icteria virens*)
  - \*Yellow warbler (*Dendroica petechia*)
  - \*American badger (*Taxidea taxus*)
- \*To avoid misinterpretation, the location of observation(s) of this species are not indicated on the map due to the limited area of survey, and/or site-wide distribution. These species would be expected to occur at a greater frequency than observations would otherwise indicate.

**Special Status Wildlife Species Observations with Impact Boundary**

**Exhibit 5.7-11b**





been placed on a “watch list”. These species are considered relatively common within their ranges, although it is important to note the location of their occurrences to assist in identifying a decline in population should one occur. Although the CNPS considers CRPR 4.2 species to be special status, impacts to these species often do not meet the significance criteria under CEQA to require mitigation. Because this population is far removed from other known populations of the taxon, its identity is uncertain, and it is the only known population of its taxon in the County, the County of Los Angeles Department of Regional Planning considers the loss of the on-site population to be a significant impact, and therefore mitigation is proposed to reduce impacts to the regional population. Implementation of MM 7-1, to mitigate for impacts to special status plants, would reduce the level of impact by promoting the distribution of this species in the Project region through the propagation of new populations in the Mitigation Preserve. The expansion of the local population of this species is expected to increase its potential to be sustained in perpetuity.

Round-leaved filaree is a CRPR 1B.2 species. Although the CNPS considers it to be Rare, Threatened, or Endangered in California and elsewhere, it has no State or Federal listing status. Other than the recent on-site observation, this species was known to occur in the region based on a 1962 collection on Tejon Ranch, from the northern side of Oso Canyon; the population size of this occurrence was not reported (CDFG 2015a). In 2004, 39 occurrences of round-leaved filaree, each ranging in size from 20 to several thousand individual plants, were identified on the Project site. In 2015, over 29,000 individuals on 320 locations scattered throughout the site on hilltops and on upper north-facing slopes were detected in the survey area. The on-site population is the largest documented population of the species in the County. Approximately 22,900 individuals (80 percent of the on-site population) would be impacted by the Project. The remaining occurrences would be retained in open space. Due to the large number of plants that would be lost, impacts to the round-leaved filaree are considered significant. Implementation of MM 7-1 would reduce adverse impacts to a less than significant level by preserving existing populations within the Mitigation Preserve and promoting the distribution of this species within the Project region through the propagation of new populations. The expansion of the local population of this species is expected to increase its potential to be sustained in perpetuity.

Mojave spineflower is a CRPR 4.2 species, but it has no State or federal listing status. Nineteen densely populated occurrences were identified on the Project site in 2004; they were located along alluvial slopes in the southeastern portion of the Project site. In 2015, approximately 10,000 individuals were observed in the survey area. Project implementation would result in impacts to approximately 5,100 individuals. This annual plant varies in population size from year to year; during 2006 surveys approximately 47,575 individuals were found on the site, but during 2008 only 6,000 were observed. On Liebre Mountain, this species is considered scarce, and was documented by a historical collection from near Elizabeth Lake, which is located almost 20 miles southeast of the Project site (Boyd 1999). As discussed above, the County of Los Angeles Department of Regional Planning typically does not require mitigation for impacts to CRPR 4.2 species. However, due to the lack of botanical knowledge in the region for this species, the level of impact is difficult to ascertain and therefore the impact is considered potentially significant and mitigation is proposed to reduce impacts to the regional population. Implementation of MM 7-1, to mitigate for impacts to special status plants, would reduce the level of impact by preserving existing

populations within the Mitigation Preserve and promoting the distribution of this species in the Project region through the propagation of new or expanded populations in the Mitigation Preserve. The expansion of the local population of this species is expected to increase its potential to be sustained in perpetuity.

Sylvan scorzonella is a CRPR 4.2 species. Numerous occurrences (roughly approximated at 500), were identified on the Project site in 2004 and, in 2008 the number of individuals observed across the site likely exceeded 100,000 plants. This species was observed in scattered patches in grasslands predominately east of the Aqueduct. It was most commonly found on the upper north sides of ridges and hills, and on slopes and flats immediately bordering ephemeral drainages. Nearly all occurrences were located within grasslands; a few were in areas bordered by oak woodland (Vollmar Consulting 2004). In 2015, estimated population counts exceeded 100,000 and, as in previous years, it was observed predominately in grasslands, but was also noted to occur in scrub habitat. Project implementation would remove most occurrences of this species on the site. As discussed above, the County of Los Angeles Department of Regional Planning typically does not require mitigation for impacts to CRPR 4.2 species. However, due to the lack of botanical knowledge in the region for this species, the level of impact is difficult to ascertain and therefore the impact is considered potentially significant. Implementation of MM 7-1, proposed to mitigate for impacts to special status plants, would reduce the level of impact by preserving existing populations within the Mitigation Preserve and promoting the distribution of this species in the Project region through the propagation of new or expanded populations in the Mitigation Preserve. The expansion of the local population of this species is expected to increase its potential to be sustained in perpetuity.

Piute Mountains navarretia is a CRPR 1B.1 species. It was observed on the Project site in 2004 at 3 locations, with approximately 20,100 total plants. Occurrences on the site were all located in the hills in the far western region of the Project site, associated with clay soils in areas that had been recently disturbed by feral pigs. These occurrences represent the only known occurrences for this species in Los Angeles County and the southernmost known occurrences. However, this population is outside the Project impact area; as such, impacts to this species are not expected to occur and no mitigation for this species would be required.

Adobe yampah is a CRPR 4.3 species. In 2004, one occurrence of this species with approximately 16 individuals was identified on the Project site. It was found in native grassland habitat on a dry, moderately steep slope with bare soil and low total vegetation cover south of SR-138 (Vollmar Consulting 2004). In 2006, three occurrences were identified including approximately 15 individuals. In 2008, approximately 108 individuals were observed. In 2015, approximately 100 occurrences were recorded in the survey area, with an estimate of 3,100 individuals. Project implementation would result in impacts to approximately 1,490 individuals. On Liebre Mountain, this species has been described as “generally infrequent and scattered in open chaparral and grassland on the higher ridges, but locally common in clay-rich openings on the north face of Sawmill Mountain” (Boyd 1999); Sawmill Mountain is located about ten miles southeast of the Project site. Like CNPS 4.2 species, although CRPR 4.3 species are considered special status species, impacts on CRPR 4.3 species often do not meet the significance criteria under CEQA to require mitigation. However, due to the lack of botanical knowledge in the region for this species, the

level of impact is difficult to ascertain and therefore the impact is considered potentially significant. Implementation of MM 7-1, proposed to mitigate for impacts to special status plants, would reduce the level of impact by preserving existing populations within the Mitigation Preserve and promoting the distribution of this species in the Project region through the propagation of new or expanded populations in the Mitigation Preserve. The expansion of the local population of this species is expected to increase its potential to be sustained in perpetuity.

Lemmon's syntrichopappus has a CRPR of 4.3. This annual herb in the Sunflower family is endemic to California. It occurs in Kern, Los Angeles, Monterey, Riverside, San Bernardino, and Ventura Counties (CNPS 2015). No records were found in the Project region prior to focused surveys in the Project site. In 2004, 1 occurrence with 30 plants was identified on an open, moderately steep northwest-facing slope in the north-central portion of the site west of the Aqueduct. This species was not observed in the survey area in 2015. The population detected in 2004 is outside the Project impact area; as such, impacts to this species are not expected to occur and no mitigation for this species would be required.

### ***Special Status Wildlife Species***

A total of 44 special status wildlife species are known to occur in the Project region. Forty of these species have some potential to occur on the Project site, including 17 federally or State-listed species: conservancy fairy shrimp, vernal pool fairy shrimp, arroyo toad, Tehachapi slender salamander, California red-legged frog, blunt-nosed leopard lizard, tricolored blackbird, Swainson's hawk, western yellow-billed cuckoo, southwestern willow flycatcher, California condor, bald eagle, least Bell's vireo, Nelson's antelope squirrel, Townsend's big-eared bat, Tipton kangaroo rat, and San Joaquin kit fox (see Table 5.7-8, Special Status Wildlife Species). Five of these species, the blunt-nosed leopard lizard, golden eagle, white-tailed kit, California condor, and bald eagle are also a State Fully Protected species. Currently, the tricolored blackbird and Townsend's big-eared bat are Candidate State-listed species, require a CESA take permit, and receive the same legal protection afforded to an Endangered or Threatened species. All these species, including the non-listed special status species, are discussed further below based on habitat requirements.

### **Invertebrates**

The conservancy fairy shrimp and vernal pool fairy shrimp were not observed during multiple surveys performed for invertebrates between March 2001 and January 2007 including wet- and dry-season protocol surveys for fairy shrimp conducted in 2004–2005 and 2006–2007 (see Table 5.7-2); therefore, these two listed species are considered to be absent from the Project site. As a result, Project implementation would not impact these species and no mitigation would be required.

### **Amphibians and Reptiles**

The arroyo toad and California red-legged frog were not observed during multiple surveys performed for amphibians between March 2000 and June 2006 including protocol surveys conducted in 2006 for the arroyo toad and 2001 and 2006 for the red-legged frog (see Table 5.7-2); therefore, these listed species are considered to be absent from the Project site.

As a result, Project implementation would not impact these species and no mitigation would be required.

The Tehachapi slender salamander was not observed during multiple surveys performed for amphibians between March 2000 and June 2006 including focused surveys conducted in 2006 (see Table 5.7-2). Potentially suitable habitat for this species includes the north-facing slopes of oak woodland and in a more recent discovery, within the decaying leaves of our Lord's candle plants located in higher elevation woodland (including Joshua tree woodland) where snow melt is retained within the dead plant material (Sweet 2011). Methods for the 2006 focused survey included searching traditional habitats (north-facing oak woodlands) on the Project site. Although yucca scrub does occur within the Project's impact footprint (Exhibit 5.7-12), this habitat is not potentially suitable for Tehachapi slender salamander due to lack of sufficient snowfall (either direct or runoff). The 2006 protocol survey conducted within the Project's impact footprint was negative for this species. The species may occur well outside the Project's impact footprint in the western portion of the Project site and the southern portion of the Project site south of SR-138. As a result, Project implementation would not impact this listed species and no mitigation would be required.

The yellow-blotched ensatina was not observed during multiple surveys performed for amphibians between March 2000 and June 2006 including focused surveys for salamanders in 2006 (see Table 5.7-2). The Project site provides potentially suitable habitat for this salamander, but these habitat areas are mostly located outside the Project's impact footprint. The 2006 surveys conducted within the Project's impact footprint were negative for this species (and all salamander species). The yellow-blotched ensatina may occur outside the Project's impact footprint in the western portion of the Project site and the southern portion of the Project site south of SR-138. As a result, Project implementation would not impact this species and no mitigation would be required.

The western spadefoot was not observed during multiple surveys performed for amphibians between March 2000 and June 2006 including focused surveys for this species in 2004 and 2005 (see Table 5.7-2). Since the Project site is outside the known range of the western spadefoot, the focused surveys were conducted only in those areas supporting high quality habitat for the species. The results of these surveys were negative, and western spadefoot is not expected to occur on the Project site. As a result, Project implementation would not impact this species and no mitigation would be required.

The blunt-nosed leopard lizard was not observed during multiple surveys performed for reptiles between March 2000 and June 2006 (see Table 5.7-2). The Project site provides potentially suitable habitat for the blunt-nosed leopard lizard; however, it has not been observed during the surveys and the Project site is outside the known range for this species. The expected Gambelia species for the Project site is the long-nosed leopard lizard (*G. wislizenii*) (not a special status species), which has not been observed on the Project site to date. As a result, Project implementation would not impact this listed species and no mitigation would be required.

The western pond turtle was not observed during multiple surveys performed for reptiles between March 2000 and June 2006, including focused surveys conducted for this species in

2001 (see Table 5.7-2). Although, not documented officially in CNDDDB records, the western pond turtle has been observed incidentally off-site at Quail Lake, so it is possible that individuals may occur on the Project site for nesting. One two-striped garter snake was observed outside the Project's impact footprint in the northwestern portion of the Project site. Based on an absence of official records, if Quail Lake in fact does support a population of western pond turtle, the population is expected to be small. The two-stripe garter snake is a highly aquatic species that depends on a perennial water source. Project impacts would result in the loss of a small amount of potentially suitable western pond turtle nesting habitat available to a population that may persist at Quail Lake. For both these species, the amount of potentially suitable habitat on the Project site is very limited and would only amount to a couple of acres at most. Project impacts to this limited potentially suitable habitat for both species is not expected to have a substantial impact on regional populations. Therefore, the loss of limited and isolated cattle pond features and the grassland/scrub habitat immediately adjacent to Quail Lake that would occur with Project implementation would be considered adverse, but less than significant for the western pond turtle and two-striped garter snake. The loss of individuals for these two species, however, may be considered significant under Section 15380 of the State CEQA Guidelines. Implementation of MM 7-2 through MM 7-4 requiring avoidance of impacts outside disturbance limits, pre-construction surveys, and biological monitoring (including relocation of individuals from the Project's impact footprint) would reduce the impact to less than significant.

The silvery legless lizard and coast horned lizard were both observed during multiple surveys performed for reptiles between March 2000 and June 2006 (see Table 5.7-2). One legless lizard was observed at the far western edge of the Project site. Horned lizards were observed in several site drainages, primarily in the eastern portions of the Project site. Suitable and potentially suitable habitat for these two species generally may occur within grassland, scrub, riparian, and oak woodland habitat types. The legless lizard requires a high soil moisture content, while the coast horned lizard can tolerate dryer habitats. Areas on the Project site with high soil moisture content are limited and the legless lizard is expected to occur mainly in the oak woodland and riparian habitats where the soil moisture content is higher due to factors such as plant cover and leaf litter. The coast horned lizard has been detected mainly in the dry, sandy, washes within the grassland and scrub habitats in the eastern portion of the project site. Based on these vegetation types and the habitat requirements of these species, potentially suitable habitat on the Project site is expected to be scattered patchy in distribution, amounting to no more than 10% of the total area. Of the roughly 7,000 acres impacted by the Project, it is estimated that no more than 700 acres of potentially suitable habitat occurs for both species, though is likely much less for the legless lizard. These two species are expected to be relatively abundant in the region; therefore, the loss of roughly 700 acres associated with Project implementation would be considered adverse, but less than significant for the silvery legless lizard and coast horned lizard and no mitigation is required. Even though impacts would be less than significant, implementation of MM 7-2 through MM 7-4 requiring avoidance of impacts outside disturbance limits, pre-construction surveys, and biological monitoring (including relocation of individuals from the Project's impact footprint) if detected would further help these species.

## Birds

Of the eight listed bird species with potential to occur on the Project site, the western yellow-billed cuckoo, southwestern willow flycatcher, and least Bell's vireo occupy similar riparian habitats. Multiple bird surveys performed between March 2000 and July 2015 including protocol surveys for the flycatcher and vireo conducted in 2006 and 2008 (see Table 5.7-2) have not detected any breeding activities for these three species. One yellow-billed cuckoo was observed in the north-central part of the Project site in June 2003, but follow-up avian surveys in 2006 were negative for the species and the sighting was considered to represent a rare migrant rather than a breeding bird (BonTerra Consulting 2006b). Although the southwestern willow flycatcher was not present during the 2006 and 2008 protocol surveys, migrant willow flycatchers were observed. These migrants represent more northerly breeders of different subspecies that are relatively common in the region during May and June when southwestern willow flycatchers are breeding. A territorial willow flycatcher detected in southern California late June would be identified as a southwestern willow flycatcher, as the northern subspecies would have migrated out of the area by that time. Except for a singing least Bell's vireo on June 22, 2006, the 2006 and 2008 protocol surveys were negative for documenting breeding activity. Migrant landbirds or songbirds (i.e., passerines) can use a wide range of habitats and are typically present for short periods of time (generally one to three days in spring). Based on the results of these surveys, the Project site is not considered to be occupied by the western yellow-billed cuckoo, southwestern willow flycatcher, or least Bell's vireo. Therefore, Project implementation is not expected to impact these three listed species and no mitigation would be required. Since all three of these listed species are migratory, however, and may occur as breeders in the future, MM 7-5 is included to conduct pre-construction protocol surveys for the western yellow-billed cuckoo, southwestern willow flycatcher, and least Bell's vireo to confirm absence prior to disturbance.

The bird surveys performed between March 2000 and July 2015 (see Table 5.7-2) have shown that both the California condor and bald eagle are rarely seen on the Project site. Quail Lake provides suitable foraging habitat for the bald eagle where it has occasionally been observed. Trees in the surrounding area provide potentially suitable nests sites for the bald eagle, but nesting at this location has not yet been documented. All California condors are wing-tagged and fitted with radio transmitters. These birds have been documented flying high over the area (with one reported landing), but foraging and breeding activities are conducted elsewhere and not on or in the vicinity of the Project site (Bloom 2009; BonTerra Psomas 2015d). Therefore, Project implementation is not expected to result in any impacts on these two species and no mitigation is required. MM 7-6 is included to further ensure that the proposed Project does not result in future impacts on the California condor.

Migrant Swainson's hawks have been observed on the Project site during focused protocol surveys performed between March 2000 and July 2013 (see Table 5.7-2), as well as incidentally during 2015 tricolored blackbird surveys during and 2015-2016 plant surveys. Breeding Swainson's hawks have not been detected during protocol surveys. Most migrant sightings on the Project site have been in spring (March—May) and consist of fly-overs, but also include observations of foraging individuals that often concentrate in the alfalfa fields at the east end of the Project site. The sightings also include a small group of non-breeders

summering on the Project site in July 2008. This group consisted of five immatures foraging for grasshoppers in the Oso Canyon grasslands just west of Cement Plant Road. Project implementation would result in the loss of habitats used by migrating Swainson's hawks, occasional non-breeding birds in summer, and potentially suitable nesting habitats in the eastern portions (i.e., alfalfa fields and surrounding trees) of the Project site. The primary threat to this species is the loss of breeding habitats; therefore, these impacts are considered adverse but less than significant and no mitigation is required. As with other migratory birds, however, this species may occur as a breeder in the future and MM 7-2 is included to conduct pre-construction protocol surveys for the Swainson's hawk to confirm absence prior to disturbance.

The Project site is outside the known range and does not provide suitable habitat for the coastal California gnatcatcher. Therefore, Project implementation is not expected to impact this listed species and no mitigation would be required.

The tricolored blackbird is currently a Candidate State-listed species that receives the same legal protection afforded to an endangered or threatened species. Its status was only recently elevated, so protocol surveys were conducted for the first time in 2015 (BonTerra Psomas 2015c). The results of this focused survey documented relatively heavy use of the Project site for foraging purposes by tricolored blackbirds nesting off site at Quail Lake, and to a much lesser degree, Holiday Lake. In an effort to determine the Project's potential effect on tricolored blackbird nesting colony foraging lands of the region, an assessment of each of four known colonies was conducted (BonTerra Psomas 2015c). Breeding colonies are known to forage as far as five miles away from the nesting location. Therefore, the suitability of foraging was assessed for all lands within a five-mile radius of each colonies nesting location. Based on vegetation types, potentially suitable foraging habitat occurs on nearly 100,000 acres in the Project region. The Project would result in the loss of approximately 8 percent of this nesting colony foraging habitat. Although this loss is considerable, the effect on individual colonies may be more informative in determining overall effects on the regional nesting population.

Due to the shifting of tricolored blackbird nesting locations from year to year, a subset of two or three of the available nesting locations may represent the entire regional breeding population. A substantial reduction of foraging lands surrounding this subset of nesting locations could result in considerable reduction of nesting success. A review of the Quail Lake and the on-site colony subset identified a potential post-Project reduction of approximately 20 percent of potentially suitable foraging habitat at each location. In a given year, if these two areas were used for nesting, the reduced availability of suitable foraging land could result in substantial reduction in nesting success.

The indirect impacts described above may be considered potentially significant pursuant to CEQA; and mitigation may be required to reduce the impact to a less than significant level. Potentially suitable areas for enhancement and preservation include the pond area along the northern boundary and Oso Canyon, as well as any other created water bodies as part of the Project Drainage Plan, where feasible. Tricolored blackbirds were observed foraging heavily within the Mitigation Preserve in Oso Canyon and, with some hydrology and habitat enhancement in this area, it may be suitable to support a breeding colony in the future. An

additional colony of nesting tricolored blackbird birds was incidentally detected in 2016 within Mitigation Areas north of the Project site. Enhancement factors shall include the creation of cattail/bulrush marsh habitat or other substrate known to support breeding tricolored blackbirds, persistent nearby standing water during the breeding season, and sufficient available adjacent foraging habitat with an appropriate food source.

To avoid all direct impacts and minimize indirect impacts to the nesting colonies on the Project site, MM 7-7 is included. This MM states that the Project shall incorporate avoidance and additional open space buffer features for the identified nesting areas such as at the northern edge of the Project site and at Quail Lake. Permanent impacts will be restricted to a minimum distance of 400 feet from the nesting area. The nesting area will be delineated by a qualified Ornithologist based on all available data (a minimum of three years of site-specific data shall be used). Temporary impacts (i.e., construction noise) within 400 feet shall be restricted to the non-breeding season. The breeding season for this species shall be considered April 1 through July 1. In addition to MM 7-7, the Project design incorporates a buffer of greater than 1,000 feet along the northern shore of Quail Lake to minimize impacts to adjacent foraging grounds. At the east end of the Lake, east of the mouth of the aqueduct, where a small section of shoreline is close to the project impact footprint, land uses include a regional park within a low density development zone so that lands immediately beyond the required 400 foot buffer (if nesting is identified) remain permeable and retain some potential for foraging for this species.

Of the 13 non-listed special status bird species with potential to occur on the Project site (see Table 5.7-8), focused surveys have been conducted for the mountain plover and California spotted owl (BonTerra Consulting 2010, 2006a). The results of these surveys were negative; therefore, Project implementation would not be expected to impact the mountain plover or California spotted owl and no mitigation would be required.

Only single pairs or individual burrowing owls have been observed on or in the vicinity of the Project site during multiple bird surveys performed between March 2000 and July 2015 (see Table 5.7-2). Focused burrowing owl surveys have also been conducted (NRC 2006c; Impact Sciences 2003). The Project site does not support a population of this species that would be considered regionally important; therefore, the loss of potentially suitable habitat for this species would be considered adverse, but less than significant. The loss of individual burrowing owls, however, may be considered significant under Section 15380 of the State CEQA Guidelines. Implementation of MM 7-2 for biological monitoring during construction is recommended to relocate individuals from the Project's impact footprint.

The golden eagle, northern harrier, and white-tailed kite have been observed foraging on the Project site, but nesting has not yet been documented on the Project site. Project implementation would result in the loss of approximately 6,416 acres of foraging habitat for these raptors that would be considered adverse, but less than significant. The potential exists for all three raptors to nest on the Project site. As golden eagle and white-tailed kite are California Fully Protected species, "take" would not be allowed. In addition, the nests of all three species would be protected by the Migratory Bird Treaty Act (MBTA). Therefore, MM 7-8 is included to protect nesting birds during construction.



The Project site's wooded areas in the western portions provided limited potentially suitable breeding habitat (and wintering) for the long-eared owl. The long-eared owl has not been detected on the Project site but may occur. The Project site does not support a population of this species that would be considered regionally important; therefore, the loss of limited potentially suitable habitat for this species would be considered adverse, but less than significant. The nests of this species would be protected by the MBTA. Therefore, MM 7-8 is included for protection of nesting birds during construction.

The yellow warbler and yellow-breasted chat were observed during the surveys, but no nesting was documented for the Project site. The riparian habitats dominated by willows and cottonwoods, especially those in Oso Canyon, provide potentially suitable nesting habitat for these two species as well as the summer tanager, which was not observed during the surveys. The purple martin may also nest in these areas, but is more likely to occur on the upslope oak woodlands in western portions of the Project site. Project implementation would result in the loss of approximately 35 acres potentially suitable nesting habitat for these four species that would be considered adverse, but less than significant. The nests of all four species would be protected by the MBTA. Therefore, MM 7-8 is included for protection of nesting birds during construction.

The Project site's grasslands provide potentially suitable habitat for the grasshopper sparrow; however, this species has not been observed during multiple bird surveys performed between March 2000 and July 2015 (see Table 5.7-2) and the Project site is outside the known range for the species. Therefore, Project implementation is not expected to impact this species and no mitigation would be required.

Small numbers of loggerhead shrikes have been observed year-round on the Project site. Although nesting has not yet been documented, this species is expected to breed on the Project site. Relative to numbers of this species elsewhere in the Antelope Valley, the Project site does not support a population that would be considered regionally important; therefore, the loss of approximately 460 acres of suitable habitat for this species would be considered adverse, but less than significant. The nests of this species would be protected by the MBTA; therefore, MM 7-8 is included for protection of nesting birds during construction.

During the focused surveys for tricolored blackbird (BonTerra Psomas 2015c), large numbers of yellow-headed blackbirds were observed foraging with other blackbird species in the eastern portions of the Project site. This species may nest in the cattail beds of Quail Lake, but is not expected to nest on the Project site. Project implementation would result in the loss of suitable foraging habitat for this species that would be considered adverse, but less than significant and no mitigation is required.

### Mammals

The Project site is outside the known range and does not provide suitable habitat for the Nelson's antelope squirrel or Tipton kangaroo rat. The Project site may provide potentially suitable habitat for the San Joaquin kit fox, but it is also outside the known range for this species. If present, the multiple biological surveys conducted on the Project site since 2001 (see Table 5.7-2) would have detected this species. Therefore, Project implementation is not expected to impact these three listed species and no mitigation would be required.

Disturbance and loss of large colony roost sites during the maternity and hibernation seasons are considered primary factors that may negatively impact the Townsend's big-eared bat in California (CDFW 2014). There are no known maternity or significant roosting sites for the Townsend's big-eared bat on or in the vicinity of the Project site. The oak woodlands in western portions of the Project site may provide temporary roost sites for individual Townsend's big-eared bats. Potential foraging habitat is expected to be limited to edge habitats along streams and areas adjacent to and within the oak woodlands in western portions of the Project site outside the Project's impact footprint; therefore, Project implementation is not expected to impact the Townsend's big-eared bat and no mitigation is required. The loss of individual Townsend's big-eared bats, however, may be considered significant under Section 15380 of the State CEQA Guidelines. Implementation of MM 7-9 for pre-construction bat surveys, MM 7-3 for biological monitoring during construction, and MM 7-4 for clear demarcation of disturbance limits are recommended to avoid taking of solitary roosting individuals that may be present within the Project's impact footprint.

The Project site provides potentially suitable foraging habitat for both the pallid and western mastiff bats, but limited roosting opportunities for pallid bats and no roosting opportunities for western mastiff bats. Project implementation would result in the loss of roughly 7,000 acres of potentially suitable foraging habitat for these 2 bat species. This loss is small relative to the amount of foraging habitat available to these two species elsewhere in the region; therefore, the loss of potential foraging habitat for the pallid bat and western mastiff bat is considered to be adverse but less than significant and no mitigation is required. The loss of individual pallid bats, however, may be considered significant under Section 15380 of the State CEQA Guidelines. Implementation of MM 7-3 for biological monitoring during construction, MM 7-4 for clear demarcation of disturbance limits, and MM 7-9 for pre-construction bat surveys are recommended to avoid taking of roosting individuals that may be present within the Project's impact footprint.

The Tehachapi pocket mouse has been reported in the vicinity of the Project site at points across the Tehachapi foothills within grassland and desert shrub. One individual of this species was also detected on the Project site during focused surveys. It is expected to occur, albeit in very low numbers, within arid annual grassland and desert shrub vegetation types on the site. The only area where this species was detected is outside the Project's disturbance limits. However, there is reasonable opportunity for this species to occur in very low numbers within impact areas of potentially suitable habitat. Based on current known distribution, this species is likely to occupy much of the Tehachapi foothill south facing slope stretching from the project site to the northeast for some distance. Although small mammal trapping surveys in the region are fairly limited, CNDDDB records from recent years (2000 and up) provide evidence of this projected distribution. The loss of potentially suitable habitat for this species would be considered adverse, however, substantial adverse effects on the regional population are not expected to occur due to the relative abundance of mostly contiguous habitat across the southern slope of the Tehachapi Mountains. The loss of potentially suitable habitat is therefore considered less than significant. The loss of individuals, however, may be considered significant under Section 15380 of the State CEQA Guidelines. Implementation of MM 7-3 for biological monitoring during construction is recommended to relocate individuals from the Project's impact footprint if detected.

The Southern grasshopper mouse has not been detected on site during focused mammal surveys, but the Project site is within the known historical range. Although not observed in the region since 2003, the southern grasshopper mouse may potentially occur on the site in potentially suitable areas such as low, open, and semi-open scrub habitats including mixed chaparral, riparian scrub, and annual grasslands with scattered shrubs. Due to a lack of detection during focused mammal surveys on the Project site, it is unlikely that the Project site supports a population of this species that would be considered regionally important; therefore, the loss of approximately 460 acres of potentially suitable habitat for this species would be considered adverse, but less than significant. The loss of individuals, however, may be considered significant under Section 15380 of the State CEQA Guidelines. Implementation of MM 7-3 for biological monitoring during construction is recommended to relocate individuals from the Project's impact footprint if detected.

The American badger was observed at several locations on the Project site east and west of the California Aqueduct. Suitable habitat is found throughout the Project site. American badgers have large home ranges and wander widely. As a result, Project implementation is not expected to impact more than a few territories, at most, of this species. Compared to the amount of suitable habitat available in the region, the loss of roughly 7,000 acres of suitable habitat associated with Project implementation would be considered adverse but less than significant for the American badger and no mitigation is required. The loss of individual American badgers, however, may be considered significant under Section 15380 of the State CEQA Guidelines. Implementation of MM 7-2 for pre-construction surveys and MM 7-3 for biological monitoring during construction are included to relocate individuals from the Project's impact footprint.

Although not classified as a special status species (CDFW 2017b), the relatively small population of reintroduced pronghorn antelope on the Project site is considered of interest due to limited numbers and historical presence in the. Additionally, the CDFW issues permits allowing the occasional hunting of pronghorn in this population. Project implementation would reduce the amount of available foraging habitat for this population. However, impacts on a reintroduced population of a non-special status species that may result from Project implementation would be considered adverse but less than significant under applicable CEQA significance thresholds. As part of the Ranchwide Management Plan (TRC 2013), which is an implementation tool of the Ranchwide Agreement, the Project Applicant will work with the Tejon Ranch Conservancy to identify and implement potential enhancement measures that are also supported by CDFW. Potential measures could focus on enhancing pronghorn fawn survivorship with GPS-tracking devices and other measures to evaluate and minimize losses from coyote predation; completing further evaluation of modeling tools at a site-specific level (such as those used on the Carrizo Plain), and incorporating volunteer involvement with supportive activities such as fencing retrofits.

### ***Nesting Birds***

Construction activities could result in the direct loss of active bird nests or the abandonment of active nests by adult birds in a variety of habitats across the site. In particular, raptor species are prone to nest abandonment. Bird nests with eggs or young are protected under the MBTA and the *California Fish and Game Code*. Specific provisions of the statute include

the establishment of a federal prohibition, unless permitted, to “pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of the Convention for the protection of migratory birds or any part, nest, or egg of any such bird” (16 USC 703).

Bird species protected under the provisions of the MBTA are identified by the List of Migratory Birds (50 *Code of Federal Regulations* [CFR] 10.13, as updated by the 1983 American Ornithologists’ Union [AOU] Checklist and USFWS-published supplements through 2014). Impacts to nesting birds, including raptors, resulting from Project development are considered significant. Implementation of MM 7-8 would reduce adverse impacts to a less than significant level by minimizing disturbance to nesting birds during construction through seasonal avoidance in some areas and pre-construction surveys and avoidance of designated active nesting areas.

### **Off-Site Impacts**

The potential for impacts to special status plant and wildlife species and nesting birds with implementation of the off-site Project components, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, are discussed below.

#### ***Special Status Plant Species***

The off-site Project areas contain potentially suitable habitat for some of the special status plant species shown in Table 5.7-5, Special Status Plant Species. Focused surveys for these areas were conducted in 2016. During focused surveys, approximately 1 adobe yampah, 64 round-leaved filaree, and 1,590 sylvan scorzonella plants were observed. Impacts to these rare plant populations would be considered potentially significant. Implementation of MM 7-1, proposed to mitigate for impacts to special status plants, would reduce the level of impact by preserving existing populations within the Mitigation Preserve and promoting the distribution of this species in the Project region through the propagation of new or expanded populations in the Mitigation Preserve. The expansion of the local population of this species is expected to increase its potential to be sustained in perpetuity.

#### ***Special Status Wildlife Species***

The off-site Project areas contain potentially suitable habitat for the special status wildlife species as shown in Table 5.7-8, Special Status Wildlife Species. Impacts in these areas are considered to be the same as the Project except at a smaller scale due to the much smaller area of impact. Mitigation described in MM 7-2, MM 7-3, MM 7-4, MM 7-5, MM 7-6, MM 7-7, MM 7-8, and MM 7-9 would reduce adverse impacts to a less than significant level; these mitigation measures minimize disturbance during construction through clear demarcation of disturbance limits, pre-construction surveys, monitoring during construction to ensure no mortality, relocation of individuals prior to grading, focused surveys for certain species prior to Project implementation, and seasonal avoidance of certain areas. These measures also mitigate for losses to tricolored blackbird foraging habitat.

### ***Nesting Birds***

Impacts associated with development of off-site Project features may result in the disturbance of nesting birds. Due to their protected status, impacts to nesting birds resulting from off-site development are considered significant. Implementation of MM 7-8 would reduce adverse impacts to a less than significant level by minimizing disturbance to nesting birds during construction through seasonal avoidance in some areas and pre-construction surveys and avoidance of designated active nesting areas.

***Impact Summary:*** Impacts to special status plants, special status wildlife, and nesting birds that would result from implementation of the Project would be reduced to a level considered less than significant through implementation of MMs 7-1, 7-2, 7-3, 7-4, 7-5, 7-6, -7, and 7-9.

**Threshold 7-2**      **Would the Project have a substantial adverse effect on any sensitive natural communities (e.g., riparian habitat, coastal sage scrub, oak woodlands, non-jurisdictional wetlands) identified in local or regional plans, policies, regulations or by the CDFW or USFWS?**

### **On-Site and Off-Site Impacts**

Table 5.7-11, Impacts to Vegetation Types, below details the impacts to vegetation types in the Project's on-site and off-site study areas, which are discussed separately below. Table 5.7-12, Primary Biological Resources within the Impact Areas and the On-Site and Off-Site Mitigation Preserve System, summarizes the on- and off-site impacts to the primary, group vegetation types and the associated acres to be preserved. The Mitigation Preserve refers to the on-site unimpacted lands that are within SEA 17 and the off-site open space preserve areas.

**TABLE 5.7-11  
IMPACTS TO VEGETATION TYPES**

<b>Vegetation Type</b>	<b>Existing On-Site Areas (acres)</b>	<b>Existing Off-Site Areas<sup>a</sup> (acres)</b>	<b>Total Existing (acres)</b>	<b>Percent Impact of Total (acres)</b>
<b>Scrub and Chaparral Vegetation Types</b>				
Bladderpod Scrub	0.7	-	<b>0.7</b>	<b>0.00%</b>
Bush Lupine Scrub	0.4	-	<b>0.4</b>	<b>0.00%</b>
California Buckwheat Scrub	12.8	-	<b>12.8</b>	<b>0.00%</b>
California Buckwheat Scrub/Yucca Scrub	1.9	-	<b>1.9</b>	<b>0.00%</b>
California Juniper/California Buckwheat Scrub	4.6	-	<b>4.6</b>	<b>0.00%</b>
Chamise/Bigberry Manzanita Chaparral	40.1	-	<b>40.1</b>	<b>0.00%</b>
Coffeeberry Scrub	11.9	-	<b>11.9</b>	<b>0.00%</b>
Goldenbush Scrub	7.7	-	<b>7.7</b>	<b>0.00%</b>
Great Basin Scrubs <sup>a</sup>	360.3	0.2	<b>360.5</b>	<b>76.85%</b>

**TABLE 5.7-11  
IMPACTS TO VEGETATION TYPES**

Vegetation Type	Existing On-Site Areas (acres)	Existing Off-Site Areas <sup>a</sup> (acres)	Total Existing (acres)	Percent Impact of Total (acres)
Rabbitbrush Scrub	222.9	30.5	253.4	30.50%
Wand Buckwheat Scrub	0.6	-	0.6	0.00%
Wright's Buckwheat Scrub*	12.2	-	12.2	0.00%
Yucca Scrub	8.9	-	8.9	52.40%
<i>Group Total</i>	685.1	30.7	715.8	50.2%
<b>Broad Leafed Upland Tree-Dominated Vegetation Type</b>				
Mixed Oak Woodland*	1,370.8	-	1,370.8	0.45%
<i>Group Total</i>	1,370.8	-	1,370.8	0.45%
<b>Riparian and Bottomland Vegetation Types</b>				
Alluvial Scrub*	5.2	0.4	5.6	92.30%
Cottonwood Woodland*	0.1	-	0.1	0.00%
Riparian Herb*	52.7	0.6	53.3	12.56%
Rush Riparian Grassland*	48.1	0.8	48.9	2.88%
Southern Arroyo Willow Riparian <sup>b*</sup>	8.6	-	8.6	14.90%
Southern Cottonwood Willow Woodland <sup>b*</sup>	4.0	-	4.0	0.00%
Southern Willow Scrub*	12.8	0.3	13.1	12.53%
Unvegetated Wash*	25.5	0.2	25.7	9.97%
Valley Oak Riparian Woodland*	12.1	-	12.1	0.00%
Willow Riparian Forest*	15.1	-	15.1	10.88%
Willow Riparian Woodland*	8.0	0.3	8.3	13.16%
<i>Group Total</i>	192.1	2.6	194.7	11.0%
<b>Bog and Marsh Vegetation Types</b>				
Alkali Meadow <sup>b*</sup>	3.7	-	3.7	65.76%
Baltic Rush <sup>b*</sup>	21.5	-	21.5	34.72%
Coastal and Valley Freshwater Marsh <sup>b*</sup>	2.4	0.1	2.5	2.00%
Seeps and Ephemeral Ponds*	8.0	0.0	8.0	10.90%
<i>Group Total</i>	35.6	0.1	35.7	30.11%
<b>Grass- and Herb-Dominated Vegetation Types<sup>c</sup></b>				
Native Perennial Grassland*/California Annual Grassland	9,076.1	81.4	9,161.4	70.03%
<i>Group Total</i>	9,076.1	81.4	9,161.4	70.03%
<b>Mixed Chaparral or Scrub and Grassland Vegetation Types<sup>c</sup></b>				
Bush Lupine Scrub/Native Perennial Grassland*/California Annual Grassland	1.4	-	1.4	0.00%
California Buckwheat Scrub/Native Perennial Grassland*/California Annual Grassland	7.0	-	7.0	0.00%
Goldenbush Scrub/Native Perennial Grassland*/California Annual Grassland	8.3	-	8.3	14.37%

**TABLE 5.7-11  
IMPACTS TO VEGETATION TYPES**

<b>Vegetation Type</b>	<b>Existing On-Site Areas (acres)</b>	<b>Existing Off-Site Areas<sup>a</sup> (acres)</b>	<b>Total Existing (acres)</b>	<b>Percent Impact of Total (acres)</b>
Rabbitbrush Scrub/Native Perennial Grassland*/California Annual Grassland	131.0	41.3	<b>172.3</b>	<b>59.88%</b>
Wand Buckwheat Scrub/Native Perennial Grassland*/California Annual Grassland	5.4	-	<b>5.4</b>	<b>0.00%</b>
Wright's Buckwheat Scrub*/Native Perennial Grassland*/California Annual Grassland	4.3	-	<b>4.3</b>	<b>0.00%</b>
Yucca Scrub/Native Perennial Grassland*/California Annual Grassland	24.3	-	<b>24.3</b>	<b>4.43%</b>
<i>Group Total</i>	<i>181.8</i>	<i>41.3</i>	<b>223.1</b>	<b>47.23%</b>
<b>Other Areas</b>				
Agricultural	602.8	-	<b>602.8</b>	<b>100.00%</b>
Developed	26.4	35.0	<b>61.4</b>	<b>90.19%</b>
Developed/Disturbed	1.7	4.5	<b>6.2</b>	<b>93.98%</b>
Disturbed	141.5	27.5	<b>169.0</b>	<b>76.54%</b>
Disturbed (Landslide)	2.4	-	<b>2.4</b>	<b>0.00%</b>
Not Yet Mapped	3.8	99.0	<b>102.8</b>	<b>96.31%</b>
Open Water/Developed	-	1.5	<b>1.5</b>	<b>100.00%</b>
Ornamental	-	2.0	<b>2.0</b>	<b>100.00%</b>
<i>Group Total</i>	<i>778.5</i>	<i>146.9</i>	<b>925.4</b>	<b>94.49%</b>
<b>GRAND TOTAL</b>	<b>12,320.0</b>	<b>226.8</b>	<b>12,546.8</b>	<b>61.78%</b>
<p><sup>a</sup> Off-site areas include all areas outside the Project impact boundary that would be impacted by Project activities.</p> <p><sup>b</sup> Vegetation type identified by Impact Sciences (2003).</p> <p><sup>c</sup> Wildflower fields are not specifically delineated but are expected to occur scattered throughout the grassland vegetation types.</p> <p>* Special status vegetation type.</p> <p><b>NOTE:</b> A cell with “-” indicates that there is no value, while a cell with “0.0” indicates that there is a value but that it is too small to round up to one-tenth of an acre. Also, due to rounding error (a miscalculation that results from rounding off numbers to a convenient number of decimals), figures may not add exactly to total shown.</p>				

**TABLE 5.7-12  
PRIMARY BIOLOGICAL RESOURCES  
WITHIN THE IMPACT AREAS AND THE ON-SITE AND OFF-SITE PRESERVE SYSTEM**

Biological Resource	Total Impacted Acres (Including Off-Site Impact Areas)	Acres		
		Preserved (Unimpacted/ SEA) On-Site Acres	Preserved Off-Site Acres	Total On-Site and Off-Site Preserved Acres
Grasslands	6,416	1,989	12,386	14,375
Oak woodlands	6	1,292	1,810	3,102
Jurisdictional drainages and riparian habitat	32	159	291	450
Other natural areas	594	421	9,060	9,481
<b>Total</b>	<b>7,048</b>	<b>3,861</b>	<b>23,547</b>	<b>27,408</b>
SEA: Significant Ecological Area				

### ***Native Perennial Grasslands and Wildflower Fields***

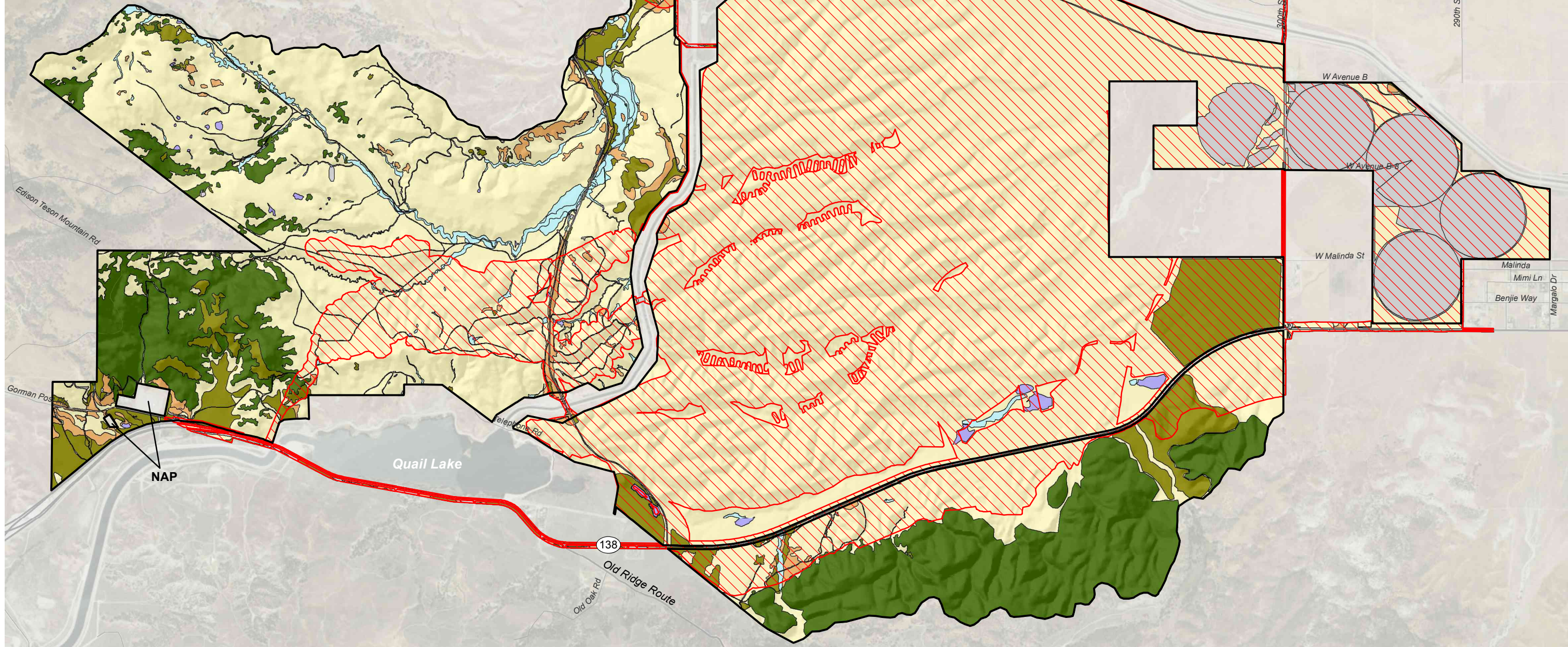
Native perennial grasslands and wildflower fields are considered special status vegetation types (CDFG 2010) and are classified within the grass- and herb-dominated vegetation type group. Project construction would result in the loss of native perennial grasslands and wildflower fields as quantified in Table 5.7-11 (see also Exhibit 5.7-12, Vegetation Type Impacts). Note that the distribution and quantity of wildflower fields is not specifically delineated, although this community occurs in a patchy distribution throughout the grassland vegetation types on the Project site. In a preliminary study of Centennial grasslands, conducted in a high rain fall year (2003), the investigators characterized large areas of the site as an “herbaceous community” based on the wildflower blooms observed (Impact Sciences 2003).

The grass- and herb-dominated vegetation type group includes grassland areas that are considered to be a mix of native perennial grassland and California annual grassland (with associated wildflower fields). Areas of increased native cover tend to include the upper slopes and ridge tops of existing hills and ridges. Most of these grassland areas would be directly impacted by implementation of the Project. Subsequent studies indicate that the grassland includes areas where the percent cover of native grass species increases relative to non-native grasses and other species. The wildflower field component of these areas is also considered a special status vegetation type (CDFG 2010).

Grasslands on the site are dominated by non-native plants including two introduced annual grasses, foxtail chess (*Bromus madritensis*), and cheat grass (*B. tectorum*); and two introduced annual forbs, red-stemmed filaree (*Erodium cicutarium*), and broad leaf filaree (*E. botrys*). Although the percent cover on the site is dominated by these non-native plants, the species richness (number of species per unit area) on the site is overwhelmingly dominated by native species. Approximately 80 percent of the species occurring within the grasslands are native forbs, grasses, and perennials. Native species accounted for



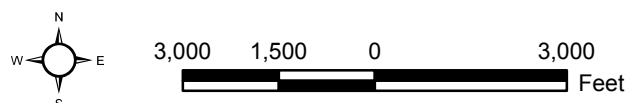
Project Boundary  
 Impact Area  
**Vegetation Types (Grouped)**  
 Native Perennial - California Annual Grassland  
 Mixed Chaparral or Scrub and Native Perennial - California Annual Grassland  
 Scrub and Chaparral  
 Broad Leafed Upland Tree Dominated  
 Riparian and Bottomland Habitat  
 Bog and Marsh  
 Other Areas  
**NAP** Not a Part



**Vegetation Type Impacts**

Centennial Project

Exhibit 5.7-12





approximately eight percent of the total cover with native grasses alone providing approximately five percent cover in the 2006 and 2007 study years.

Native grasslands are believed to have once covered nearly a fifth of the state and have been reduced to approximately 0.1 percent of their former area (Barry 1972). Given its dramatic decline, the native grassland vegetation type is considered special status in California (CDFG 2010). Although no detailed accounts of the composition of California's pre-settlement grasslands exist, Heady (1977) and others believe that before the arrival of the earliest explorers, perennial bunchgrasses formed a rather stable climax community on well-drained upland sites and that a wide array of annual herbaceous plants (or forbs) dominated intermediate and early successional circumstances there and elsewhere. Today, native grasslands survive on shallow soils, in ruderal areas, on serpentine-based and other anomalous soils, and in other situations like those on the Project site.

Although intensive grazing can be associated with loss of native perennial grasses, less intensive grazing may inhibit non-native establishment. Most areas in California that support extensive remnant stands of native grassland plants have been grazed continuously over at least the past century, and evidence indicates that livestock grazing at intermediate stocking levels discourages and slows the invasion of weedy non-native species in these grassland areas. This evidence may explain the persistence of native grasslands on the Project site despite a history of moderate cattle grazing over most of the site. Some studies have indicated that grasslands where cattle grazing has ceased have shown an increase in the percentage of native taxa (Murphy and Ehrlich 1989); however, longer-term assessments are not available. Differences in native grass and forb response from location to location are likely due to environmental factors specific to each site, making direct comparison very difficult.

While native grasslands have declined in California, native grasslands in the Project region may be more prevalent than they are in more developed or disturbed portions of Southern California. Open space is abundant within the remainder of the Tejon Ranch property, in the nearby National Forests, and along the foothills of the Tehachapi Mountains to the northeast of the site. Within the mountainous areas, grasslands are limited to relatively small patches. Recent large-scale studies of the vegetation types in the Mojave Desert region, including the Project site, found over 59,500 acres of grassland, including 22,000 acres of native grasslands. Based on a review of aerial photos, review of California Gap Analysis Project (GAP) regional vegetation maps, and field observation from a distance, the foothills of the Tehachapi Mountains (continuing north and northeast from the site) and the valley floor (continuing east) appear to be predominantly covered by grassland vegetation not unlike the Project site. The surrounding grasslands, including approximately 30,000 acres along the southern Tehachapi slope, have a similar species composition.

Although the abundance of native perennial grasses on the Project site has been reduced over the past century, the persistence of moderate but sustainable levels of these grasses over thousands of contiguous acres is highly impressive when compared to the rest of California. From either a statewide or regional perspective, the quality and extent of native perennial grasslands on the site is excellent. Most of the remaining stands in the Southern California area are generally small (less than 100 acres) and isolated in widely scattered

areas. GAP vegetation maps indicate that grasslands are relatively abundant in the Project region and in the closely associated surrounding regions. As shown in Table 5.7-11, Impacts to Vegetation Types, the Project would impact 6,415 acres of the Native Perennial Grassland/California Annual Grassland vegetation type on site. Due to the loss of approximately 11 percent of the grasslands in general in the Mojave Desert region, the loss of thousands of acres of grassland at least potentially containing a native perennial component (a special status vegetation type) is significant. Loss of wildflower fields, considered to be a subset vegetation type within the grasslands, is similarly considered a significant impact due to their rarity and status as a special status vegetation type (CDFG 2010; Holland 1986). Implementation of MM 7-10 would reduce these impacts to less than significant levels through preservation of 14,375 acres of on-site and off-site grasslands. The proposed preservation reflects greater than a 2:1 ratio of preservation acreage to impact acreage. This ratio has been applied to all impacted grasslands (undifferentiated) although typically is only applied to native grasslands. Due to the intent and objective of preserving a mixed community similar to that which is impacted by the project, areas selected for preservation are similarly mixed. Furthermore, studies indicate a high degree of similarity between impacted grasslands and preserved grasslands assuring a sustained community throughout the region.

The grassland mitigation is based on site-specific characteristics including, for example, the existence of native grasslands in the 27,408-acre on-site (unimpacted/SEA lands) and off-site preserve areas. The availability of native grassland in the vicinity of the Project site is unique and allows for the implementation of the preferred preservation mitigation approach (existing native grasslands to be preserved), which generally results in better quality habitat with higher potential for long-term stability, rather than the implementation of creation mitigation (new native grasslands are created as mitigation), which has a higher degree of uncertainty.

Other factors considered in determining the grassland mitigation ratio include the size, scale, and biological diversity of the contiguous preserve. The preserve is designed to maximize the potential for success by creating a contiguous large open space with minimum potential for edge effects from regional development. This program is described in the Mitigation Measures section below. Specifically, the Project proposes to preserve 14,375 acres of grasslands within the 27,404 -acre on-site (unimpacted/SEA lands) and off-site mitigation preserve, which is part of a larger 240,000-acre conservation area (including dedication and acquisition areas). Regardless of the status of the acquisition areas in the future, the grassland mitigation area will remain contiguous with the larger dedicated open space areas. The contiguity of the preserve with the larger Tejon Ranch open space dedication areas ensures that the preserved grasslands are not “islands” surrounded by development but rather part of a larger, contiguous natural landscape that will be preserved in perpetuity.

### ***Other Special Status Vegetation Types***

In addition to grasslands and wildflower fields, several special status vegetation types on the Project site would be directly impacted by Project implementation, as quantified in Table 5.7-11 and detailed below (see Exhibit 5.7-12, Vegetation Type Impacts). Due to the status of these special status vegetation types as high priority and the additional protection

of oak woodlands afforded by the *California Public Resources Code* and County ordinance, the loss resulting from Project implementation is considered significant. Implementation of MM 7-11 would reduce these impacts to less than significant levels. This measure outlines a plan to preserve, enhance, and restore these community types within the mitigation preserve on and off the site (when it is not feasible on site). The details included in this plan are described in depth in the “Mitigation Measures” section below.

#### Broad Leafed Upland Tree-Dominated Vegetation Types

Within the broad leafed upland tree-dominated vegetation type group, Project implementation would create impacts to mixed oak woodland, a special status vegetation type. All oak woodlands found on the site are subject to Senate Bill (SB) 1334 (*California Public Resources Code* [PRC] Section 21083.4), which “provides funding for the conservation and protection of California’s oak woodlands”. This bill mandates that oak woodlands be regulated by mitigation measures that are defined in the bill itself. Additionally, the loss of individual oak trees would be subject to the CLAOTO, as further described below under Threshold 7-5, and therefore would require an Oak Tree Permit with associated conditions before the Project can be implemented.

#### Riparian and Bottomland Vegetation Types

Within the riparian and bottomland vegetation type group, impacts would occur to the following special status vegetation types with Project implementation: alluvial scrub, riparian herb, rush riparian grassland, southern arroyo willow riparian, southern willow scrub, unvegetated wash, willow riparian forest, and willow riparian woodland. Project impacts, such as reduced access to the unnamed drainage that runs north of SR-138, will also reduce foraging habitat available to common or non-special status species such as the mountain lion and black bear.

#### Bog and Marsh Vegetation Types

Within the bog and marsh vegetation type group, alkali meadow, Baltic rush, Coastal and valley freshwater marsh, and seeps and ephemeral ponds are all special status vegetation types and would be impacted by Project implementation.

#### Grass- and Herb-Dominated Vegetation Types

Within the grass- and herb-dominated vegetation types group, the native perennial grassland/California Annual Grassland vegetation type would be impacted by Project implementation.

#### Mixed Chaparral or Scrub and Grassland Vegetation Types

Within the mixed chaparral or scrub and grassland vegetation type group, special status vegetation types would be impacted by Project implementation. These include goldenbush scrub/native perennial grassland/California annual grassland; rabbitbrush scrub/native perennial grassland/California annual grassland; bush lupine scrub/native perennial grassland/ California annual grassland, California buckwheat scrub/native perennial grassland/ California annual grassland, wand buckwheat scrub/native perennial grassland/

California annual grassland, and Wright’s buckwheat scrub/native perennial grassland/  
California annual grassland and yucca scrub/native perennial grassland/California annual  
grassland.

**Impact Summary:** Impacts to all special status vegetation types, including native  
perennial grasslands and wildflower fields, would be reduced to less  
than significant levels with implementation of MM 7-10 and 7-11.

**Threshold 7-3:** **Would the project have a substantial adverse effect on federally or  
state protected wetlands (including, but not limited to, marshes,  
vernal pools, coastal wetlands, and drainages) or water of the  
United States, as defined by Section 404 of the Clean Water Act or  
California Fish & Game Code Section 1600 et. seq. through direct  
removal, filling, hydrological interruption, or other means?**

**On-Site Impacts**

A determination of direct impacts resulting from Project implementation to USACE, CDFW,  
and RWQCB jurisdictional drainage features was conducted by overlaying development and  
grading plans on the jurisdictional delineation map (Impact Sciences 2002b, 2003; GLA  
2009b; BonTerra Psomas 2015a). Table 5.7-13, Impacts to Jurisdictional Wetlands and  
Waters, below provides a summary of these direct impacts.

**TABLE 5.7-13  
IMPACTS TO JURISDICTIONAL WETLANDS AND WATERS**

Agency with Jurisdiction		On Site (acres)		Off Site (acres)	No Impacts (acres)	Total Project (acres)
		Permanent Impacts	Temporary Impacts	Permanent Impacts		
USACE <sup>a</sup>	Acres	0.04	0.0	0.01	1.7	1.8
	Linear feet	340	0	23	21,556	21,919
CDFW	Acres	48.7	8.0	0.3	108.6	165.6
	Linear feet	201,738	23,538	2,273	325,785	553,334
RWQCB <sup>b</sup>	Acres	47.6	7.9	0.3	93.4	149.1
	Linear feet	201,738	23,538	2,273	325,785	553,334

USACE: U.S. Army Corps of Engineers; CDFW: California Department of Fish and Wildlife; RWQCB: Regional Water Quality Control Board

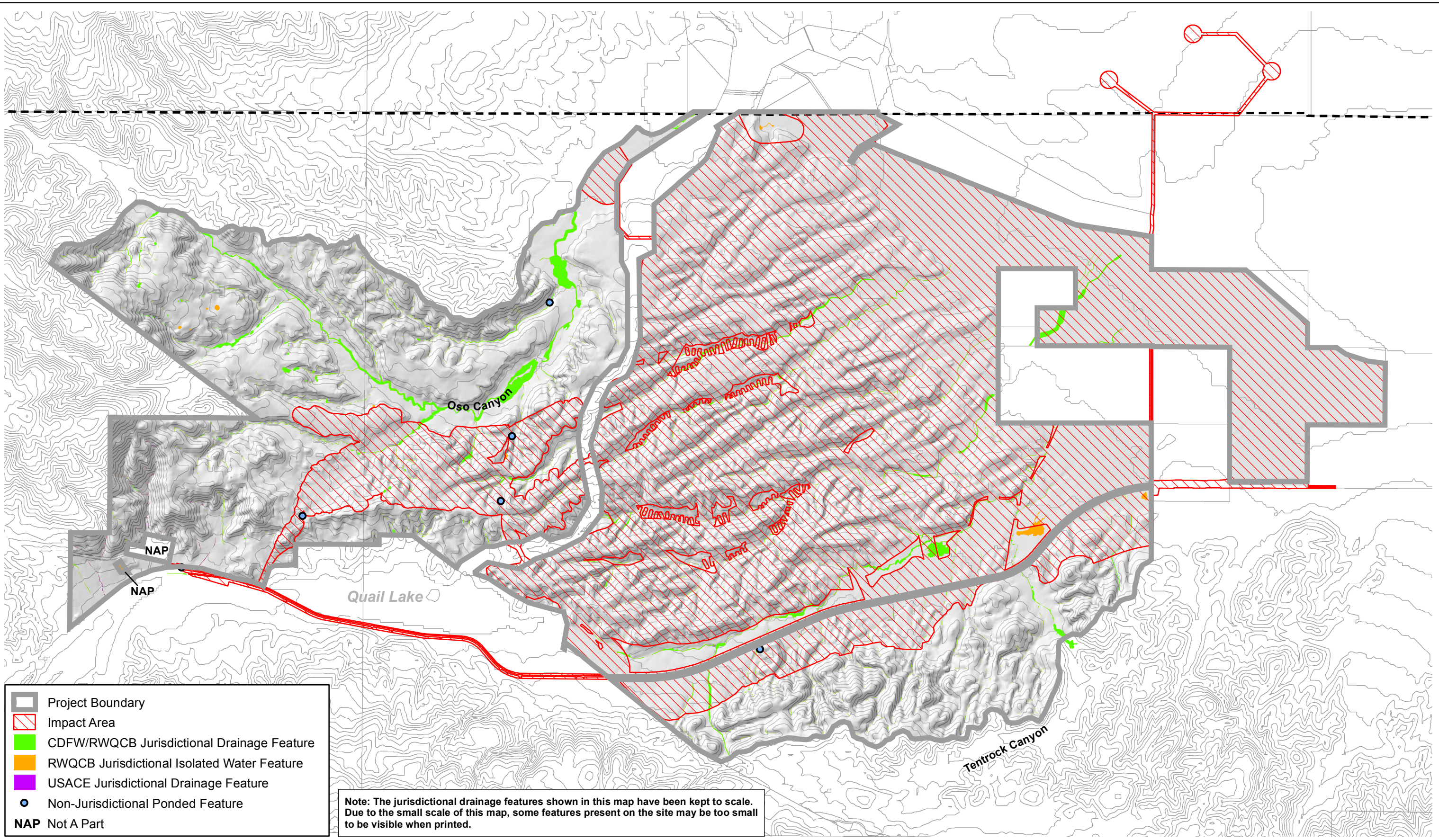
<sup>a</sup> All of the USACE acreage consists of non-wetland waters.

Source: BonTerra Psomas 2015a.

As shown in the table above and illustrated on Exhibit 5.7-13, Jurisdictional Drainage Feature  
Impacts, impacts to USACE-regulated “waters of the U.S.” total 0.04 acre. The vast majority  
of streambed features on the Project site drain toward the Mojave Desert and are not “waters



D:\Projects\3C\EN\Centennial\MXD\EIR\Ex\_JD\_Impacts\_20151119.mxd

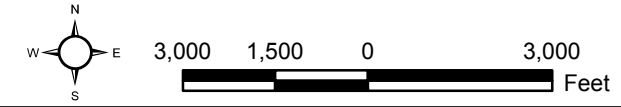


	Project Boundary
	Impact Area
	CDFW/RWQCB Jurisdictional Drainage Feature
	RWQCB Jurisdictional Isolated Water Feature
	USACE Jurisdictional Drainage Feature
	Non-Jurisdictional Ponded Feature
<b>NAP</b>	Not A Part

**Note:** The jurisdictional drainage features shown in this map have been kept to scale. Due to the small scale of this map, some features present on the site may be too small to be visible when printed.

### Jurisdictional Drainage Feature Impacts

Centennial Project





of the U.S.” because there is no significant nexus to a Traditional Navigable Water. The USACE issued an Approved Jurisdictional Determination (AJD) on December 1, 2009, confirming that 1.745 acres of “waters of the U.S.” occur on the Project site and another 0.009 acre occurs off site along the southern edge of Quail Lake. As described in the AJD, impacts to “waters of the U.S.” are as follows:

- **On-Site Permanent Impacts:** 0.04 acre (all non-wetland waters)
- **Off-Site Permanent Impacts:** 0.01 acre (all non-wetland waters)

Impacts to CDFW-regulated streambeds and riparian areas total 57.0 acres (48.7 acres of on-site permanent impacts; 8.0 acres of on-site temporary impacts; and 0.3 acre of off-site permanent impacts) (BonTerra Psomas 2015a). These impacts are further broken down as follows:

- **On-Site Permanent Impacts:** 48.7 acres (13.1 acres of riparian habitat and 35.6 acres of unvegetated streambeds)
- **On-Site Temporary Impacts:** 8.0 acres (3.7 acres of riparian habitat and 4.3 acres of unvegetated streambeds)
- **Off-Site Permanent Impacts:** 0.3 acre (0.03 acre of riparian habitat and 0.3 acre of unvegetated streambeds)

Impacts to RWQCB-regulated waters total 55.8 acres (47.6 acres of on-site permanent impacts; 7.9 acres of on-site temporary impacts; and 0.3 acre of off-site permanent impacts) (BonTerra Psomas 2015a). These impacts are further broken down as follows:

- **On-Site Permanent Impacts:** 47.6 acres (36.6 acres of non-wetland waters and 11.0 acres of wetlands)
- **On-Site Temporary Impacts:** 7.9 acres (4.2 acres of non-wetland waters and 3.7 acres of wetlands)
- **Off-Site Permanent Impacts:** 0.3 acre (all non-wetland waters)

Additionally, the following vegetation types are associated with the drainages on the site and fall under the jurisdiction of the CDFW: riparian herb; rush riparian grassland; southern arroyo willow riparian; southern cottonwood willow woodland; southern willow scrub; unvegetated wash; valley oak riparian woodland; willow riparian forest; willow riparian woodland; alkali meadow; Baltic rush; and coastal and valley freshwater marsh.

Impacts to the drainages, wetlands, and riparian vegetation on the Project site are considered significant due to their protected status. A less than significant impact would be achieved through implementation of MM 7-12, which includes preservation, enhancement, and creation of jurisdictional wetland and water features to maintain the overall pre-Project functional values in the Mitigation Preserve. This MM would result in a “no net loss” of functional values of jurisdictional resources, as determined by a functional assessment of existing and proposed restoration activities. Additionally, in accordance with PDF 7-6, if a

golf course is developed in an area with jurisdictional features on the site, it would be built in accordance with the Audubon Cooperative Sanctuary Program for Golf Courses, a cooperative effort between the United States Golf Association and Audubon International designed to promote ecologically sound land management and conservation of natural resources.

***Impact Summary:*** Project implementation will result in impacts to the jurisdictional drainages, wetlands, and riparian vegetation in the Project site. Implementation of PDF 7-6, and MM 7-12 would reduce these impacts to less than significant levels by managing biological resources in any golf courses; by replacing all lost functional values; by obtaining appropriate regulatory agency permits and/or agreements; and by complying with the mitigation measures stipulated in those permits/agreements.

**Threshold 7-4:** **Would the project interfere substantially with the movement of any native or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?**

## **On-Site Impacts**

### ***Direct Impacts***

Wildlife movement corridors are identified at two spatial scales: regional and local (or home range level). At the regional level, landscape linkages, typically kilometers or more in breadth, connect large, otherwise disjunct open space areas (such as parklands, forests, preserves, and wilderness). At the local or home range level, movement corridors of substantially lesser breadth typically occur as linear habitat features (e.g., drainages and ridgetops) facilitating movement of individual animals across their home ranges or territories. For short-ranging species (e.g., insects, rodents, and reptiles), these corridors may connect subpopulations and promote some genetic diversity. The impact of Project implementation at each of these scales is addressed below.

### **Regional Movement**

From an impact assessment perspective, the statement “interfere substantially with the movement of any native resident or migratory fish or wildlife species”, from the Significance Threshold, refers to blockages, barriers, or other substantial impediments to animal dispersal between large, regional open space areas. Subsequent barriers have consequences to wildlife persistence where they reduce genetic diversity, limit range extensions, inhibit colonization of new areas, and interfere with maintenance of ecological processes and functions. As stated in the wildlife movement discussion, camera and tracking studies to show regional wildlife linkages were conducted off site (with the nearest location approximately one mile to the west of the Project site). Such studies were not warranted and not conducted on the Project site because they would not have contributed to the regional wildlife linkage analysis. The area of the site that provides the greatest cover and is nearest to the regional wildlife corridor, located on the western edge of the Project site, is largely



included in permanent open space and is not grassland. However, linkages still remain important among populations for maintaining genetic diversity that promotes long-term species viability, even for those species that have individuals spending their lives in a restricted amount of habitat.

Although large areas of open space occur in and adjacent to the vicinity of the Project site, the California Aqueduct and I-5 substantially limit the site's ability to contribute to regional wildlife movement. In particular, as shown in Exhibit 5.7-6, Regional Wildlife Movement, the Aqueduct presents a barrier to the regional movement of wildlife to and from the site in the east-west and north-south directions. The Aqueduct's West Branch extends north to south through the center of the Project site to Quail Lake and is a barrier to east-west movement across the site. The East Branch runs close to the northern boundary of the site and is a barrier to north-south movement in that area. Underpasses and culverts located on I-5, north of its intersection with SR-138, do facilitate east-west movement of some species across this freeway (Pioneer Environmental Services 2004). Wildlife access to these would not be hindered by the Project.

As previously stated, possible impacts on wildlife corridors from development must be evaluated with respect to blockages or barriers to movement in a regional context (i.e., the animal's ability to move between existing large, regional open space areas) (Beier 2003). Project development is not expected to interfere with a majority of regional wildlife movement (1) based on the findings of independent studies that the Project site is largely outside the regional wildlife movement corridor; (2) since the site's feasibility to be utilized as part of a regional wildlife corridor between the Tehachapi Mountains (to the north) and the Angeles National Forest (to the south and west) is limited by the Aqueduct and I-5; and (3) because the majority of the site is open grassland and does not support the forest and shrub cover that many larger, wide-ranging species tend to use during movement episodes. The most likely north-south passage across or in the vicinity of the Project site (on the western edge of the site and adjacent areas) would be retained as open space.

Although the Project includes a new road along its western edge (Cement Plant Road), the road's use would be limited to infrequent daytime truck traffic to and from the Cement Plant, functioning the same as the existing Cement Plant Road to the east. Nighttime use will be prohibited except for emergency. This new Cement Plant Road would connect to SR-138 via a Gorman Post Road extension, and a new intersection in this area will be avoided.

Similar findings resulted from a review of representative species likely to occur on site and within similar vegetation and terrain conditions around the Antelope Valley (i.e. foothill grass/scrublands). While these conditions are expansive on the southern slopes of the Tehachapi Mountains, they are comparatively much more limited on the north side of the Liebre Mountains on the south side of the western Antelope Valley. Although the south side of the western Antelope Valley has incurred more human disturbance than the north side, the limited of foothill grass/scrubland is more of a result of topography. The north side of the Liebre Mountains drop in elevation quickly and die into the valley floor creating minimal low elevation foothills. Analysis of species preferred habitats and known current distribution in the Project region indicate that most are expected to utilize a variety of grass and scrub vegetation types which occur scattered throughout the region. As a result, there is no

indication that development of the site would restrict genetic exchange of species occurring in foothills on the north and south sides of the Antelope Valley.

Development of the Project site will result in some losses of areas that may be used for foraging and/or breeding for these species. Pathways to or from foraging or breeding grounds on the Project site, such as along ridge-lines or canyon bottoms, may become “dead ends” to through dispersal. However, these sorts of impacts are not expected to destabilize the regional population dynamics of these species, especially given the substantial amount of similar terrain in the northwestern Antelope Valley area. Multi-generational gene flow among wildlife populations in the region is expected to be sustained in the open spaces on and off the site that will remain following Project implementation. The direct impacts of Project development, therefore, are considered less than significant.

### Local Movement

The open space areas proposed for development on the Project site provide breeding and foraging habitat for a variety of invertebrates, amphibians, reptiles, birds (including raptors and passerines), mammals, and connective breeding areas for plants. Accordingly, open spaces on the Project site also facilitate the local movement of wildlife and dispersal and gene flow between populations of small organisms (particularly insects, amphibians, reptiles, small mammals). Following Project implementation, select local populations of certain wildlife species could become isolated from one another (such as those in the internal open space patches east of the Aqueduct and in the southwestern portion of the site) and genetic exchange between local populations might be reduced. In addition, although the four identified potential wildlife crossings of the West Branch would remain intact, the feasibility of their use as such would become further reduced with Project buildout. This reduction would result from increased barriers to access as well substantial increases in truck traffic at the SR-138 crossing due to the realignment of Cement Plant Road to intersect with SR-138 immediately adjacent to the potential local wildlife crossing point at the SR-138 (Location 4 on Exhibit 5.7-6). However, new dispersal impediments would only affect portions of populations of small organisms that are not considered to be of conservation concern, and these impediments are not expected to substantially affect the likelihood of the regional population persistence of those species. Impacts on local wildlife dispersal are considered to be less than significant. Although impacts on local wildlife movement are considered less than significant and no mitigation is required, MM 7-14 is proposed to reduce impacts on local wildlife movement and to provide for habitat connectivity in the Quail Lake area.

### ***Indirect Impacts***

Dispersal events by some species, such as mountain lion, may be rare, but are nonetheless important in facilitating ecological interactions and for retaining genetic diversity among regional populations. The Project’s indirect impacts may accumulate in the long term and may affect dispersal events by individuals of some species, resulting in reduced genetic diversity. Genetic diversity is important to organisms by allowing for greater potential to adapt to changing environmental conditions. Indirect impacts include, but are not limited to nighttime light and glare, non-native plant species, exotic and pest wildlife, pathogens and pests associated with landscaping, increased human presence, and noise, as described below.

### Nighttime Light and Glare

Development of the Project would substantially increase the number of nighttime light and glare sources on the site. Currently, these levels are low to non-existent; however, open spaces at higher elevations near the Project site's southern boundaries serve as a natural barrier to effects from increased lighting in landscaped areas south of the Project boundaries by reducing the amount of light that reaches open space areas. Impacts could result from light entering other open space portions of the Project site or adjacent open space off the site. Nighttime illumination is known to impact many species of animals in natural areas by disturbing movement, resting, and foraging behavior. It can potentially alter breeding cycles and nesting behavior; hence, where such light is near remaining open space areas, it could adversely impact the behavior of wildlife species that occur in these areas by disrupting wildlife movement or breeding and foraging on the Project site and adjacent open space areas.

Implementation of MM 13-2 and 13-6 from Section 5.13, Visual Resources, which requires the Project Applicant to develop a Lighting Plan to reduce potential impacts to biological resources caused by light and glare, would reduce the level of the impact. The Lighting Plan, also referred to as the Dark Sky Plan, shall be consistent with County lighting standards and shall provide guidelines for outdoor lighting that will be used throughout the Project site. Final lighting orientation and design shall be approved by the County of Los Angeles Department of Building and Safety. This measure will reduce the impact of light and glare to a level considered less than significant.

### Non-Native Plant Species

After Project completion, certain non-native plant species that are more adapted to urban environments are likely to increase in population and may locally displace native species because of their ability to more effectively compete for resources. Certain non-native plant species are adapted to a wide variety of growing conditions and may out-compete native plant populations for available nutrients, prime growing locations, and other resources. Because some non-native plants reproduce so quickly, they can replace many native plant populations. This eventually results in lower species diversity; loss of areas suitable for breeding and/or nesting by common and special status wildlife species; changes to the riparian ecosystem; and overall reductions in habitat values. Such impacts may result in reduced viability of wildlife movement corridors in adjacent open space areas. In order to reduce these impacts, PDF 7-8 and MM 7-15 shall be implemented. These measures include the development of a Landscaping Plan (subject to County review) and will identify both a plant palette composed of non-invasive species and a list of invasive plant species prohibited from being planted on the Project site. In addition, the measures require pressurized rinsing of vehicles entering open space preservation areas. These efforts are expected to minimize invasive species impacts of the Project and reduce the level of the impact to less than significant.

### Exotic and Pest Wildlife

Urban development also tends to attract wildlife species that are better adapted to urban settings; these include house sparrows (*Passer domesticus*), European starlings (*Sturnus vulgaris*), rock pigeons (*Columba livia*), brown-headed cowbirds, American crows (*Corvus brachyrhynchos*), ravens (*Corvus corax*), striped skunks, Virginia opossum (*Didelphis virginiana*), red foxes (*Vulpes vulpes*), raccoons, and Norway rats (*Rattus norvegicus*). Most native species are less adapted to urban development; their populations tend to decrease or be eliminated entirely in the vicinity of residential or recreational developments. In addition, local increases in meso-predators (e.g., skunk, opossum, fox) can adversely impact native rodent and bird populations. Developed areas also attract non-native Argentine ants, which respond to high soil moisture in horticultural circumstances. These ants have the potential to impact native ant populations, which serve as pollinators and seed dispersers for many native plant species. Additionally, the reduction of native ant populations due to the introduction of Argentine ants could adversely affect various wildlife species such as the coast horned lizard (a species of special concern), which depends on native ants as a food source and which does not eat the exotic Argentine ants. Such impacts may result in reduced viability of wildlife movement corridors in adjacent open space areas. Implementation of MM 7-16 through MM 7-18 would reduce these impacts. These measures require installation of waste and recycling receptacles that discourage foraging by wildlife species; inspection of all landscaping materials to ensure that they are free of Argentine ants prior to planting; and distribution of educational pamphlets to future Project residents regarding the importance of not feeding wildlife. Additionally, in order to mitigate for potential oak (*Quercus* spp.) pests being brought in on firewood, the Homeowners Association rules shall ban the use of wood burning devices. No wood burning fireplaces or stoves shall be installed, and wood burning is banned from outdoor fire pits and outdoor freestanding fireplaces (see MM 11-3 from Section 5.11, Air Quality). Implementation of these measures and Homeowners Association rules would reduce the impact to a level considered less than significant.

### Pathogens and Pests Associated with Landscaping

Landscaping and restoration efforts can introduce pathogens and pests into an ecosystem. Common pathogens that cause plant diseases (e.g., root and crown diseases) include microorganisms such as bacteria, fungi, and viruses. Pathogens are spread in numerous ways, such as splashing water, wind, insects, irrigation runoff, contaminated seeds, infected transplanted material, infected soil and debris on boots and shoes, and contaminated tools and equipment. Additionally, invertebrate pests such as non-native ants (as discussed above), nematodes, scales, aphids, whiteflies, and mites can be introduced on the foliage of plant material, or in infested soil. Pathogens and pests can spread into, and cause die-off, of ornamental areas, native habitat, and restored areas if conditions favorable to the pathogen or pest persist, and to a greater degree if host plants are stressed or damaged. Pathogens and pest infestations could potentially impact native habitat and/or restored habitat, and native and/or restored special status plant species on or adjacent to the Project site. Such impacts could potentially lead to habitat degradation or reduced numbers of special status plant species. These impacts would be considered potentially significant. Implementation of MM 7-17 requiring inspections of all landscaping material for Argentine ant infestations and MM 7-19 requiring various nursery and field protocols to reduce the potential for the

introduction of pathogens and pests into the Project site and for spreading outside the Project site would reduce these impacts to less than significant.

#### Increased Human Presence

To date, human activities have been largely limited on the Project site. An added resident human population would likely cause increased disturbances and degradation of conserved areas within and adjacent to developed areas. Additionally, there would be increased use of Quail Lake. Increased recreational and other human activities along proposed trails and in open space areas would likely result in increased noise disturbances to wildlife (especially within the breeding season of birds) which can, in turn, result in nest abandonment and cessation of local breeding activity. In addition, human habitation increases the harassment and/or capture of slower moving species, such as some reptiles and amphibians; increases the displacement of wildlife species; increases amounts of refuse and pollutants in the area; and causes soil compaction and trampling of ground-dwelling plants and wildlife.

Increased use of open space and natural areas by Centennial residents would also result in a corresponding increase in domestic animals. Dogs can disturb nesting or roosting sites and disrupt the normal foraging activities of wildlife in adjacent habitat areas. Such activity over a long time period results in long-term effects on the behavior of both common and special status wildlife and would likely result in their extirpation from the area. Feral cats and house cats cause substantial damage to the species composition of natural areas, including populations of special status species, through predation. Over time, the effects of these indirect impacts would reach further into open space, reducing habitat quality, and may result in reduced wildlife movement through the area.

Implementation of MM 7-18 is expected to reduce these impacts. This mitigation measure involves implementation (by the Project Applicant) of a public awareness program (prior to the first occupancy permit and ongoing throughout development) in an effort to restrict public access to the riparian and open space areas to designated trails and to prevent unleashed domestic animals from entering these areas. This program will also include signs that identify the boundaries of ecologically sensitive areas; the use of temporary fencing around sensitive areas; and the promotion of public education and awareness of such areas. In addition, only passive recreational activities shall be permitted in designated natural open space areas. All dogs shall be required to be leashed while in the designated natural open space areas. As required by the Los Angeles County Code (Section 10.20.350), all residents of unincorporated areas in Los Angeles County must have their dogs and cats neutered or spayed; dogs must have an identification microchip implanted; and evidence of this shall be shown to Management prior to entry into the Project. Implementation of these measures would reduce the impact to a level considered less than significant.

#### Noise

Noise levels on the Project site will increase substantially above present levels during Project construction. During construction, temporary noise impacts could disrupt the foraging, nesting, roosting, and denning activities for a variety of wildlife species such as birds and medium to large mammals. These impacts are considered adverse and significant because the Project will impact a large landscape area. Nesting raptors will potentially incur

temporary impacts from construction noise if present in the Project vicinity and could be temporarily displaced. The effects of increased noise levels have been well documented for many types of animals and can be responsible for reduced bird nesting success. Although no specific noise thresholds have been established for wildlife on the Project site, substantial noise-level increases can be expected relative to the amount of construction.

Noise will likely also increase after construction; therefore, open spaces and wildlife remaining within and immediately surrounding the Project site would likely be subject to increased disturbance. Wildlife stressed by noise may be displaced and may alter wildlife movement patterns. In an effort to minimize operational noise impacts, the Conceptual Land Use Plan (see Exhibit 4-1) has been designed to maximize the distance between areas of high noise and preserved open space. Higher density housing and higher volume traffic roadways are near the center of developed areas, while the lower density housing and lower traffic roadways occur at the edge of the Project near open space areas. In addition, industrial and business park land uses are located adjacent to the roadway with the highest noise level (SR-138). As a result, potential wildlife impacts due to potential Project related noise are reduced to a level considered less than significant.

#### Indirect Impacts Conclusion

Project implementation may have substantial indirect impacts on wildlife movement adjacent to the site. Although some wildlife movement in adjacent areas may be disrupted, areas further north and northwest in the Tehachapi Mountains would not likely be impacted. Information presented in the Wildlife Movement discussion clearly identifies the foothills and highlands of the Tehachapi Mountains as the regional linkage zone, and the core area of this linkage zone is several miles to the northwest of the Project site. As a result, the Project's indirect impacts are not expected to reach the primary regional linkage area, and regional connectivity is expected to be minimally impacted. The Project would not cause any regional populations of plants or animals in adjacent regions to become isolated. The Project's indirect impacts on wildlife movement are therefore considered to be less than significant. Please note that the evaluation of cumulative impacts on wildlife movement is provided in Section 7.0, Cumulative Impacts, of this document and results in a separate conclusion.

### **Off-Site Impacts**

Development of off-site Project features is expected to result in isolated and mostly temporary impacts with very few permanent impacts. Due to the small scale of those features with aboveground components (e.g., wells, bridges, and utility lines), both individually and collectively, and the widely spaced geographic distribution of these features, impacts on wildlife movement due to the presence of these features, alone, are expected to be temporary and minor. Impacts of off-site Project features are not expected to affect movement of regional or local populations and are not expected to be substantially adverse.

***Impact Summary:*** Project implementation would result in potentially significant impacts on wildlife movement. These impacts are addressed in PDF 7-7 and PDF 7-8, and are further minimized with implementation of MMs 7-13 through 7-19, which incorporate planning and construction methods to

reduce potential indirect impacts such as developing a Lighting Plan and Landscaping Plan and to create public awareness concerning multiple urban interface issues. With implementation of the identified SCs and MMs, impacts to wildlife movement would be less than significant.

**Threshold 7-5** **Would the project convert oak woodlands (as defined by the state, oak woodlands are oak stands with greater than 10% canopy cover with oaks at least 5 inch in diameter measured at 4.5 feet above mean natural grade) or otherwise contain oak or other unique native trees (junipers, Joshuas, southern California black walnut, etc.)?**

**Threshold 7-6** **Would the project conflict with any local policies or ordinances protecting biological resources, including Wildflower Reserve Areas (L.A. County Code, Title 12, Ch. 12.36), the Los Angeles County Oak Tree Ordinance (L.A. County Code, Title 22, Ch. 22.56, Part 16), the Significant Ecological Areas (SEAs) (L.A. County Code, Title 22, Section 22.56.215), and Sensitive Environmental Resource Areas (SERAs) (L.A. County Code, Title 22, Ch. 22.44, Part 6)?**

The analysis of oak tree impacts, as well as related mitigation measures and PDFs, are generally consistent with the OWCMP, because they consider the ecological function of the woodland habitat and examine functions at several spatial levels.

## On-Site Impacts

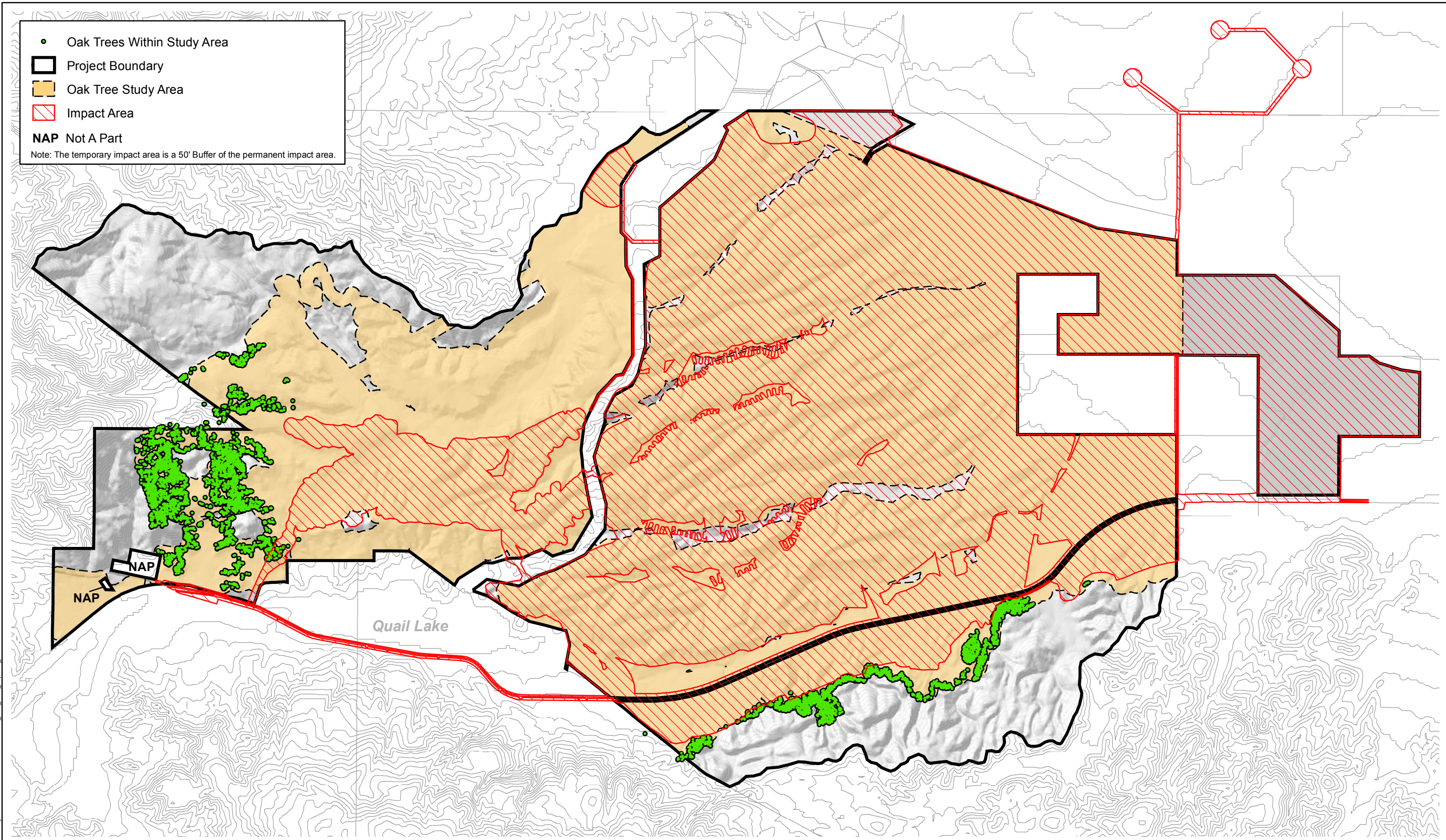
### *Oak Trees*

The County of Los Angeles Oak Tree Ordinance (CLAOTO) protects oak trees in unincorporated areas of Los Angeles County that are 25 inches or more in circumference (8 inches in diameter) as measured 4.5 feet above mean natural grade; in the case of oaks with more than 1 trunk, the ordinance protects those trees with a combined circumference of any 2 trunks of at least 38 inches (12 inches in diameter), as measured 4.5 feet above mean natural grade (LACDRP 1988). A "Heritage Oak", as defined by CLAOTO, is any oak tree that: (1) measures 36 inches or more in diameter, as measured 4.5 feet above the natural grade or (2) any oak less than 36 inches in diameter having a significant historical or cultural importance to the community. CLAOTO requires that all potential impacts to oak trees be preceded by an application to the County that includes a detailed Oak Tree Report, and that requires mitigation for impacts to oak trees (which may include the replacement of oak trees at a ratio of at least two to one [2:1]; this ratio may be greater if required as a condition in the County-issued Oak Tree Permit) (LACDRP 1988).

The Project site contains an estimated 181,070 oak trees of all sizes; of these, an estimated 33,861 oaks under the jurisdiction of CLAOTO are present on the site; an estimated 91 regulated oaks would be directly impacted by the Project (see Exhibit 5.7-14, Oak Tree Impacts) (Tree Life Concern 2008, 2003; BonTerra Consulting 2009a). Of the oaks to be

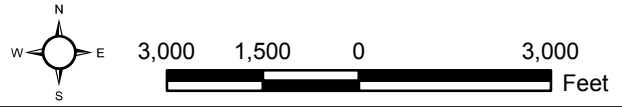


- Oak Trees Within Study Area
  - ▭ Project Boundary
  - Oak Tree Study Area
  - ▨ Impact Area
  - NAP** Not A Part
- Note: The temporary impact area is a 50' Buffer of the permanent impact area.



**Oak Tree Impacts**

Centennial Project



D:\Projects\3C\EN\Centennial\MXD\EIR\Ex\_Oak\_Tree\_Impacts\_20150915.mxd



impacted, 7 qualify as “heritage” oaks. As shown in Exhibit 5.7-14, oak impacts are generally limited to two areas. The first area is located north of SR-138, directly west of Quail Lake, and occurs in Mixed Oak Woodland. The second area occurs south of the SR-138 and in the western portion of the Project site, also in Mixed Oak Woodland. As listed in Table 5.7-6 of the Special Status Biological Resources Section, areas north and south of the SR-138 have different oak tree densities with areas north of SR-138 being less dense than areas south of SR-138. Species impacted north of the SR-138 include blue and valley oaks and in the south blue oak and hybrid oaks. Any oak tree removals would be subject to a mitigation plan, which would be reviewed subject to County approval. These oak tree impacts are considered significant; therefore, implementation of PDF 7-4, 7-5, and MM 7-11, MM 7-20, and MM 7-21 are recommended in order to reduce adverse impacts to a less than significant level by reducing impacts and by creating, enhancing, and/or restoring oak habitats. For potential restoration areas refer to Exhibit 5.7-16, Oak Tree/Oak Woodland Restoration/Creation Areas, presented in MM 7-11 further below.

### ***Significant Ecological Areas***<sup>6</sup>

The San Andreas Significant Ecological Area (No. 17) incorporates two former SEAs in the Project region; those resources, which were previously within SEAs 58 and 59 continue as designated resources within SEA 17. The SEA would remain intact, and the Project would not result in any fragmentation of this area (see Exhibit 5.7-15, Significant Ecological Areas). Approximately 3,865 acres of on-site lands are located within the boundaries of SEA 17 and would be preserved as potential on-site mitigation lands. As such, MM 7-22 is included to ensure that fuel modification zones are contained within the current Project impact boundary and would not intrude into the adjacent SEA 17.

## **Off-Site Impacts**

### ***Oak Trees***

No oak trees would be impacted as a result of development of the off-site Project features; therefore no additional oak tree impacts are expected to occur.

### ***Significant Ecological Areas***

None of the proposed off-site Project features, including intersections with SR-138, utility connections, water wells, or the California Aqueduct crossings, would impact the designated SEA boundaries; therefore no SEA impacts would occur.

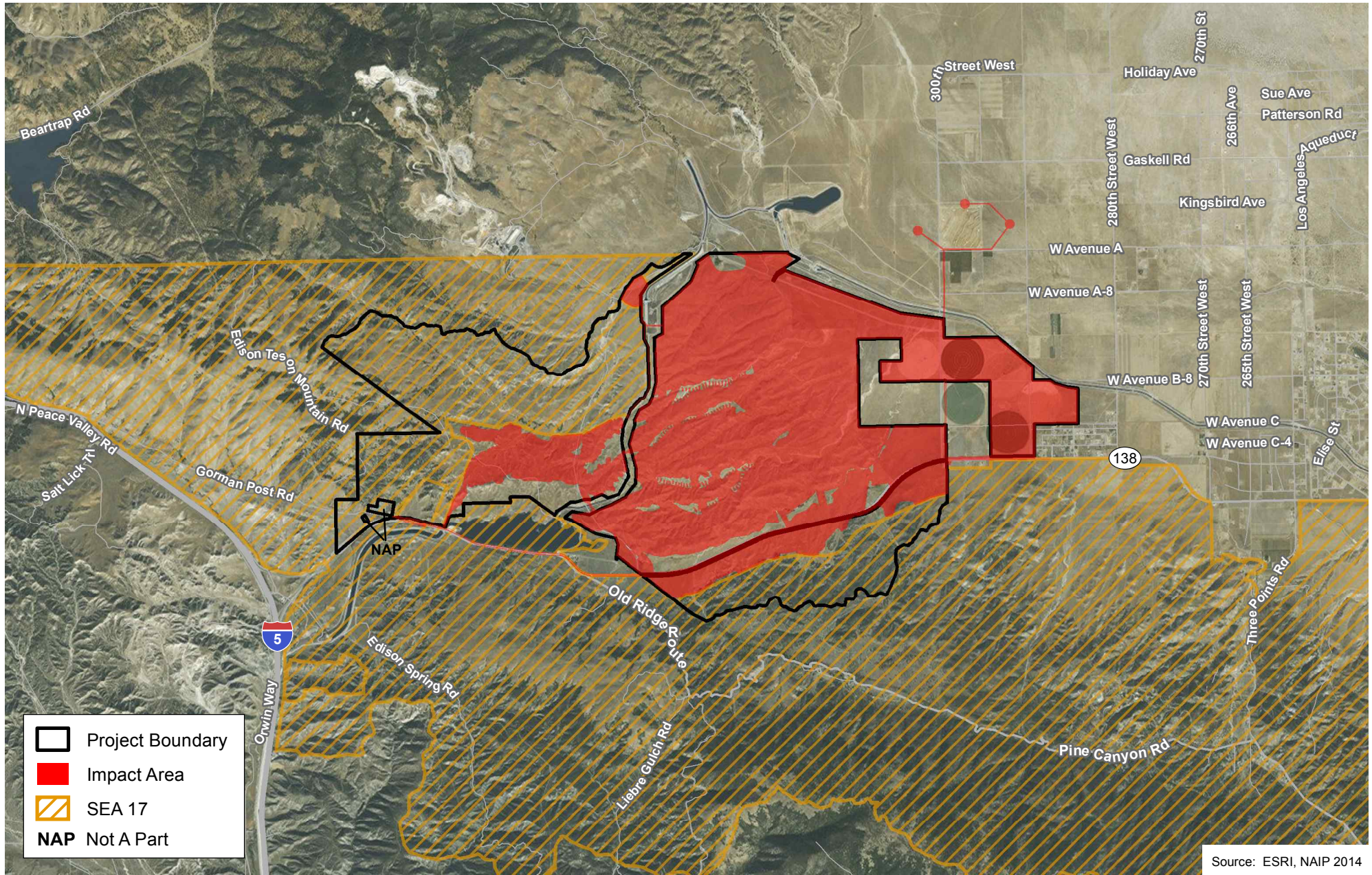
***Impact Summary:*** Impacts on oak tree resources as a result of Project implementation are considered significant. Implementation of PDF 7-5, 7-5, MM 7-11, MM 7-20, and MM 7-21 would reduce adverse impacts to oak trees to a less than significant level by performing additional oak surveys and by creating, enhancing, and/or restoring oak habitats.




---

<sup>6</sup> There is a proposed change to the SEA boundaries within the Draft Los Angeles General Plan Update, which is discussed in Section 5.8.2, Land Use, Entitlements, and Planning; Relevant Plans and Policies, and Regulations.



D:\Projects\32CEN\Centennial\MXD\EIR\Ex\_SEA\_20160418.mxd



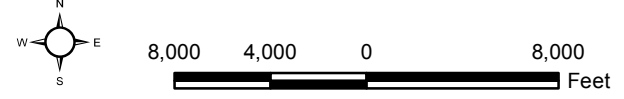
-  Project Boundary
-  Impact Area
-  SEA 17
- NAP** Not A Part

Source: ESRI, NAIP 2014

# Significant Ecological Areas

# Exhibit 5.7-15

Centennial Project





---

**Threshold 7-7**      **Would the project conflict with the provisions of an adopted state, regional, or local habitat conservation plan?****On-Site Impacts**

As discussed previously, the Tejon Ranch Company has received a permit pursuant to Section 10(a)(1)(B) of FESA (16 USC Sections 1531–1544) for incidental take of the Covered Species and to meet the requirements for this permit, has developed a multiple species habitat conservation plan (MSHCP). This MSHCP was approved in April 2013.

The TU MSHCP's Covered Lands propose to encompass 141,886 acres of the 270,365-acre Ranch. The TU MSHCP focuses on the California condor and other species of the montane upland communities. The communities on the Centennial Project site, which is primarily in a valley area, do not fit into the same criteria for coverage. Regardless, many of the same species occur in the foothills and lowland areas, including on the Centennial site. These species will mutually benefit from the MSHCP and the Centennial Mitigation Preserve Program.

There are no other approved or proposed habitat conservation plans near the site or that cover the Project site. There would, therefore, be no conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

**Off-Site Impacts**

There are no other approved or proposed habitat conservation plans near the site or that cover the Project site. There would, therefore, be no conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.

***Impact Summary:*** There would be no impact due to habitat conservation plans (HCPs) or natural community conservation plans (NCCPs) as there are no active HCPs or NCCPs for the Project site. The Project site is outside the TU MSHCP boundaries, therefore impacts are not expected to occur.

**5.7.7 MITIGATION MEASURES**

**MM 7-1**      Prior to issuance of grading permits in areas of the Project site that may disturb California androsace, crownscale, round-leaved filaree, Mojave spineflower, sylvan scorzonella, or adobe yampah populations, focused surveys of mitigation lands shall have been completed to confirm compliance with the 2:1 mitigation ratio for the California androsace, crownscale, round-leaved filaree, Mojave spineflower, sylvan scorzonella, and adobe yampah. Surveys will be conducted in accordance with current California Native Plant Society (CNPS) protocol and will occur during the appropriate time of year. The Survey Report shall be submitted to the County and the California Department of Fish and Wildlife (CDFW) for their review. In addition to rare

plant species populations that have previously been found in the Mitigation Preserve, newly detected populations will be preserved and managed for long-term preservation. These populations will provide baseline information for management efforts described below and will provide information to help determine habitat suitability in areas where propagation of rare plants may be considered.

The Project Applicant shall prepare and implement a Special Status Plant Species Restoration Plan covering the California androsace, crownscale, round-leaved filaree, Mojave spineflower, sylvan scorzonella, and adobe yampah that shall specify the following: (1) procedures for the collection and temporary storage of seed (all available seed from every impacted occurrence shall be collected); (2) planting procedures, including soil preparation and irrigation; (3) a schedule and action plan to maintain and monitor enhanced, restored, and/or created populations; (4) methods to control plant densities (of competing plants) to promote the establishment of California androsace, crownscale, round-leaved filaree, Mojave spineflower, sylvan scorzonella, and adobe yampah; and (5) a list of County-approved success criteria (e.g., germination rates, growth, plant cover) to compare to the density of existing populations. The Project Applicant shall develop the Special Status Plant Species Restoration Plan and the County shall approve it prior to any vegetation clearing or grading on the site. Adoption of this plan shall be used as the performance standard. An overview of the plan objectives is provided in the Biological Resource Mitigation Program to be submitted and approved by the County prior to issuance of grading permits.

Prior to the commencement of vegetation clearing and/or grading activities, the Project Applicant shall contract a qualified firm to harvest California androsace, crownscale, round-leaved filaree, Mojave spineflower, sylvan scorzonella, and adobe yampah seeds from the impacted populations on the Project site. The seeds shall be collected in the manner and time described in the Special Status Plant Species Restoration Plan. The harvested seed shall be used for the enhancement, restoration, or creation of these species' populations to be preserved in open space areas on the Project site. Additionally, prior to implementation of the Plan, a focused survey for the special status species impacted (listed above) shall occur in the preserve areas to document existing populations.

The previously documented populations of California androsace, round-leaved filaree, Mojave spineflower, sylvan scorzonella, and adobe yampah occurring in the designated on-site mitigation areas (north of State Route [SR] 138 and south of SR-138), and Mitigation Areas 1, 2, 3 shall be preserved in perpetuity. These existing areas shall be enhanced, expanded, or restored or new areas shall be created in suitable habitat in order to compensate at a 2:1 ratio for the thousands of individual special status plants that will be lost due to the Project.

Those portions of the crownscale and Mojave spineflower populations that are located within and along the western edge of the open space polygon located approximately 500 feet east of Cement Plant Road and approximately 650 feet north of the SR-138 shall be protected. No temporary or permanent disturbance (including fuel modification) shall occur in the identified occurrence points or polygons; these occurrence points or polygons shall be flagged by a qualified Biologist prior to the start of Project activities in the area. In addition, the post-construction hydrology that supports these protected populations shall be consistent with the pre-Project hydrologic condition. The supporting area consists of the adjacent slope, which drains to the protected plant populations and consists of approximately 300 feet to the north and north northwest.

Planting of California androsace, crownscale, round-leaved filaree, Mojave spineflower, sylvan scorzonella, and adobe yampah shall be performed in accordance with the specifications in the Special Status Plant Species Restoration Plan, which will also indicate the target densities for each of these species so that the new populations will support at least as many individuals of each species as were impacted.

**MM 7-2**

A pre-construction/grading survey of all areas proposed for construction/grading activities that contain potentially suitable habitat for silvery legless lizard, coast horned lizard, two-striped garter snake, and American badger shall be conducted by a qualified Biologist. Surveys will consist of 1 pass-through by a qualified Wildlife Biologist walking 50-meter belt transects across areas to be impacted while visually searching for the species listed above. Surveys will be conducted no more than three days prior to the disturbance of the surveyed area. If any of these species or other wildlife species that can be easily moved are observed within the construction/grading zone, the Biologist (who must have a valid California Scientific Collecting Permit) shall relocate them to a suitable area outside the construction zone. Suitable areas would include appropriate habitats within the proposed open space areas in the northwestern portion of the Project site and would be identified in a Wildlife Relocation Plan (described below) prior to surveys but before construction begins.

Areas adjacent to Quail Lake and on the Project site potentially supporting western pond turtle breeding habitat shall not be disturbed during the breeding season for the turtles (April through August). No Project activities shall occur within 300 feet from the edge of Quail Lake, due to potential for nesting in those areas.

Pre-construction burrowing owl and Swainson's hawk surveys shall be conducted in all potentially suitable habitat areas prior to initial site preparation. Methods employed shall be consistent with standard and appropriate protocols for both species within the appropriate season of the year prior to construction. Burrowing owl pre-construction surveys shall be

conducted prior to the start of construction/ground-breaking activities. Surveys will be conducted following the California Department of Fish and Wildlife's (CDFW's) 2012 burrowing owl survey protocol. These surveys shall be conducted weekly beginning 30 days prior to the start of construction with the final survey occurring 1 day prior to construction.

If pre-construction surveys locate an active Swainson's hawk nest on the Project site, then no construction activities will occur within ½ mile of the nest between March 1 and September 15. Furthermore, a Swainson's hawk Monitoring and Mitigation Plan shall be prepared within 90 days after locating an active Swainson's hawk nest in consultation with the County and the CDFW.

The Wildlife Relocation Plan shall describe: (1) all areas potentially suitable for receiving relocated animals and (2) methods that shall be used in the relocation process. Methods shall include appropriate species-specific handling techniques and appropriate hygienic methods to prevent the spread of pathogens. The Plan shall also identify thresholds for the number of individuals of each species that shall be allowed to be placed in any particular area. The Wildlife Relocation Plan shall be prepared by the Project Applicant/Developer and submitted to the CDFW prior to Project implementation. County and CDFW approval of the Plan shall indicate that the performance standards have been met. Although, implementation of the mitigation plan may have some impact on wildlife, it is expected to be negligible relative to the project as a whole and expected to have a net positive effect as required.

**MM 7-3**

For all grading and construction activities, the Project Applicant/Developer shall retain a qualified Biologist (with selection reviewed by the County) to ensure that incidental construction impacts on special status wildlife species are avoided or minimized. The Biologist shall relocate silvery legless lizard, coast horned lizard, two-striped garter snake, American badger, and any other special status wildlife species that can be moved which would otherwise be destroyed or adversely affected by construction and/or site-preparation activities. Responsibilities of the Construction Biological Monitor shall include:

- a. Attendance at the pre-construction meeting to ensure that timing and location of construction activities do not conflict with other mitigation requirements (e.g., seasonal surveys for nesting birds). The meeting shall be conducted with the Contractor and other key construction personnel to describe the importance of restricting work to designated areas.
- b. Discussion with the Contractor of procedures to minimize harm/harassment of wildlife that may be encountered during construction.
- c. Review/designation of the construction area with the Contractor in accordance with the Final Grading Plan. Haul roads, access roads, and

on-site staging and storage areas shall be sited in grading areas to minimize degradation of habitat adjacent to these areas. If activities outside these limits are necessary, they shall be evaluated by the Biologist to ensure no special status species or habitats will be affected.

- d. A field review that is conducted to stake designated construction limits (to be set by the Surveyor). Any construction activity areas immediately adjacent to riparian areas or other special status resources (such as large trees or bird nests) may be flagged or temporarily fenced by the Monitor at his/her discretion.
- e. Periodic visits to the site during construction to coordinate and monitor compliance with the above provisions.
- f. Submittal of a brief report to the County and CDFW discussing any conflicts or errors resulting in impacts to special status resources within 48 hours of the incident. At the conclusion of construction of each planning area, submittal of a Final Report discussing the results of the activities and any recommendations for improving the process. Submission of this report shall be the performance standard.

In addition, a Biological Monitor will be on site during all initial vegetation removal and will employ salvage methods to minimize direct impacts to common wildlife species. Where feasible, the biological monitor will attempt to ensure wildlife are out of potential direct impact. If a wildlife species is in harm's way and has not moved on its own, the Biologist will attempt to scare them away from the area. If wildlife does not move, and where feasible, the wildlife species will be relocated to suitable habitat.

**MM 7-4** All open space preservation areas adjacent to active construction sites shall be denoted with fencing installed and maintained during construction to ensure that construction activities remain within the development footprint. Construction area temporary signage shall not have holes (or holes shall be covered or filled within the top four inches) to prevent raptor talon entanglement. Construction fencing and signage will be overseen by the Project Biologist.

**MM 7-5** Within the year prior to, and within the appropriate season, focused surveys for the following special status species shall be repeated: arroyo toad, Tehachapi slender salamander, California red-legged frog (concurrent with two-striped garter snake and western pond turtle focused surveys), western spadefoot, mountain plover, southwestern willow flycatcher, and least Bell's vireo. Surveys shall be conducted in accordance with the approved CDFW or U.S. Fish and Wildlife Species (USFWS) protocol for that species.

**MM 7-6** The Project Applicant/Developer shall retain a qualified Biologist with knowledge of California condors to monitor construction activities in the Project area. The resumes of the proposed Biologist(s) will be provided to the CDFW for concurrence. This Biologist(s) will be referred to as the "Authorized

Biologist” hereinafter. During clearing and grubbing of construction areas, the Authorized Biologist shall be present at all times. During mass grading, construction sites shall be monitored on a daily basis, and the Authorized Biologist will have the authority to stop all activities until appropriate corrective measures have been completed. If condors are observed landing in the Project area, the Applicant shall avoid further construction within 500 feet of the sighting until the animals have left the area, or as otherwise authorized by CDFW and USFWS. All condor sightings in the Project area will be reported to CDFW and USFWS within 24 hours of the sighting.

To further protect California condors potentially foraging in the Project area over the long term from negative interactions with humans and/or artificial structures, the Project Applicant/Developer shall remove dead cattle that are found or reported within 1,000 feet of the boundary of a residential or commercial development. Dead cattle shall be relocated to a predetermined location. The locations where carcasses shall be placed shall be a minimum of 1,000 feet from a development area boundary. Appropriate locations for transfer of carcasses include open grasslands and oak/grassland areas where condors can readily detect carcasses and easily land and take off without encountering physical obstacles such as powerlines and other utility structures. The proposed locations would be selected and approved by the CDFW and USFWS. Pursuant to this measure, a telephone number for reporting dead cattle shall be provided and actively maintained. Any cattle carcasses transferred to the relocation areas shall be reported to the USFWS Condor Group.

All surfaces on new antennae and phone/utility towers shall be designed and operated with anti-perching devices in conformance with Avian Power Line Interaction Committee standards to deter California condors and other raptors from perching. During construction, the area shall be kept clean of debris (e.g., cable, trash, and construction materials). The Project Applicant/Developer shall collect all microtrash and litter (i.e., anything shiny, such as broken glass), vehicle fluids, and food waste from the Project area on a daily basis. Workers shall be trained on the issue of microtrash: what constitutes microtrash, its potential effects on California condors, and how to avoid the deposition of microtrash.

**MM 7-7**

The Project shall incorporate avoidance and additional open space buffer features for this tricolored blackbird nesting area. Permanent impacts will be restricted to a distance of 400 feet from the nesting area excluding small impact areas associated with infrastructure and utilities along SR-138 immediately south of Quail Lake. The nesting area will be delineated by a qualified Ornithologist based on all available data (three years of site-specific data shall be used). Temporary impacts (i.e., construction noise) within 400 feet shall be restricted to the non-breeding season. The breeding season for this species shall be considered April 1 through July 1.



The Project shall include enhancement, restoration, and/or preservation of potentially suitable tricolored blackbird breeding and foraging habitat. Potentially suitable areas for enhancement and preservation include lower Oso Canyon in close proximity to Cement Plant Road, as well as any other created water bodies as part of the Project Drainage Plan, where feasible. Enhancement factors shall include the creation of bulrush marsh habitat or other substrate known to support breeding tricolored blackbirds; a persistent nearby standing water during the breeding season; and available adjacent foraging habitat with an appropriate food source.

**MM 7-8** Project construction activities (including, but not limited to, staging and disturbances to native and nonnative vegetation, structures, and substrates) shall occur outside of the avian breeding season, if feasible, which generally runs from February 1–August 31 (as early as January 1 for some raptors) to avoid take of birds or their eggs. “Take” means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill (*California Fish and Game Code*, Section 86), and includes take of eggs or young resulting from disturbances that cause abandonment of active nests. Depending on the avian species present, a qualified Biologist may determine that a change in the breeding season dates is warranted.

If avoidance of the avian breeding season is not feasible, a qualified Biologist with experience in conducting breeding bird surveys shall conduct weekly bird surveys beginning 30 days prior to the initiation of Project activities, to detect protected native birds occurring in suitable nesting habitat that is to be disturbed and (as access to adjacent areas allows) any other such habitat within 500 feet of the disturbance area. The surveys shall continue on a weekly basis with the last survey being conducted no more than three days prior to the initiation of Project activities. If a protected native bird is found, the Project Applicant/Developer shall delay all Project activities within 300 feet of on- and off-site suitable nesting habitat (within 500 feet for suitable raptor nesting habitat) until August 31. Alternatively, the qualified Biologist could continue the surveys in order to locate any nests. If an active nest is located, Project activities within 300 feet of the nest (within 500 feet for raptor nests) or as determined by a qualified Biological Monitor, must be postponed until the nest is vacated; the juveniles have fledged; and there is no evidence of a second attempt at nesting. Flagging, stakes, or construction fencing shall be used to demarcate the inside boundary of the buffer of 300 feet (or 500 feet) between the Project activities and the nest. Project personnel, including all contractors working on site, shall be instructed on the sensitivity of the area. The Project Applicant/Developer shall provide the Department of Regional Planning with the results of the recommended protective measures described above to document compliance with applicable State and federal laws pertaining to the protection of native birds.

If the Biological Monitor determines that a narrower buffer between the Project activities and observed active nests is warranted, he/she shall submit a written explanation as to why (e.g., species-specific information; ambient conditions and birds' habituation to them; and the terrain, vegetation, and birds' lines of sight between the Project activities and the nest and foraging areas) to the Department of Regional Planning and, upon request, the CDFW. Based on the submitted information, the Department of Regional Planning (and the CDFW, if the CDFW requests) will determine whether to allow a narrower buffer.

The Biological Monitor shall be present on site during all grubbing and clearing of vegetation to ensure that these activities remain within the Project footprint (i.e., outside the demarcated buffer); to ensure that the flagging/stakes/fencing is being maintained; and to minimize the likelihood that active nests are abandoned or fail due to Project activities. The Biological Monitor shall send weekly monitoring reports to the Department of Regional Planning during the grubbing and clearing of vegetation, and shall notify the Department of Regional Planning immediately if Project activities damage active avian nests.

- MM 7-9** A qualified Biologist (retained by the Project Applicant/Developer with selection reviewed by the County) shall conduct a field survey no earlier than 20 days prior to any grading activity that would occur during the breeding season (i.e., April 1 through August 31) of native bat species that potentially utilize the site. This should be done to determine if active roosts of special status bats (such as pallid bat) are present in the applicable habitats on the site (e.g., woodlands). If active roosts are found, construction within 200 feet shall be postponed or halted until the roost is vacated and juveniles are self-sufficient, as determined by the Biologist.
- MM 7-10** The Project Applicant/Developer shall preserve grasslands, including native perennial grassland and associated wildflower field vegetation types, at a minimum 2:1 ratio within the approximate 27,408-acre mitigation preserve (see Table A). The Project would impact 6,416 acres of grasslands; therefore, a total of 12,832 acres of grassland mitigation acreage is required to bring impacts to a less than significant level.

**TABLE A  
GRASSLAND MITIGATION ACREAGES**

<b>Mitigation Area</b>	<b>Grasslands</b>	<b>Total Acreage</b>
<b>On-Site Unimpacted/SEA</b>		
On-Site Unimpacted/SEA	1,989	3,861
<i>Subtotal (Total On-Site Mitigation Area)</i>	1,989	3,861
<b>Off-Site Open Space</b>		
Area 1	1,641	6,417
Area 2	1,602	2,556
Area 3	3,059	4,183
Area 4	4,429	7,319
Area 5	643	643
Area 6	1,012	2,429
<i>Subtotal (Total Off-site Mitigation Area)</i>	12,386	23,547
<b>Total Mitigation Area</b>	<b>14,375**</b>	<b>27,408</b>
SEA: Significant Ecological Area		
**Goal for 2:1 Grassland Mitigation is 12,832 Acres		

Mitigation for loss of those areas modeled as native perennial grassland will provide similar habitat quality as that which was lost. The result shall be native perennial grassland and wildflower field values that are equal to or greater than the overall ecological functions and values of those lost as a result of Project implementation. Preservation shall include dedication and long-term management working towards the goal of a self-sustaining system. Long-term management will include focused major problematic non-native species eradication (e.g., feral pigs) where feasible. Preservation will occur on open space lands on the Project site and on other lands within Tejon Ranch.

As outlined in Table A above, the 14,375 acres of grassland preservation will occur in open space areas on site and in the six other areas. A full description of these areas is in PDF 7-2. Many of these grassland areas have been part of the expansive grassland studies conducted for the Project over the course of several years. Detailed plot analysis and modeling show the high level of similarity between these preserved grasslands and the grasslands within the Project impact area. In addition, the grasslands are contiguous with other preserved open space in the region and support other important biological functions (e.g., drainages and local wildlife movement pathways). As a result, the preserved grassland is part of a more watershed-level preservation allowing for long-term sustainment and a total value that is greater than the sum of its parts.

The preservation phasing through conservation easements shall be based on the percentage of total area of impact per phase of development, regardless of specific resource impacts. The specific location of the acreage to be dedicated within a particular phase will be chosen to maximize the replacement of resource values lost during that phase of construction while maintaining as much contiguous acreage as possible. In order to preserve an adequate quantity of grassland, lands outside the County of Los Angeles, within the County of Kern, would be used for mitigation. As each phase is proposed, a percentage of the mitigation preserve (which is equivalent to the percentage of that phase's impacts) shall be dedicated concurrent with the entitlement approval of that phase.

The open space preserve, including the grasslands within it, shall be preserved in perpetuity to offset Project impacts on native grasslands and wildflower fields prior to issuance of a grading permit for the Project site. The phasing of mitigation has been previously described. The Native Perennial Grassland and Wildflower Field Mitigation Plan will sufficiently offset and fully mitigate the impacts on native grasslands and wildflower fields associated with the Project.

**MM 7-11** This measure prescribes mitigation for other special status vegetation types including mixed oak woodland, oak trees, and other riparian and wetland vegetation types. Each of these three vegetation types is discussed separately (native grassland and wildflower fields are addressed in MM 7-10).

#### *Mixed Oak Woodlands*

The Project Applicant/Developer shall create mixed oak woodlands to achieve resulting vegetation/habitat values. Since there would be approximately 6.2 acres of oak woodland impacts, mitigation will result in the preservation of a minimum of 6.2 acres of mixed oak woodland and creation of a minimum of 6.2 acres of mixed oak woodland, which will include the establishment<sup>7</sup> of 322 oak trees completed as part of oak tree replacement in accordance with the County of Los Angeles oak tree permit requirements (see Oak Trees Section below). Oak trees established in created oak woodlands will be credited towards both oak woodland and oak tree mitigation requirements. If Project impacts are reduced through a reduction in Project disturbance limits in oak woodland areas, required mitigation acreage will be reduced accordingly.

In accordance with mitigation options outlined in Section 21083.4 of the *California Public Resources Code* (PRC), replacement of oak woodlands shall consist of no greater than ½ of the oak woodland mitigation requirement. Therefore, half of the 6.2 oak woodland impact acreage will be mitigated via the alternate option of preservation. The combined acreage of oak woodland preserved both on site (unimpacted/Significant Ecological Area [SEA]) and

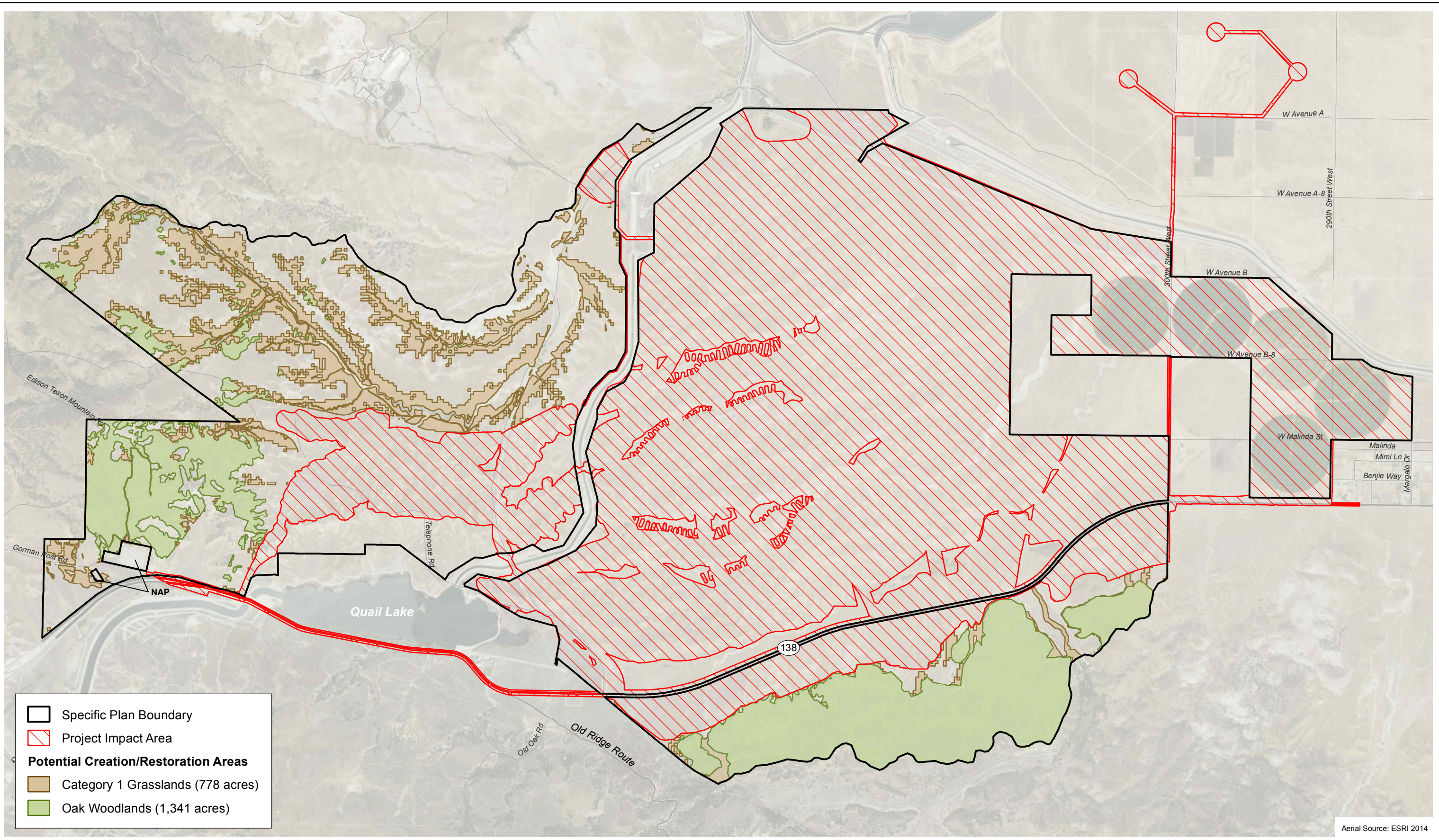
<sup>7</sup> In Biology, "establish", in this sense, refers to vegetation (including seeds) that has been planted and is becoming a healthy, surviving plant with as much chance to survive as plants that have existed for a long period of time.

within the off-site mitigation areas is 3,102 acres and is expected to substantially exceed the required 50 percent of mitigation as preservation.

Mitigation through creation is typically implemented on lands with minimal habitat value (e.g., ruderal vegetation, graded slopes) rather than in areas with a substantial component of existing native vegetation. However, evidence of lack of naturally occurring recruitment on site indicates that the existing woodlands are likely to be eventually replaced by non-woodland vegetation. Based on the lack of naturally occurring replacement trees, it is anticipated that oak woodland planting is necessary to sustain the oak woodlands. Therefore, the goal of oak resource mitigation efforts will be to create and enhance oak woodlands. To maximize potential for success, oak woodlands will be created within and adjacent to the same areas where oak woodlands currently exist. This method will create future generations of oak trees and oak woodland on the site in these areas. Details of the oak woodland mitigation program are described below in items 1–10.

1. To mitigate for impacts to oak woodland and oak trees, site-specific native acorns will be collected. Acorns will be collected within the watershed area of the Project site to ensure that acorns collected are of a similar genetic stock to those existing on the site. Some acorns will be planted and maintained in containers, and others will be stored and planted directly on site within the Oak Mitigation Areas.
2. To maximize oak woodland biological values and the potential for long-term success, some locally collected oak acorns will be planted directly into the ground. These acorns will be planted in appropriate locations in the Oak Mitigation Areas. The locations identified for acorn planting will be reviewed by the County Forester.
3. Container plants will be propagated and maintained from locally collected acorns. In this way, more established container plants will be available for mitigation efforts, and they will contain the most suitable genetic variability appropriate for the region to increase mitigation success. The preferred method of propagation will include the establishment of a temporary nursery on the Project site. The nursery will include partial shade areas to reduce water loss and a constant water supply to supplement planted trees. Using the acorns collected from within the watershed area of the Project site, container plantings will be cultivated at this location. Development of trees on site will ensure that they are acclimated to the typical weather conditions at their eventual permanent location. If necessary, and in consultation with the County Forester, acorns collected from the site may be stored or propagated and maintained under contract with a reputable native plant nursery off site.
4. To provide overstory, midstory, and understory tree/plant coverage, some container plants and oak trees, grown from locally collected acorns, will be installed in addition to the application of native seed mixes. Since studies indicate that the younger the planting is, the more likely the



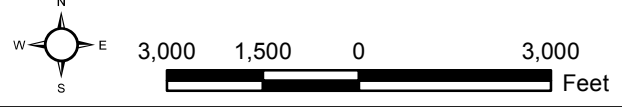


Aerial Source: ESRI 2014

**Oak Tree/Oak Woodland Restoration/Creation Areas**

**Exhibit 5.7-16**

Centennial Project



D:\Projects\3\CEN\Centennial\MXD\EIR\Ex\_Oak\_Restoration\_20150915.mxd



chance is for successful establishment and long term viability<sup>8</sup> locally collected acorns as well as locally collected, nursery-cultivated young oak trees (one-gallon or five-gallon containers of oaks) would be planted on site.

5. The Project Applicant/Developer will provide an annual report to the County that will include an accounting of each of the following in the mitigation areas: (a) the number of acorns planted; (b) the number of germinated acorns (whether planted or natural) protected; (c) the number of new oak trees planted in mitigation areas, including the species of each tree planted; (d) the caliper of each new tree planted and/or protected; (e) the acreage of woodlands created and/or conserved in the mitigation areas.
6. Creation of structurally diverse oak woodland habitat within and contiguous to existing oak woodlands will be accomplished by planting locally collected oak acorns, plus yearly sowings of additional locally collected acorns, as well as, temporary irrigation, weed abatement, pest deterrence, and/or other maintenance tasks as needed to facilitate oak seedling germination and survival.
7. Prior to Project grading, locally collected acorns will be planted and grown. Once trees reach a diameter of one inch just above ground surface (i.e., basal height) within the Oak Tree/Oak Woodland Mitigation Areas, they will be appropriated as “mitigation trees” to be used for oak woodland and oak tree permit mitigation purposes with approval from the County Forester as part of the oak woodland and oak tree permit mitigation process and will be credited as a mitigation tree if the tree is determined to be healthy by the Los Angeles County Forester at the end of the monitoring period.
8. The required 12.4 acres of mixed oak woodland creation will occur within 473 acres of existing oak woodland (primary area) and 716 acres of adjacent low quality non-native grassland (secondary area, if needed) on the western portion of the Project site. Additional suitable areas may also be identified within reduced grading footprints following final detailed tract map production to the satisfaction of the County Forester. Mitigation planting areas will be refined within the proposed mitigation areas through a multi-variable query of existing Geographical Information System (GIS) data sets, and intensive field analysis to precisely identify suitable planting locations (e.g., localized soil types, microtopography). Created oak woodlands will have an approximate average density of 80 appropriately sized oak trees per acre at the end of the monitoring period (or other density as directed by the County Forester), while staying within the mitigation areas. The contiguity of the created woodland habitat within or adjacent to existing oak woodlands will be ecologically beneficial, and will also improve the logistics of

---

<sup>8</sup> Young and Evans 2000

restoration installation, maintenance, and monitoring, compared to a fragmented habitat creation program. These methods will help to ensure the success of created oak woodlands to replace the existing woodlands over time.

9. In order to implement the creation of habitat on the site and to ensure the persistence of the overall biological functions and values over time, the Project Applicant/Developer shall submit an Oak Woodland Habitat Mitigation Plan to the County for approval prior to the issuance of a grading permit for each tract map or combination of tract maps. The mitigation approach described in the Plan shall comply with Section 21083.4 of the *California Public Resources Code* (PRC), which was enacted by California Senate Bill (SB) 1334. County approval of the Plan shall be required prior to the initiation of any clearing or grading on the site that affects any oak woodland vegetation. The Oak Woodland Habitat Mitigation Plan shall be developed by a qualified Restoration Specialist, to be retained by the Project Applicant/Developer, and shall be subject to County approval. The objective of the Oak Woodland Habitat Mitigation Plan will be to preserve 6.2 acres of existing oak woodland and to create 6.2 acres of oak woodland. The Oak Woodland Habitat Mitigation Plan serves the purpose of satisfying the conditions of Section 21083.4 of the *California Public Resources Code*.
10. Implementation of the Oak Woodland Mitigation Plan will be the responsibility of the Project Applicant/Developer or its designated party; the Plan shall specify, the following:
  - a. **Personnel:** The responsibilities and qualifications of personnel required to implement and supervise the plan will be specified. The responsibilities of the Landowner, County staff, Specialists, and Maintenance Personnel that will supervise and implement the plan will also be included.
  - b. **Site Selection:** The mitigation site(s) will be determined in coordination with the project applicant/Developer and the County. The site(s) will be located in open space areas that will be managed in perpetuity through a conservation easement, open space dedication, performance bond, management at the Tejon Ranch Conservancy, or other method approved by the County.
  - c. **Native Species Seed Collection, Site Preparation, and Planting Implementation:** Under the supervision of the County Forester, site preparation will include (i) protection of existing native species; (ii) trash and weed removal; (iii) native species salvage and reuse (i.e., duff); (iv) soil treatments (i.e., imprinting, and/or decompacting); (v) erosion-control measures (i.e., rice or willow wattles); (vi) native seed mix application; and (vii) procedures for native seed collection from the site, including acorns of native oak species.



- d. **Schedule:** Restoration/revegetation sites will be established between October 1 and January 30. Seeding and planting of container plants will take place immediately after preparation of the mitigation sites and will take place under the supervision of the County Forester.
- e. **Maintenance Plan and Guidelines:** The Maintenance Plan, to be approved by the County, will include (i) weed control; (ii) herbivory control (e.g., feral pigs); (iii) trash removal; (iv) irrigation system maintenance; (v) maintenance training; (vi) replacement planting; and (vii) a vehicle washing program to capture invasive propagules. The Maintenance Plan will also indicate who is responsible for each of these listed tasks.
- f. **Monitoring Plan:** The monitoring plan, to be approved by the County, will include (i) qualitative monitoring (i.e., photographs and general observations); (ii) yearly quantitative monitoring (i.e., randomly placed transects to assess vegetation type coverage and systematically assess all mitigation oak trees); (iii) performance criteria as approved by the County; and (iv) annual reports that will be submitted to the County for five consecutive years after initial planting (or longer if the County requires) and following plan approval.
- g. **Long-Term Preservation:** Long-term preservation of the mitigation site(s) will be outlined in the Restoration Plan to ensure that they are not impacted by future development. An open space dedication, conservation easement, performance bond, management by the Tejon Ranch Conservancy, or other County-approved method will be used to ensure long-term preservation.
- h. **Growth/Vegetation Standards:** Growth/vegetation standards will be developed by a qualified Biologist in accordance with County and regulatory agency requirements.

### *Oak Trees*

The mitigation approach for replacing lost oak trees shall comply with the County of Los Angeles Oak Tree Ordinance (CLAOTO) requirements. The goal of this program is to replace impacted oak trees at a ratio of 3:1 for non-heritage oaks and 10:1 for heritage oaks in accordance with the County's oak tree permit requirements. This would result in the establishment of 322 oak trees. However, if Project impacts are reduced through a reduction in Project disturbance limits within oak woodland areas, required tree numbers will be reduced accordingly.

Mitigation trees are typically planted on lands with minimal habitat value (e.g., ruderal vegetation, graded slopes) rather than in areas with a substantial

component of existing native vegetation. To maximize potential for success, oak trees will be planted in the same areas where oak woodlands currently exist. This method will create future generations of oak trees and oak woodland on the site in these areas and will be done as described in Numbers 1-10 under the "Mixed Oak Woodlands" portion above. Additionally, quantitative tree monitoring data for all mitigation trees (whether for County of Los Angeles Oak Tree Ordinance [CLAOTO] mitigation or oak woodland mitigation) will be submitted to the County Forester yearly and, for convenience, will be included as an appendix to the annual report required in 10(f)(ii) above.

#### *Other Riparian and Wetland*

In addition, the Applicant shall create, enhance, and/or restore all impacted riparian and wetland vegetation types that are not considered jurisdictional by permitting resource agencies (i.e., those not mitigated through regulatory permit conditions) at a 1:1 ratio. This applies to areas mapped as alluvial scrub; riparian herb; rush riparian grassland; southern arroyo willow riparian; southern willow scrub; unvegetated wash; willow riparian forest; willow riparian woodland; alkali meadow; Baltic rush; and seeps and ephemeral ponds. These areas shall be included in the Streambed and Wetland Habitat Creation and Enhancement Plan discussed in MM 7-12, which shall be approved by the County prior to issuance of grading permits.

**MM 7-12** Prior to any fill of or alteration to drainage tributaries, wetlands, and/or riparian vegetation on the Project site, the Project Applicant/Developer shall obtain the appropriate regulatory agency permits and/or agreements from the U.S. Army Corps of Engineers (USACE), the California Department of Fish and Wildlife (CDFW), and the applicable Regional Water Quality Control Board (RWQCB). The Project Applicant/Developer shall comply with all mitigation measures specified in the regulatory agency permits and/or agreements. Pursuant to the permit requirements, the Project Applicant/Developer will develop a Storm Water Pollution Prevention Plan (SWPPP) that incorporates Best Management Practices (BMPs) for reducing or eliminating construction-related pollutants in the site runoff.

The Project is subject to the following Mitigation Performance Standards: As anticipated to be required by USACE, CDFW, and Regional Water Quality Control Board (RWQCB) regulatory permits, the Project Applicant/Developer shall create, enhance, and/or restore acreage to ensure that net habitat values are at least equal to those lost from Project implementation. Mitigation ratios are typically specified in the regulatory permits. However, if mitigation is conducted prior to impacts taking place, mitigation ratios can be pro-rated; this type of mitigation pro-rating allows time to evaluate if created, enhanced, and/or restored habitat values are at least equal to those that will eventually be lost from Project implementation. Under this scenario, it can be verified

that the restoration/creation goals have been accomplished or are proceeding satisfactorily.

The extent of drainages and wetlands that would be preserved under the Project will provide opportunities to expand and enhance the drainages, wetlands, and riparian vegetation on the Project site.

As discussed previously, a wetland functional assessment of the drainages and other aquatic features in the Project site was conducted by Glenn Lukos Associates in 2006 and 2009 in order to characterize and evaluate the functions of the site's drainages and riparian habitats (GLA 2009a). An update to that functional assessment was conducted in 2015 (BonTerra Psomas 2015a). Overall, aquatic resources on the site were evaluated in terms of Functional Capacity Units (FCU), which indicate more specifically the mitigation level necessary to restore riparian functions after Project implementation by providing a measure of the ability of a wetland area to perform typical wetland functions.

The purpose of the mitigation is to replace lost habitat value, as measured in FCU rather than based on a standard acreage ratio. Mitigation will include a combination of on-site and off-site preservation of jurisdictional resources; on-site and off-site enhancement/restoration of preserved jurisdictional resources in order to increase overall functional capacity; and the creation (expansion) of riparian/wetland habitats along degraded drainages, including Oso Creek and two of its tributaries in addition to the three other drainages (including the main drainage located along and immediately north of State Route [SR] 138).

The direct and indirect loss in on-site functional units will be mitigated through passive enhancement of open space areas, active enhancement of 6.5 acres of wetland, and creation of approximately 78.4 acres of wetland/riparian habitat (GLA 2009a). Following implementation of mitigation, the Project provides approximately 4,748.5 FCUs. Therefore, the proposed mitigation will result in a functional gain of 327.5 FCUs, thereby ensuring a net increase in functionality in the post-Project condition (GLA 2009a). In summary, implementation of the proposed jurisdictional resource mitigation will actually result in a net gain in the measurable functional capacity and therefore, the habitat values, of the on-site and off-site drainages and other aquatic features.<sup>9</sup>

To implement the creation/restoration/enhancement of streambed/wetland habitats on the site, the Project Applicant/Developer shall develop a Streambed and Wetland Habitat Creation and Enhancement Plan commensurate with regulatory agency permits and/or agreements. The purpose of this plan is to demonstrate the feasibility of creating the required

---

<sup>9</sup> For information about the functional values of the impacted jurisdictional resources and proposed mitigation areas, see GLA 2009b in Appendix 5.7-B.

mitigation acreage and to ensure that the overall biological functions and values are increased. The plan shall be developed by a qualified Restoration Specialist and shall be submitted to the County for approval. The Streambed and Wetland Habitat Creation and Enhancement Plan shall specify the following:

- **Personnel:** Responsibilities and qualifications of the personnel required to implement and supervise the plan will be specified. The responsibilities of the Landowner, Specialists, and Maintenance Personnel that will supervise and implement the plan will also be included.
- **Site Selection:** The sites for mitigation will be determined through coordination between the project applicant/Developer, the USACE, the CDFW, the applicable RWQCB, and the County.
- **Site Preparation and Planting Implementation:** Site preparation will include: (1) protection of existing native species; (2) trash and weed removal; (3) native species salvage and reuse (i.e., duff); (4) soil treatments (i.e., imprinting and/or decompacting); (5) erosion-control measures (i.e., rice or willow wattles); (6) seed mix application and quantities; and (7) procedures for seed collection from existing habitat on the site.
- **Schedule:** Establishment of restoration/revegetation sites will be conducted between October 1 and January 30. Seeding and planting of container plants will take place immediately after preparation of the restoration sites.
- **Maintenance Plan/Guidelines:** The maintenance plan will include (1) weed control; (2) herbivory control; (3) trash removal; (4) irrigation system maintenance; (5) maintenance training; (6) replacement planting; and (7) vehicle washing program to capture invasive propagules.
- **Monitoring Plan:** The monitoring plan will include (1) qualitative monitoring (i.e., photographs and general observations); (2) quantitative monitoring (i.e., randomly placed transects); (3) performance criteria, as approved by the USACE, the CDFW, and the applicable RWQCB; (4) biannual reports (i.e., two reports the first year) for the first year will be submitted to the USACE, the CDFW, the applicable RWQCB; and (5) annual reports, which will be submitted to all three agencies and the County for an additional four years after initial planting. The monitoring is planned for five years, but may be shorter or longer depending upon the performance of the mitigation sites.
- **Long-Term Preservation:** Long-term preservation of the mitigation sites will be outlined in the mitigation plan to ensure that they are not impacted by future development. An open space dedication, conservation easement, performance bond, management by the Tejon Ranch Conservancy, or other County-approved method will be used to ensure long-term preservation.

- **Performance Standards:** These will be developed by conducting a biological functions and values assessment (using an accepted method such as Hydrogeomorphic Modeling [HGM]) to establish a baseline for the overall biological value of the affected streambeds and riparian areas on the site. Revegetation will be considered successful at five years if the percent cover and species diversity of the restored and/or created habitat areas are similar to percent cover and species diversity of adjacent existing habitats, as determined by quantitative testing of existing, restored, and created habitat areas. Contingency measures shall also be described in the event that mitigation efforts are not successful.
- **Cattle Exclusion Methods:** Measures to exclude cattle from habitat creation areas and enhancement areas (where applicable) shall be identified and described.
- **Funding:** The funding source(s) for all proposed mitigation actions shall be identified.

The Streambed and Wetland Habitat Creation and Enhancement Plan shall be subject to approval by the County, the USACE, the CDFW, and the applicable RWQCB for impacts within the respective jurisdictional areas of these agencies. If pro-rated mitigation ratios are used, it shall be demonstrated that the mitigation performance standards have been accomplished. The accomplishment shall be verified by the USACE, the CDFW, and the applicable RWQCB based on the performance standards established above prior to the County's issuance of a grading permit. Implementation of these mitigation measures may serve the dual purpose of satisfying the conditions (or a portion of the conditions) of the agreements/permits of the USACE, the CDFW, and the applicable RWQCB.

**MM 7-13** The Project Applicant/Developer shall develop a Landscaping Plan for review and approval by the County Biologist, which includes a plant palette composed of non-invasive species that are adapted to the conditions found on the Project site and do not require high irrigation rates. The Landscaping Plan will also include a list of invasive plant species prohibited from being planted on the Project site. In addition, retail sales of these invasive plant species will be prohibited at any businesses (nurseries) located within the Project site. Landscape plans shall encourage planting of local natives typical of native vegetation within ten miles of the Project site.

The Homeowners Association shall supply future residents of the Project site with the list of invasive plant species from the Landscaping Plan that will be prohibited from being planted on the Project site and educational materials that emphasize the importance of adhering to the list. A list of local native plants shall be provided to homeowners.

**MM 7-14** The designated SR-138 underpass shall be located where the highway crosses the Project's western border near the current intersection with Cement Plant

Road. The width of the underpass shall be 100 feet and shall flare out on both sides of the highway to a 150-foot width in the Project open space adjacent to the highway. These specifications are expected to allow some local wildlife to safely pass between open space areas on opposite sides of the highway.

In addition, a 50-foot open space buffer will be incorporated on the eastern and western sides of Cement Plant Road; this buffer shall be from the southern side of the bridge that spans the California Aqueduct to the nearest open space polygon that meets the property edge. The undeveloped 50-foot buffer shall run parallel with the Aqueduct along its southern bank. This buffer may be temporarily disturbed during construction, but shall be retained as greenspace to increase connectivity for local wildlife between open space areas and potential Aqueduct crossing locations.

**MM 7-15** Waste and recycling receptacles that discourage foraging by wildlife species adapted to urban environments shall be installed by the Project Applicant/Developer in common areas (i.e., any area where public trash receptacles would be placed, such as parks, sidewalks, community centers, and walking trails) throughout the Project site. Documentation of the completion of this measure shall be submitted to the County prior to occupation of housing units.

The Homeowners Association shall supply an educational pamphlet to future residents of the Project site regarding: the importance of not feeding wildlife; information stating that trash (containing food) and microtrash that could potentially attract condors should not be accessible to wildlife; the necessity of keeping the ground free of fallen fruit from trees; and instructions about not leaving pet food outside.

**MM 7-16** All landscaping materials (including organic mulches) for common/public areas (i.e., parks and intervening unpaved areas which are not a part of any homeowner's parcel) shall be inspected and certified by landscape suppliers as being "free" of Argentine ants prior to planting. Additionally, container plants and other landscaping materials to be installed within common/public areas within 200 feet of the open space areas shall be inspected by a qualified restoration specialist for the presence of Argentine ants. Plants or other materials with Argentine ants shall be rejected.

Upon initiating landscaping within a development area, quarterly monitoring shall be initiated for Argentine ants along the development/construction-open space interface at sentinel locations where invasions could occur (e.g., where moist microhabitats that attract Argentine ants may be created). A qualified biologist shall determine the monitoring locations. Ant pitfall traps will be placed in these sentinel locations and operated on a quarterly basis to detect invasion by Argentine ants. If Argentine ants are detected during monitoring, direct control measures will be implemented immediately to help prevent the invasion from worsening.

These direct controls may include but are not limited to nest/mound insecticide treatment, or available natural control methods being developed. A general reconnaissance of the infested area would also be conducted to identify and correct the possible source of the invasion, such as uncontrolled urban runoff, leaking pipes, or collected water. Each site visit shall be followed up with a summary monitoring report sent electronically to Applicant indicating the status of the site. Monthly monitoring reports, as needed, shall be submitted to CDFG and the County of Los Angeles). Monitoring reports shall include remedial recommendations and issue resolution discussions when necessary. Monitoring and control of Argentine ants would occur for a 5-year period. After the first 5 years, the Homeowners Association or other entity will be responsible for controlling Argentine ants. Additionally, to further guard against Argentine ants, the Homeowners Association shall discourage irrigated landscape planting through distribution of educational information and other feasible methods to reduce the potential for importing Argentine ants.

To preclude the invasion of Argentine ants into preserved populations of round leaved filaree and crownscale and their associated buffers, controls will be implemented using an integrated pest management (IPM) approach. The controls include (1) Providing "dry zones" between development and round leaved filaree and crownscale populations, where typical soil moistures are maintained at levels below about 10% soil saturation, which will deter the establishment of nesting colonies of ants; and providing dry zone buffers of sufficient width to reduce the potential for Argentine ant activity within core habitat areas; (2) Where feasible, and/or appropriate, dry areas such as parking lots and roadways shall be built adjacent to the boundaries of these populations; (3) designing adjacent areas to slope away from the preserved populations to avoid runoff entering the area; (4) Pedestrian pathways placed next to preserve populations shall consist of decomposed granite or other gravel to minimize the holding of moisture, thereby preventing establishment of suitable habitat for Argentine ant colonies; (5) Ensuring that landscape container plants installed within 200 feet of preserved populations are ant free prior to installation to reduce the chance of colonies establishing in areas close to the preserved populations; (6) Maintaining natural hydrological conditions in the preserved populations areas, including the buffers, through project design features for roadways, French drains, irrigation systems, underground utilities, drainage pipes and fencing, storm drains, and any other BMP measures that apply to surface water entering the preserved populations areas; (7) Using drought resistant plants in fuel modification zones and minimizing irrigation to the extent feasible.

- MM 7-17** The Project Applicant/Developer shall implement a public awareness program (prior to the first occupancy permit) in an effort to restrict public access to the riparian and open space areas on the Project site to designated trails and to prevent unleashed domestic animals from entering these areas. This program shall include signs that identify the boundaries of ecologically

sensitive areas; the use of temporary fencing around sensitive areas that appear to be receiving a high level of disturbance until the disturbance is reversed; and promotion of public education and awareness of such areas. The Project Applicant/Developer shall be responsible for the initial development of the public awareness program and installation of interpretive signs and fencing. The Homeowners Association, the Project Applicant/Developer, or an acceptable Land Manager/Agency (as approved by the County) shall be responsible for maintaining this program, including signs and fencing.

Only passive recreational activities shall be permitted within the designated natural open space areas and shall be restricted to trails. Some areas may allow slightly greater impacts if designated as picnic and/or camping areas.

All dogs shall be required to be leashed while in the designated natural open space areas. In addition, all dogs and cats shall be required to be neutered or spayed; all dogs shall be required to have a microchip; and potential owners shall show evidence prior to entry into the Centennial Development, as required by Los Angeles County Code (Section 10.20.350).

**MM 7-18** Common area landscaping and restoration methods shall follow protocols to reduce the potential for the introduction of pathogens and pests into the Project site and to reduce the spread of pathogens and pests outside the Project site (should they inadvertently be introduced). Protocols for reducing the potential for introduction of pathogens and pests into the site via plant foliage/soil from nurseries supplying the material shall include the following anti-contamination procedures: sanitizing all containers, tools, and footwear (boots, pots, clippers, soil scoops, shovels) in soil potting areas; sanitizing all transplanting and prep tables; sanitizing plant storage locations (e.g., benches); sanitizing plant transportation devices (e.g., carts); sanitizing floor surfaces where plants are stored on a regular basis; and using anti-splash watering methods for particularly susceptible plant species. Field installation crews shall sanitize all tools and footwear during landscaping and restoration activities prior to using them or entering the site and shall install plants in a way that minimizes conditions that support pathogens and pests (e.g., minimizing standing water). All plant materials brought onto the site will be inspected by landscape/restoration personnel familiar with signs of pathogen and pest infestation. Should pathogens or pests be detected, the infected material shall be bagged, secured, and disposed of off-site to a contained location. Long-term control methods shall include monitoring to examine vegetation and surrounding areas for pests to evaluate trends and to identify when controls are needed; establishing action thresholds that trigger control actions; and implementing pest control methods—cultural, mechanical, environmental, and biological—and appropriate pesticides.

**MM 7-19** Prior to vegetation clearing or grading, additional surveys shall be performed to confirm that all oak trees within the impact and buffer areas are recorded. The Project Applicant/Developer will be required to comply with all



mitigation measures stipulated in the County-issued Oak Tree Permit pursuant to the County of Los Angeles Oak Tree Ordinance (CLAOTO) and the *County of Los Angeles Oak Woodlands Conservation Management Plan* (OWCMP). Trees would be planted pursuant to the Oak Woodland Restoration Plan discussed in MM 7-11.

**MM 7-20** All oak tree driplines within 50 feet of land clearing (including brush clearing) or areas to be graded shall be enclosed with temporary fencing for the duration of the clearing or grading activities. Fencing shall extend to the root protection zone (RPZ) (that area at least 15 feet from the trunk or half again as large as the distance from the trunk to the dripline, whichever is greater). No parking or storage of equipment, solvents, or chemicals that could adversely affect the trees shall be allowed within 25 feet of the trunk at any time. Fence removal shall occur only after the Project Biologist confirms the health of preserved trees.

All upslope grading and drainage shall be engineered to minimize resultant erosion, soil compaction, or drainage into preserved oak tree areas. Whenever possible, utilities shall be designed to avoid crossing under the canopies of preserved trees unless the utilities are installed by drilling under the root zones (where feasible) in order to avoid impacts associated with cutting roots. Feasibility of drilling under trees will be based on soil conditions. Utilities will be clustered whenever possible to lessen impacts to oak RPZs.

**MM 7-21** In order to ensure that no direct impacts to Significant Ecological Area (SEA) 17 occur, brush clearance zones shall be contained within the current Project impact boundary and no overlap with the adjacent SEA 17 shall occur. Vegetation management for fire abatement purposes is not authorized in SEA areas. An Implementation Plan, including fire risk abatement measures (including but not limited to vegetation management) required to comply with State and County fire prevention and response legal requirements, shall be submitted as part of the tentative tract map for portions of the Project site that border an SEA or mitigation preserve area. The Plan shall include this prohibition on vegetation clearance within these biologically sensitive areas.

**MM 7-22** If a golf course is developed as part of Project implementation, the Project Applicant/Developer shall prepare a Golf Course Management Plan that requires any golf course developed on the site to be built and managed in accordance with the Audubon Cooperative Sanctuary Program for Golf Courses (or equivalent), which is a cooperative effort between the United States Golf Association and Audubon International that is designed to promote ecologically sound land management and to conserve natural resources.

MM 11-3 from Section 5.11, Air Resources, will also be implemented to help reduce impacts to Biological Resources.

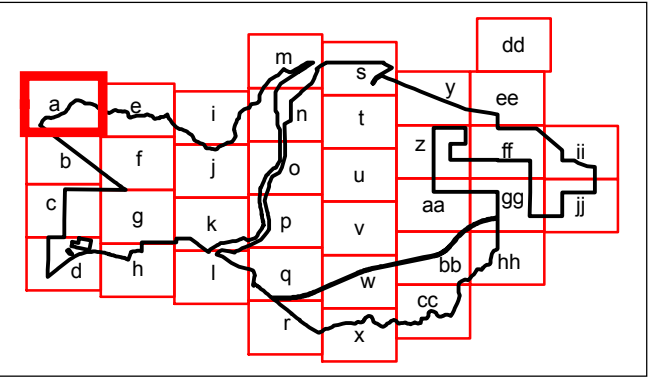
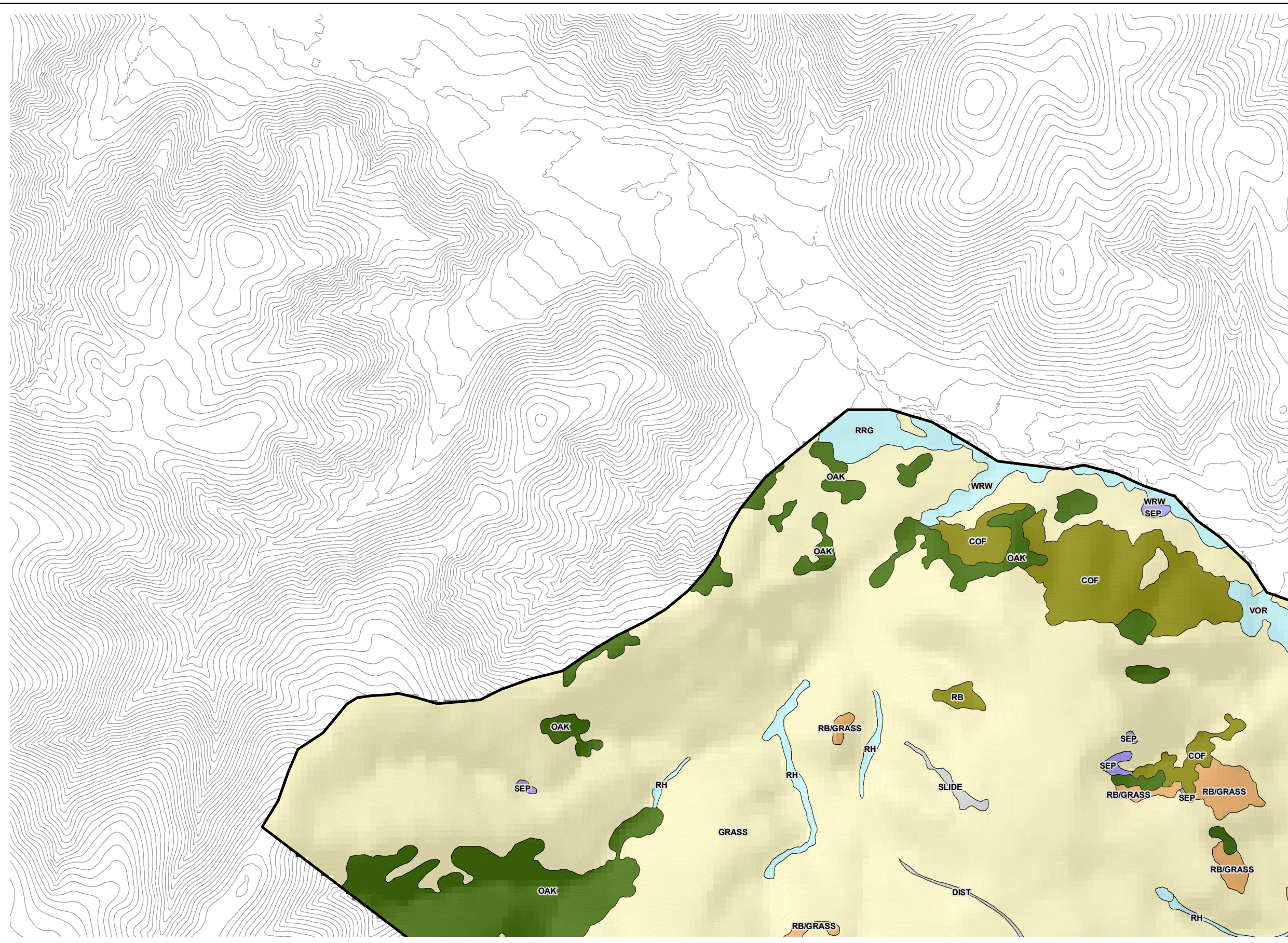
## 5.7.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The direct and indirect impacts on biological resources that may result from implementation of the Project shall be mitigated to a less than significant level with implementation of the mitigation measures described above. Specific strategies to mitigate each impact to a level that is less than significant are included. Therefore, Project impacts are considered less than significant after mitigation. Cumulative impacts on biological resources are discussed in Section 7.0 of this document.

## 5.7.9 REFERENCES

- Allen, L.W., M. Carmona-Freeman, D.S. Cooper, J. Feenstra, K.L. Garrett, G. George, M. Loquvam, E. Osgood, T. Ryan, M. San Miguel, and S. Vigallon. 2009 (January/February). Los Angeles County's Sensitive Bird Species. *Western Tanager* 75(3): E1–E11. Los Angeles, CA: Los Angeles Audubon Society.
- American Ornithologists' Union (AOU). 1998. *Check-list of North American Birds* (7th ed). Shipman, VA: Buteo Books.
- Association of Environmental Professionals (AEP). 2016. *2016 California Environmental Quality Act (CEQA) Statute and Guidelines*. Palm Desert, CA: AEP.
- Atwood, J.L. 1992. Rare, Local, Little-Known, and Declining North American Breeders – A Closer Look. *Birding* 25: 228–233. Colorado Springs, CO: American Birding Association.
- . 1990. *Status Review of the California Gnatcatcher (*Polioptila californica*)*. Manomet, MA: Manomet Bird Observatory.
- Autenrieth, R.E., D.E. Brown, J. Cancino, R.M. Lee, R.A. Ockenfels, B.W. O'Gara, T.M. Pojar, and J.D. Yoakum. 2006 (May). *Pronghorn Management: 2006. Biological and Management Principles and Practices Designed to Sustain Pronghorn Populations from Canada to Mexico*. Bismark, ND: 21st Pronghorn Workshop and North Dakota Game and Fish Department.
- Baldwin, B.G., D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken (Eds.). 2012. *The Jepson Manual: Vascular Plants of California* (Second ed.). Berkeley, CA: University of California Press.
- Babcock, K. 2005 (November). Personal Communication. Telephone Conversation between K. Babcock (Impact Sciences) and M. Blain (BonTerra Consulting).
- Barry, W.J. 1972. *California Prairie Ecosystem. Vol. 1: The Central Valley Prairie*. Sacramento, CA: State of California Resources Agency, Department of Parks and Recreation.
- Beedy, E.C., S.D. Sanders, and D.A. Bloom. 1991 (June). *Breeding Status, Distribution, and Habitat Associations of the Tricolored Blackbird (*Agelaius tricolor*), 1850–1889* (JSA

D:\Projects\306\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd

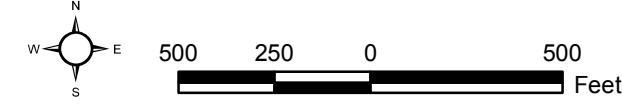


- Project Boundary
- Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
- Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
- Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
- Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
- Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
- Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
- Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

### Detailed Vegetation Map

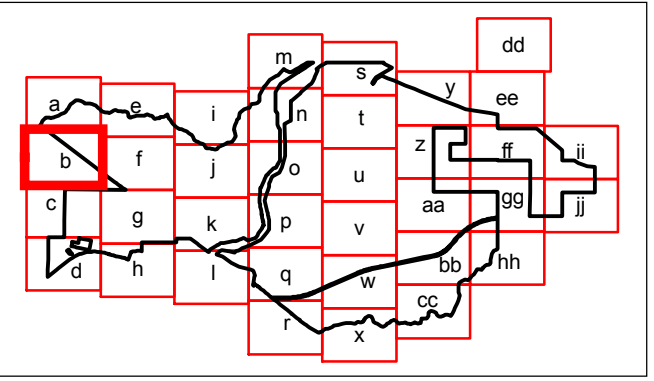
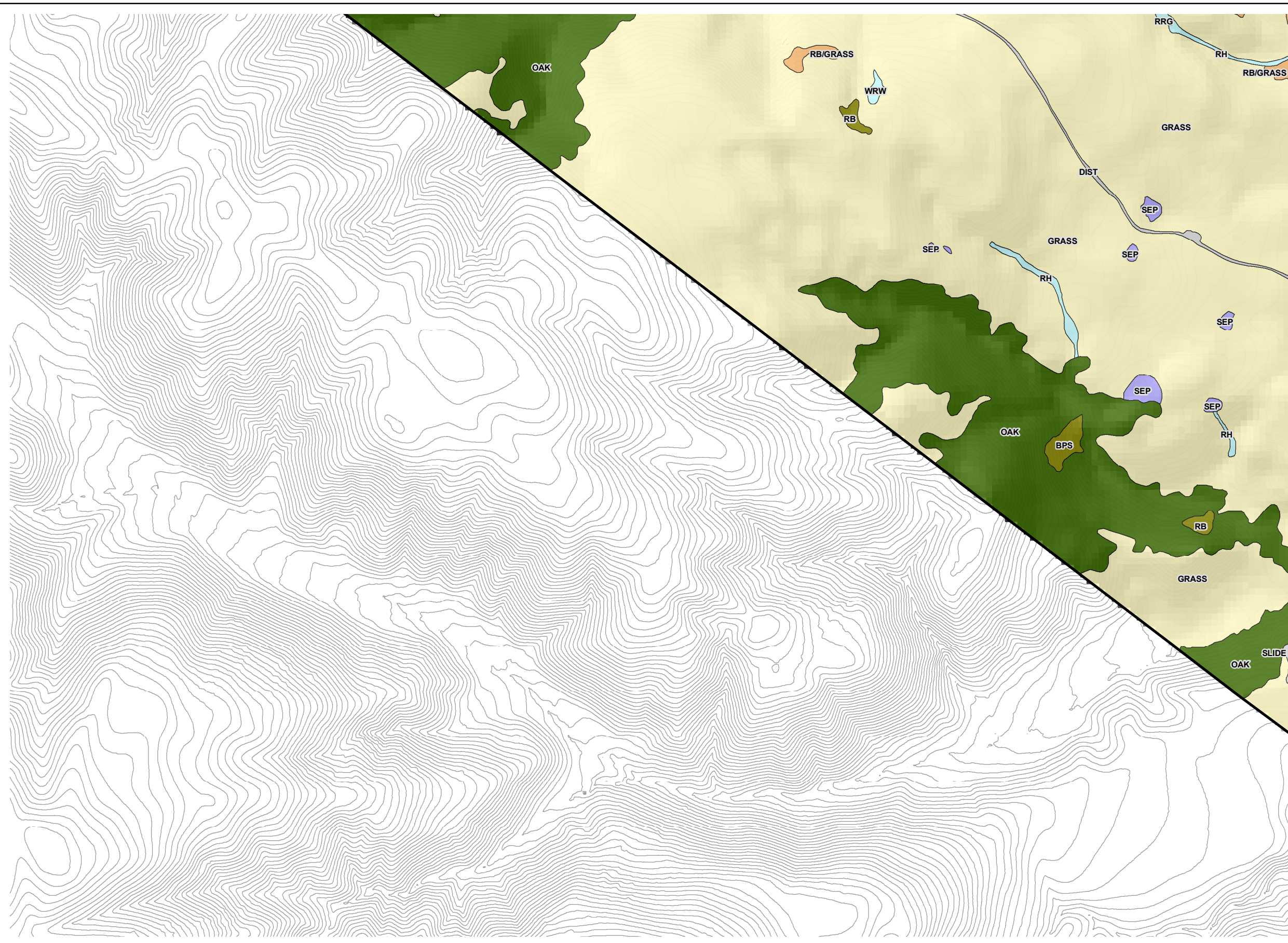
Exhibit 5.7-17a

Centennial Project





D:\Projects\30CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd

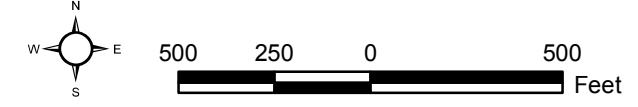


- Project Boundary** **Impact Area**
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

### Detailed Vegetation Map

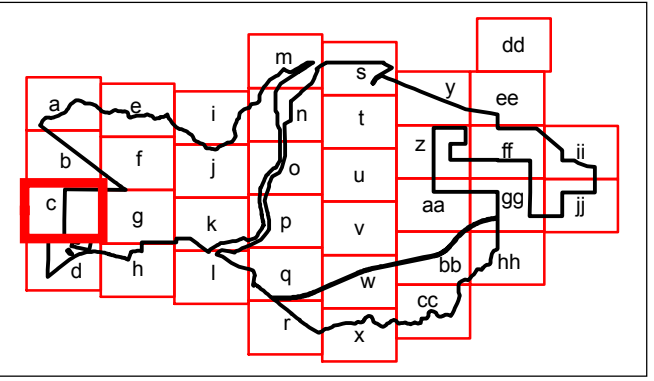
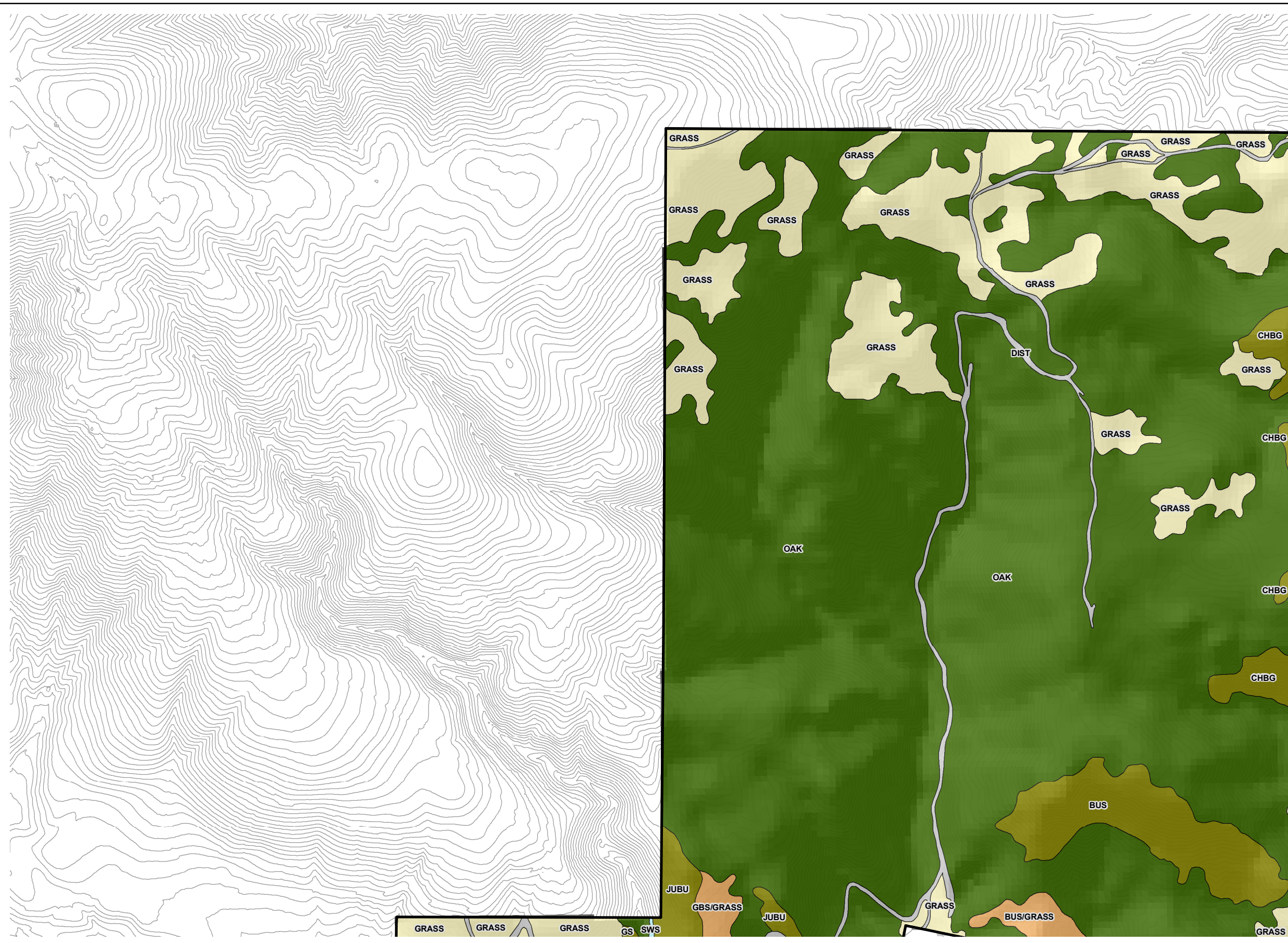
Exhibit 5.7-17b

Centennial Project





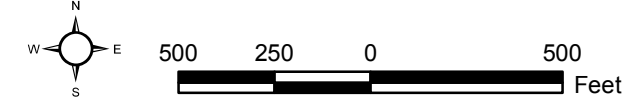
D:\Projects\30\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd



- Project Boundary
- Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
- Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
- Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
- Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
- Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
- Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
- Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

### Detailed Vegetation Map

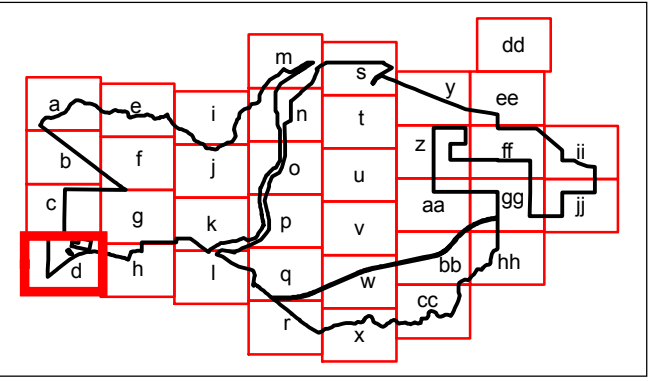
Centennial Project



### Exhibit 5.7-17c



D:\Projects\3\CENTennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd

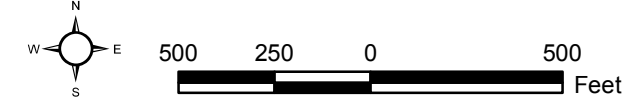


- Project Boundary** **Impact Area**
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

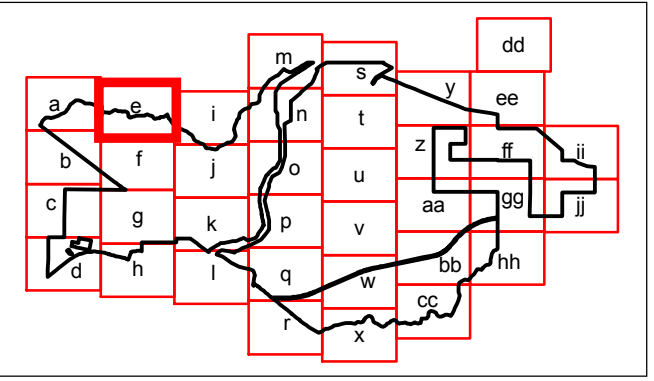
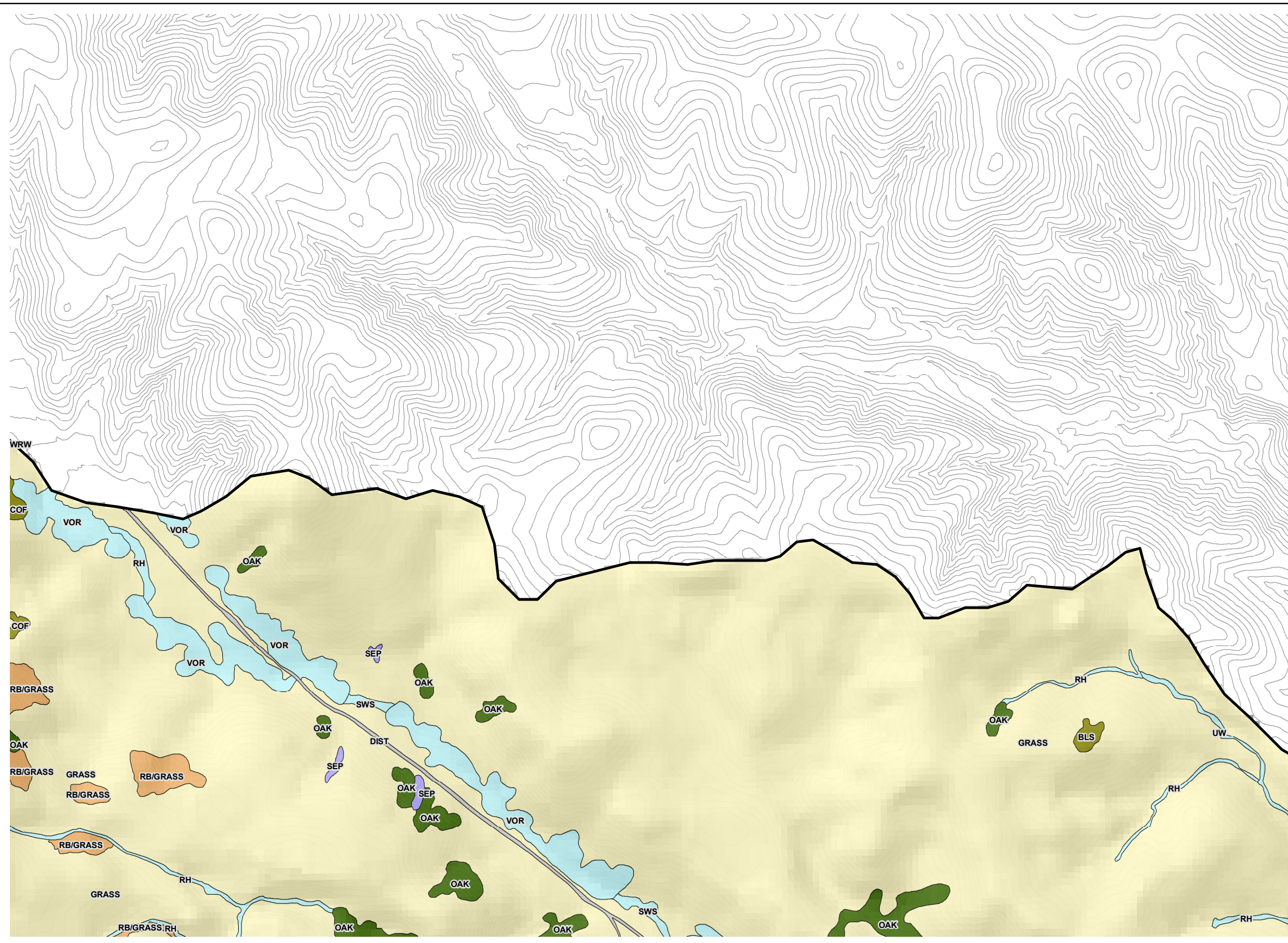
### Detailed Vegetation Map

Exhibit 5.7-17d

Centennial Project



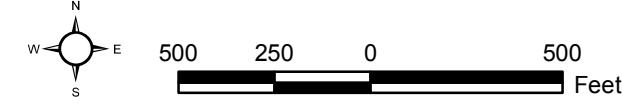




- Project Boundary**      **Impact Area**
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**
    - GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**
    - BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland
    - BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland
    - GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland
    - RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland
    - WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland
    - WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland
    - YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**
    - BLS - Bush Lupine Scrub
    - BPS - Bladderpod Scrub
    - BUS - California Buckwheat Scrub
    - BUS/YUS - California Buckwheat Scrub/Yucca Scrub
    - CHBG - Chamise/Bigberry Manzanita Chaparral
    - COF - Coffeeberry Scrub
    - GS - Goldenbush Scrub
    - GBS - Great Basin Scrubs
    - JUBU - California juniper/California buckwheat Scrub
    - RB - Rabbitbrush Scrub
    - WBS - Wand Buckwheat Scrub
    - WBW - Wright's Buckwheat Scrub
    - YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**
    - OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**
    - AS - Alluvial Scrub
    - CW - Cottonwood Woodland
    - RH - Riparian Herb
    - RRG - Rush Riparian Grassland
    - SAWR - Southern Arroyo Willow Riparian
    - SCWW - Southern Cottonwood Willow Woodland
    - SWS - Southern Willow Scrub
    - UW - Unvegetated Wash
    - VOR - Valley Oak Riparian Woodland
    - WRF - Willow Riparian Forest
    - WRW - Willow Riparian Woodland
  - Bog and Marsh**
    - AM - Alkali Meadow
    - BR - Baltic Rush
    - CVFM - Coastal and Valley Freshwater Marsh
    - SEP - Seeps and Ephemeral Ponds
  - Other Areas**
    - AG - Agricultural
    - DEVL - Developed
    - DEVL/DIST - Developed/Disturbed
    - DIST - Disturbed
    - ORN - Ornamental
    - SLIDE - Disturbed (Landslide)
    - WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

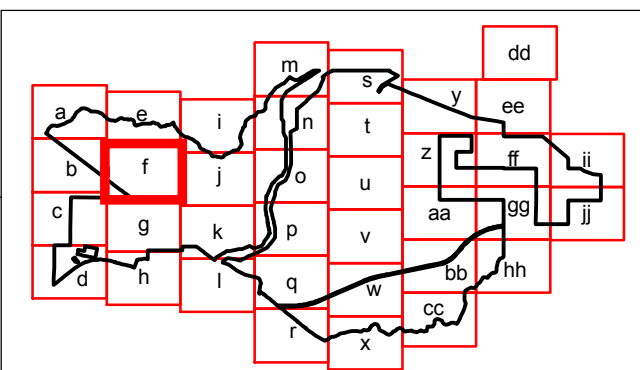
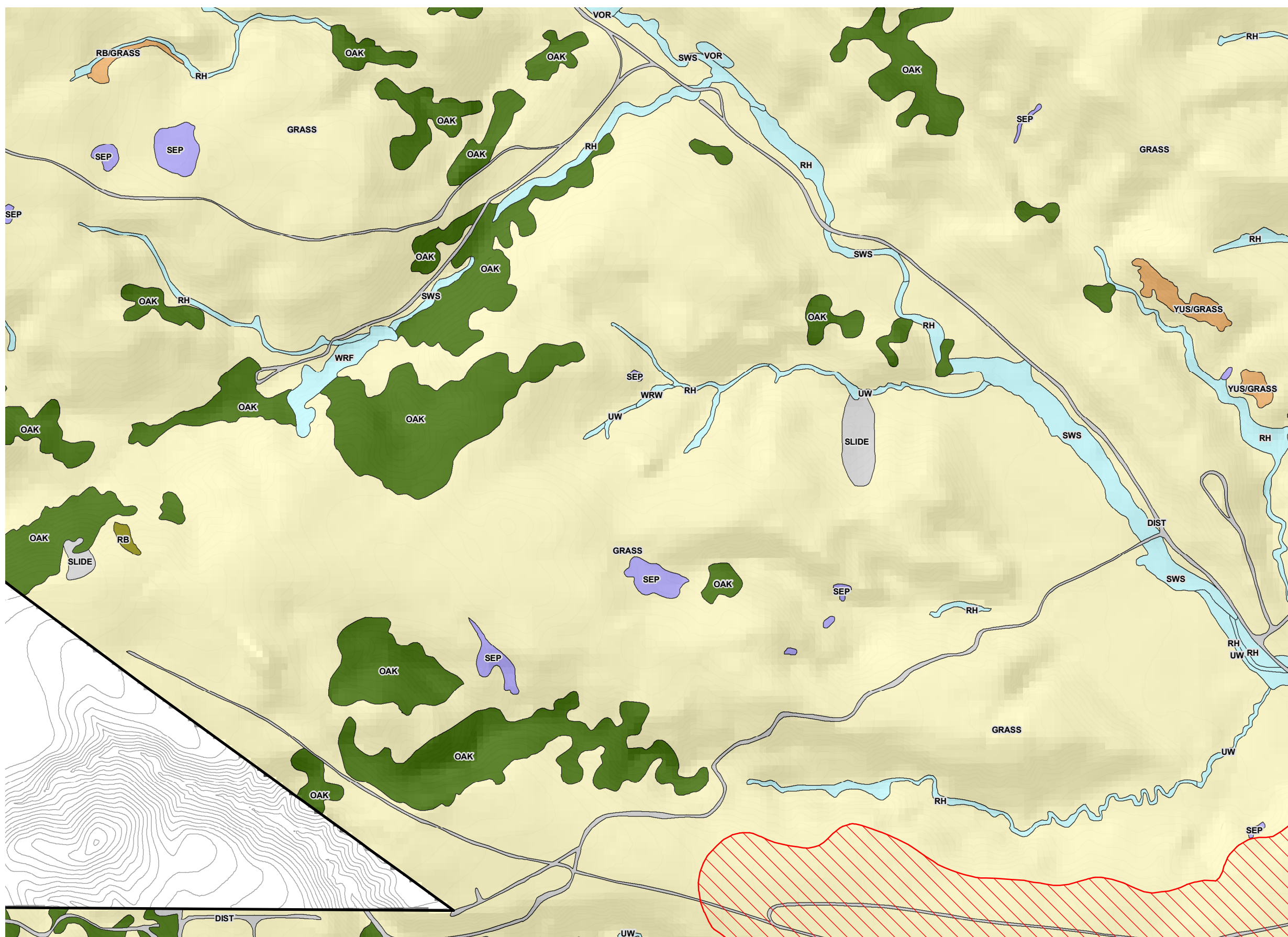
Centennial Project



**Exhibit 5.7-17e**

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd

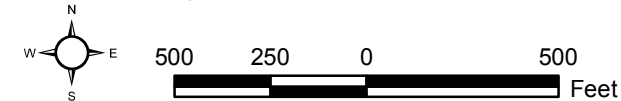




- Project Boundary
  Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

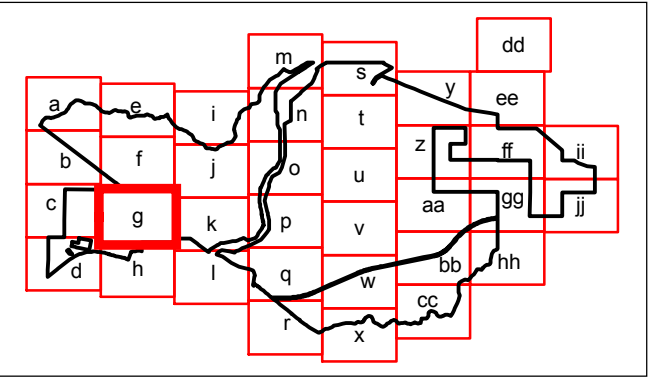
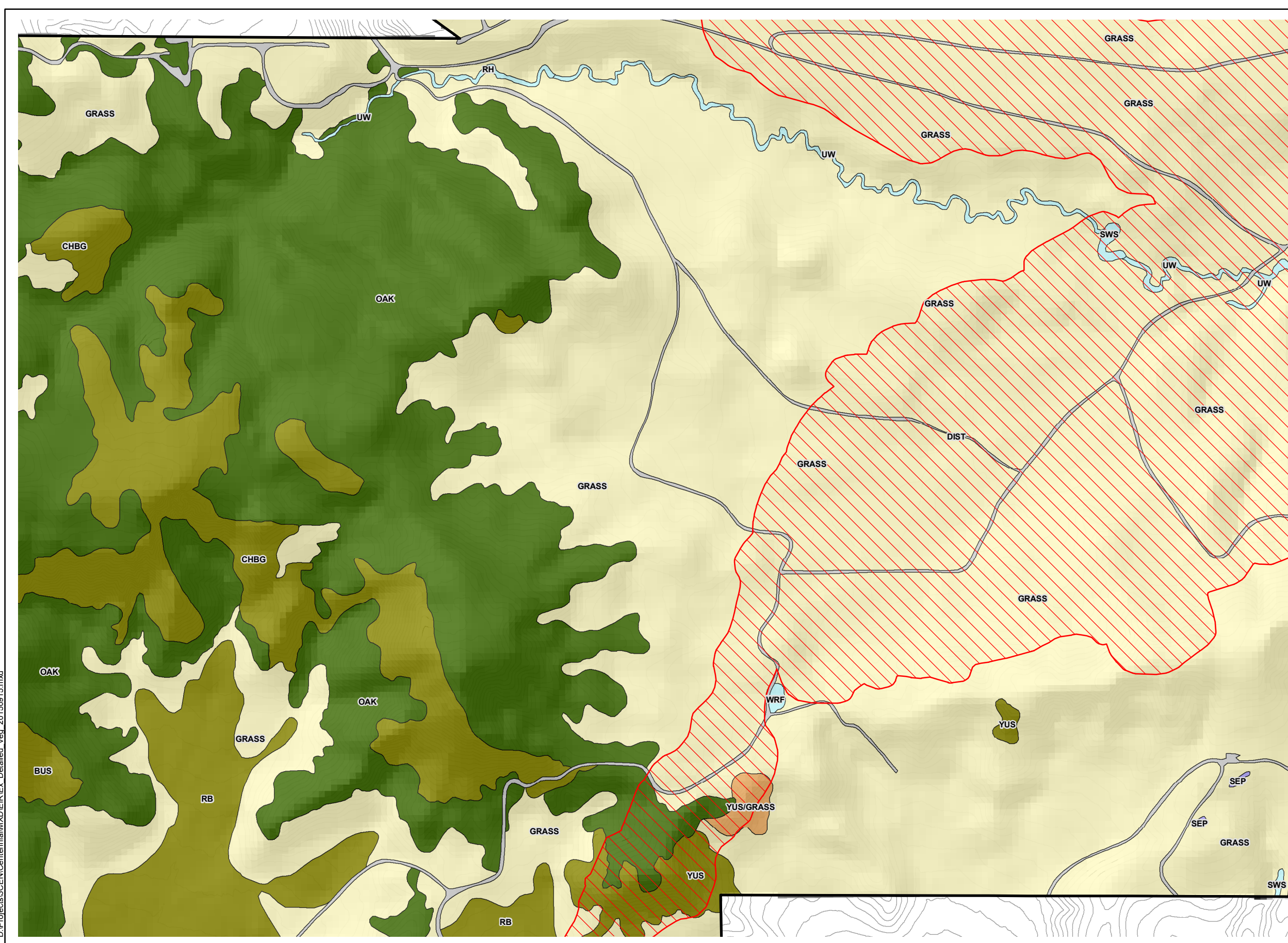
**Detailed Vegetation Map**

Centennial Project



**Exhibit 5.7-17f**





- Project Boundary
  Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

Centennial Project

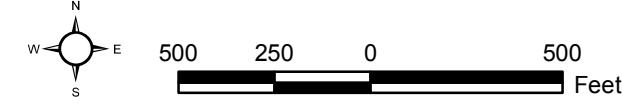
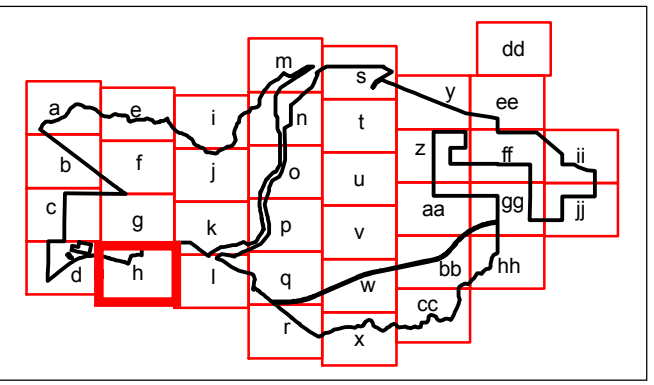
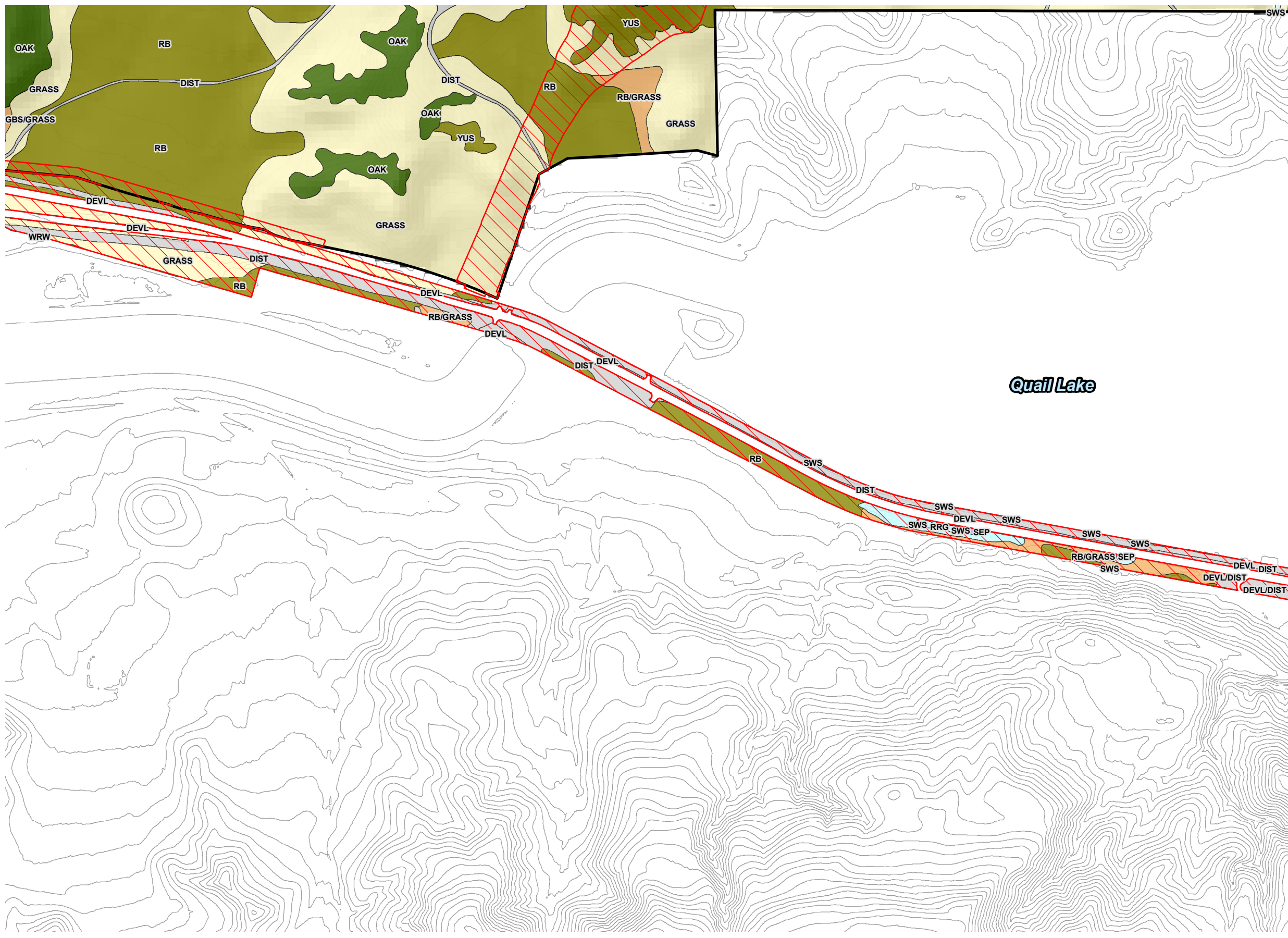


Exhibit 5.7-17g

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd

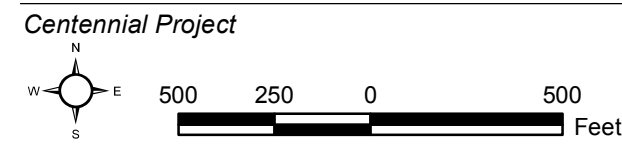




- Project Boundary
  - Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**
    - GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**
    - BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland
    - BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland
    - GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland
    - RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland
    - WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland
    - WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland
    - YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**
    - BLS - Bush Lupine Scrub
    - BPS - Bladderpod Scrub
    - BUS - California Buckwheat Scrub
    - BUS/YUS - California Buckwheat Scrub/Yucca Scrub
    - CHBG - Chamise/Bigberry Manzanita Chaparral
    - COF - Coffeeberry Scrub
    - GS - Goldenbush Scrub
    - GBS - Great Basin Scrubs
    - JUBU - California juniper/California buckwheat Scrub
    - RB - Rabbitbrush Scrub
    - WBS - Wand Buckwheat Scrub
    - WBW - Wright's Buckwheat Scrub
    - YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**
    - OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**
    - AS - Alluvial Scrub
    - CW - Cottonwood Woodland
    - RH - Riparian Herb
    - RRG - Rush Riparian Grassland
    - SAWR - Southern Arroyo Willow Riparian
    - SCWW - Southern Cottonwood Willow Woodland
    - SWS - Southern Willow Scrub
    - UW - Unvegetated Wash
    - VOR - Valley Oak Riparian Woodland
    - WRF - Willow Riparian Forest
    - WRW - Willow Riparian Woodland
  - Bog and Marsh**
    - AM - Alkali Meadow
    - BR - Baltic Rush
    - CVFM - Coastal and Valley Freshwater Marsh
    - SEP - Seeps and Ephemeral Ponds
  - Other Areas**
    - AG - Agricultural
    - DEVL - Developed
    - DEVL/DIST - Developed/Disturbed
    - DIST - Disturbed
    - ORN - Ornamental
    - SLIDE - Disturbed (Landslide)
    - WAT/DEVL - Open Water/Developed

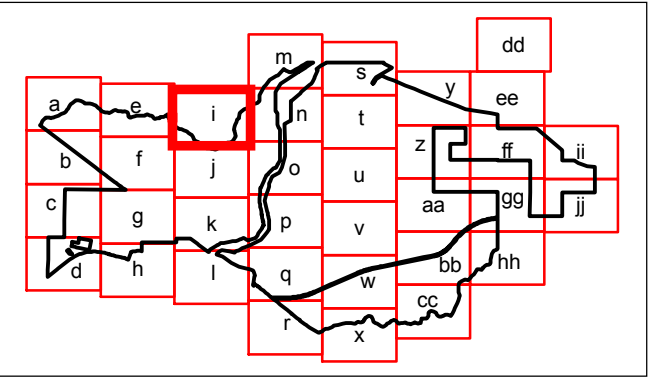
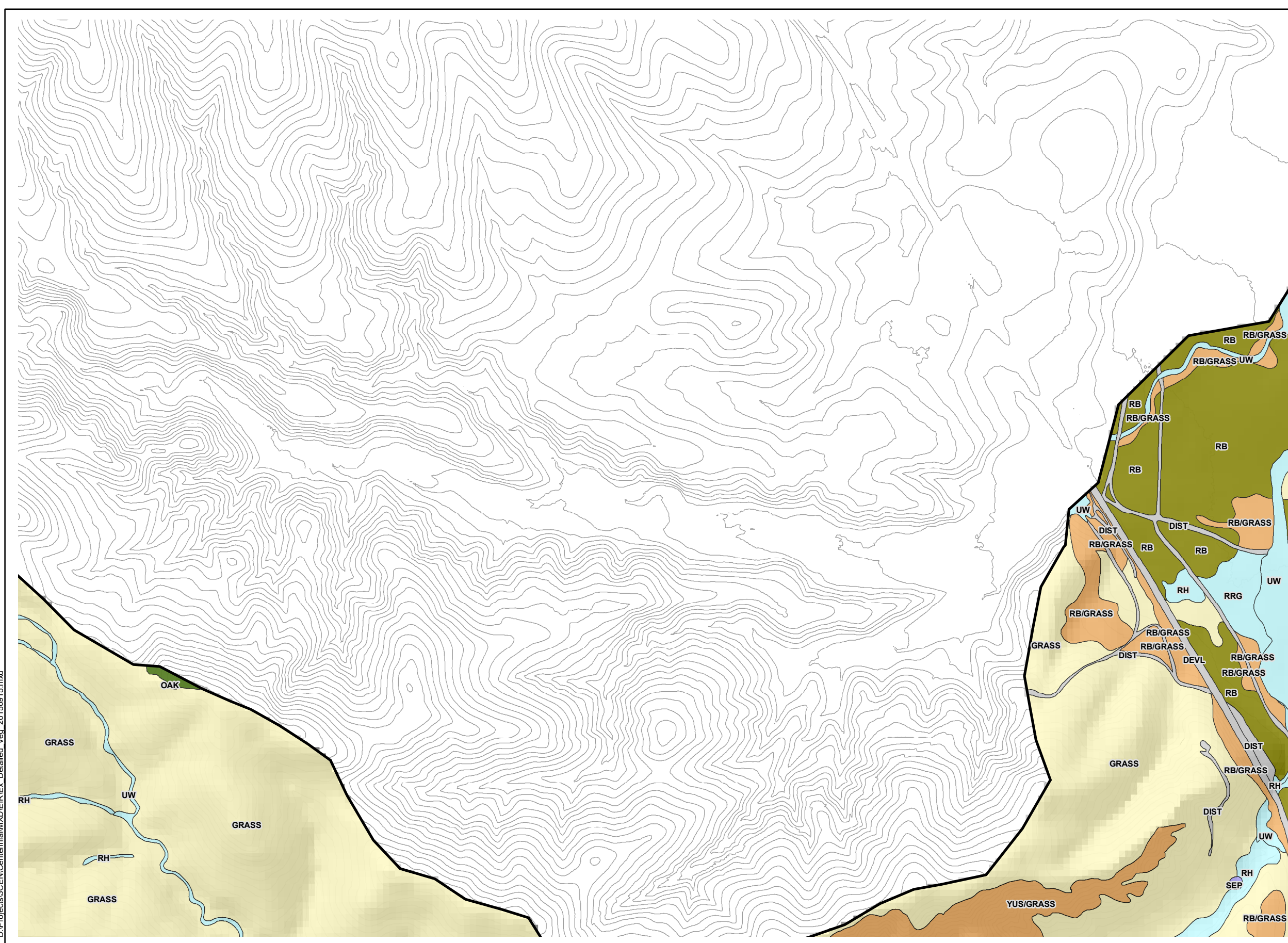
**Detailed Vegetation Map**

**Exhibit 5.7-17h**



D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd





- Project Boundary
  Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

Centennial Project

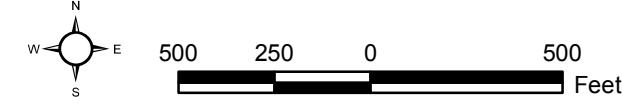
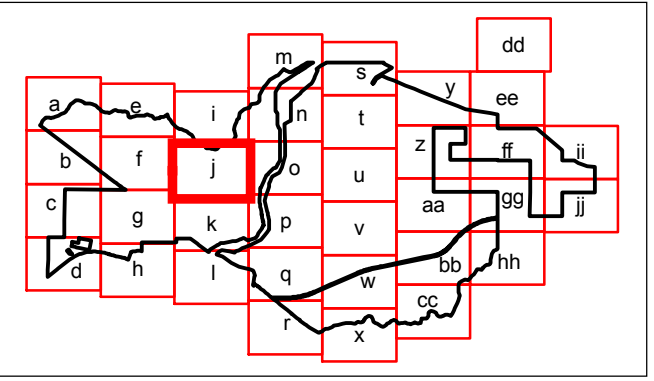
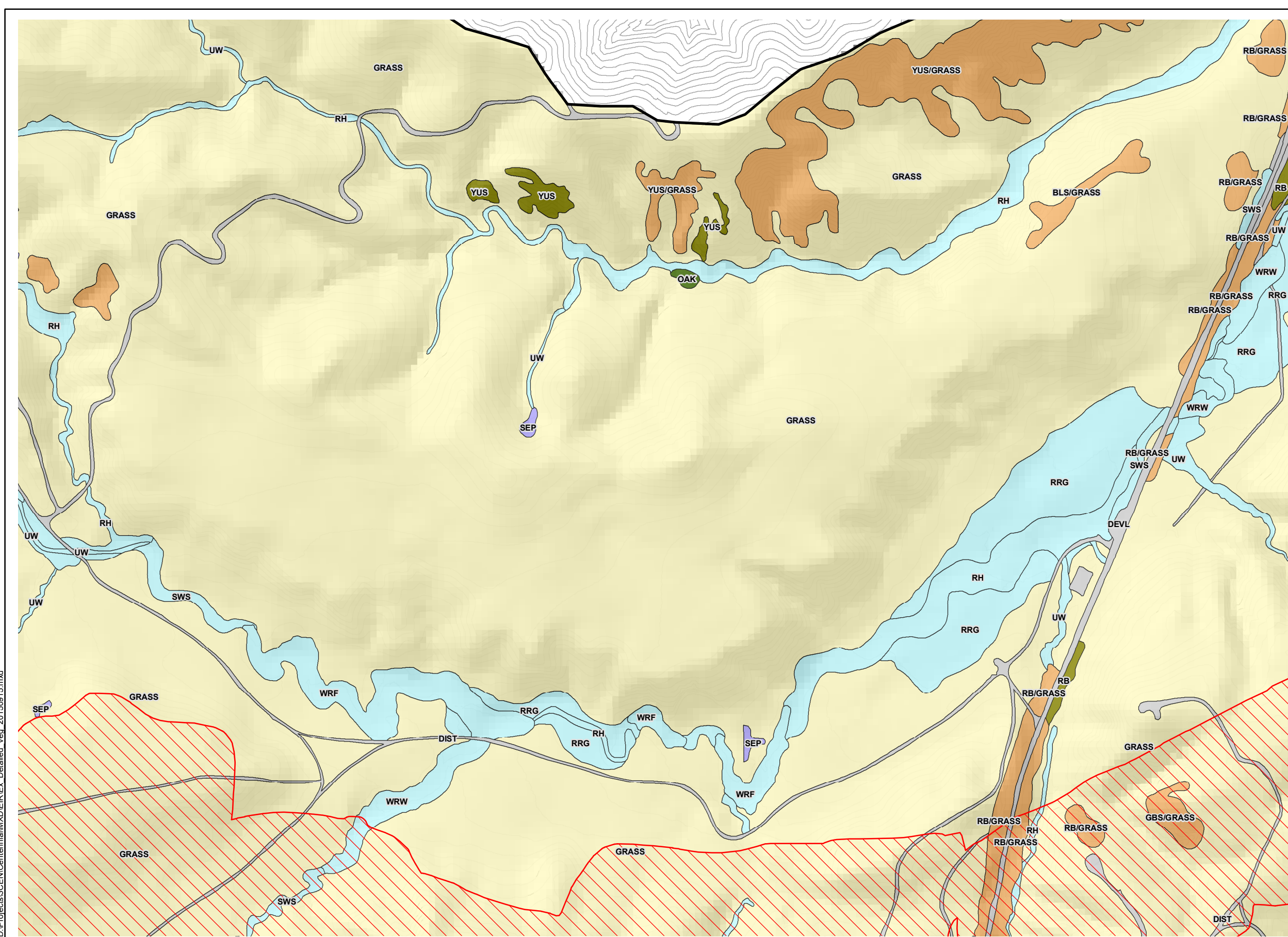


Exhibit 5.7-17i

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd

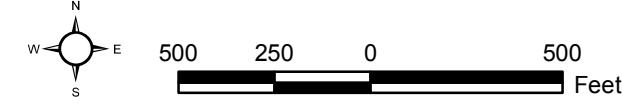




- Project Boundary** [Symbol]
- Impact Area** [Symbol]
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**
    - GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**
    - BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland
    - BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland
    - GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland
    - RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland
    - WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland
    - WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland
    - YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**
    - BLS - Bush Lupine Scrub
    - BPS - Bladderpod Scrub
    - BUS - California Buckwheat Scrub
    - BUS/YUS - California Buckwheat Scrub/Yucca Scrub
    - CHBG - Chamise/Bigberry Manzanita Chaparral
    - COF - Coffeeberry Scrub
    - GS - Goldenbush Scrub
    - GBS - Great Basin Scrubs
    - JUBU - California juniper/California buckwheat Scrub
    - RB - Rabbitbrush Scrub
    - WBS - Wand Buckwheat Scrub
    - WBW - Wright's Buckwheat Scrub
    - YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**
    - OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**
    - AS - Alluvial Scrub
    - CW - Cottonwood Woodland
    - RH - Riparian Herb
    - RRG - Rush Riparian Grassland
    - SAWR - Southern Arroyo Willow Riparian
    - SCWW - Southern Cottonwood Willow Woodland
    - SWS - Southern Willow Scrub
    - UW - Unvegetated Wash
    - VOR - Valley Oak Riparian Woodland
    - WRF - Willow Riparian Forest
    - WRW - Willow Riparian Woodland
  - Bog and Marsh**
    - AM - Alkali Meadow
    - BR - Baltic Rush
    - CVFM - Coastal and Valley Freshwater Marsh
    - SEP - Seeps and Ephemeral Ponds
  - Other Areas**
    - AG - Agricultural
    - DEVL - Developed
    - DEVL/DIST - Developed/Disturbed
    - DIST - Disturbed
    - ORN - Ornamental
    - SLIDE - Disturbed (Landslide)
    - WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

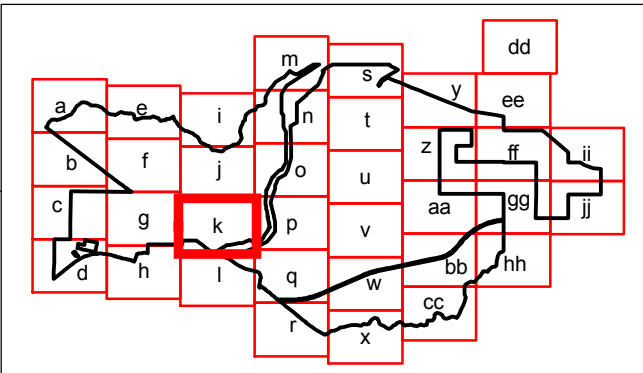
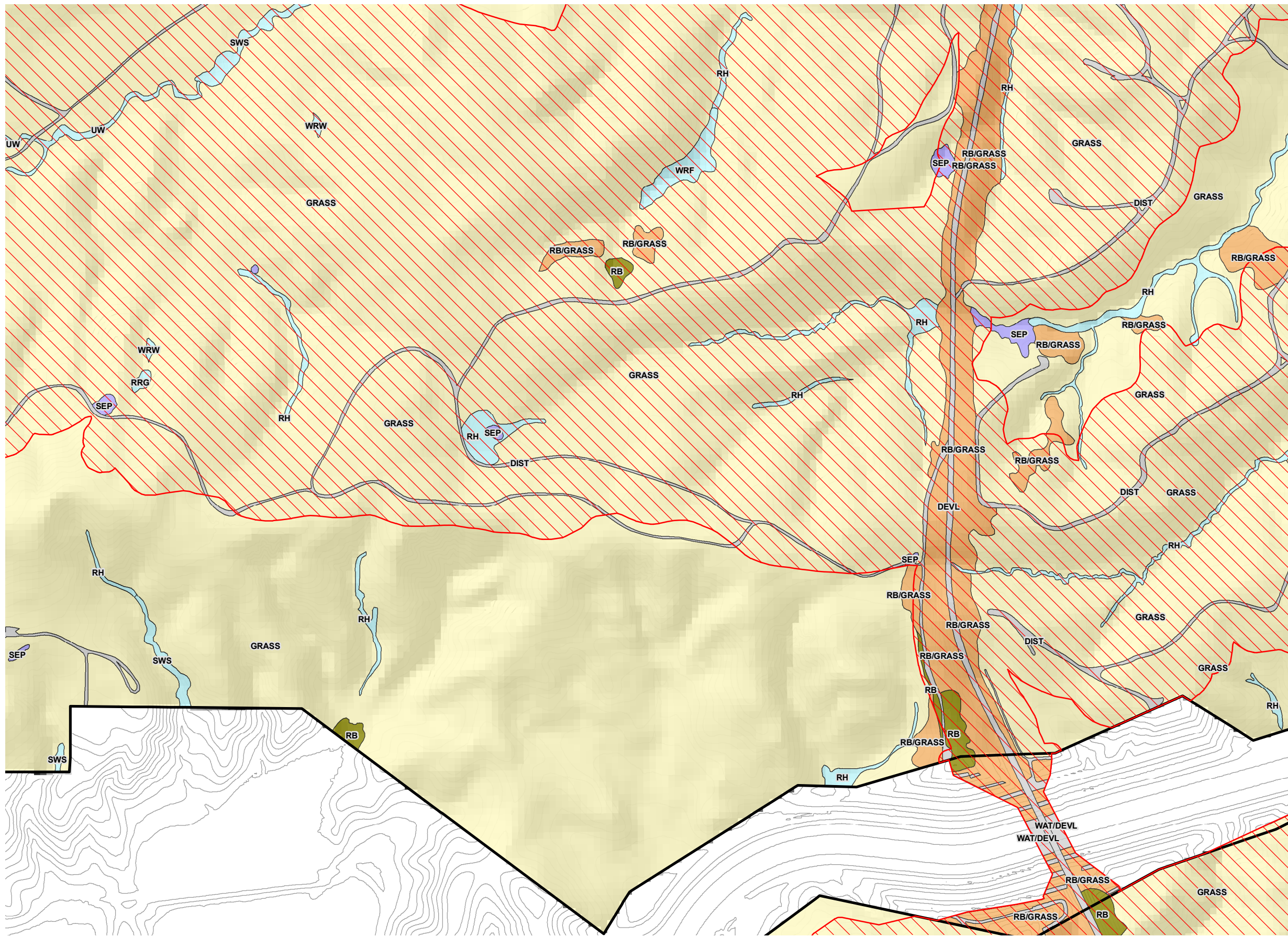
Centennial Project



**Exhibit 5.7-17j**

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd





- Project Boundary
  Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

## Detailed Vegetation Map

Centennial Project

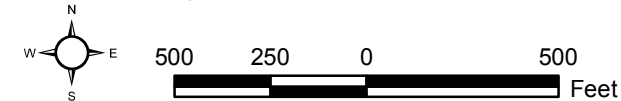
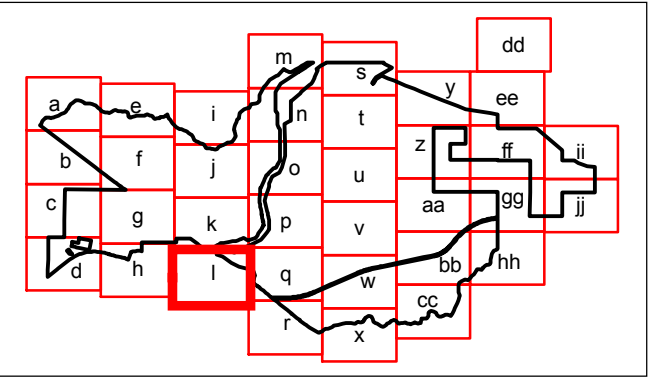
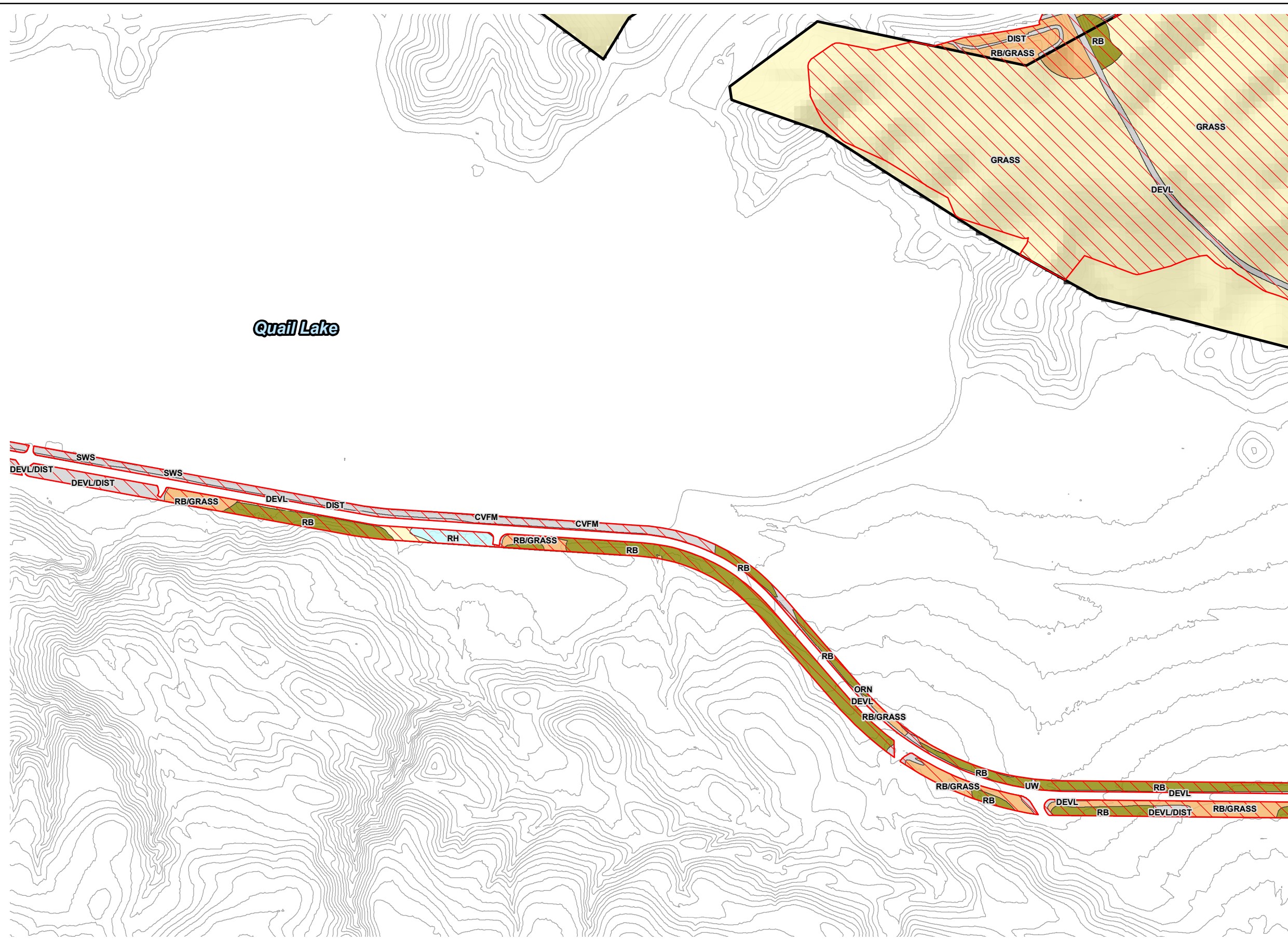


Exhibit 5.7-17k





- Project Boundary
- Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
- Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
- Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
- Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
- Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
- Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
- Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

Centennial Project

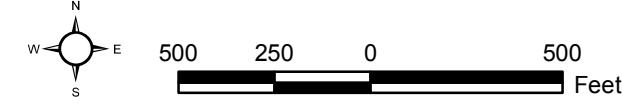
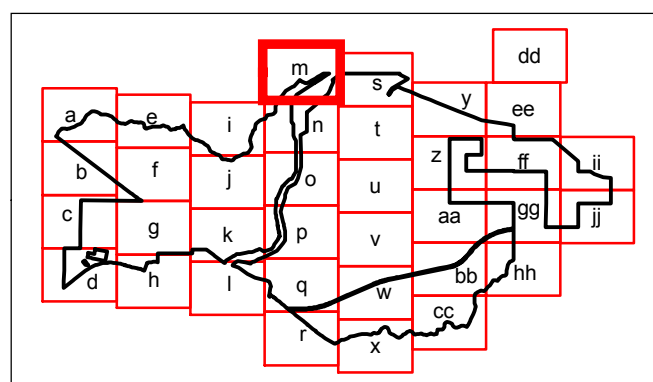


Exhibit 5.7-171

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd



- Project Boundary
  Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
 BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
 BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
 RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
 WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
 BLS - Bush Lupine Scrub  
 BPS - Bladderpod Scrub  
 BUS - California Buckwheat Scrub  
 BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
 CHBG - Chamise/Bigberry Manzanita Chaparral  
 COF - Coffeeberry Scrub  
 GS - Goldenbush Scrub  
 GBS - Great Basin Scrubs  
 JUBU - California juniper/California buckwheat Scrub  
 RB - Rabbitbrush Scrub  
 WBS - Wand Buckwheat Scrub  
 WBW - Wright's Buckwheat Scrub  
 YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
 AS - Alluvial Scrub  
 CW - Cottonwood Woodland  
 RH - Riparian Herb  
 RRG - Rush Riparian Grassland  
 SAWR - Southern Arroyo Willow Riparian  
 SCWW - Southern Cottonwood Willow Woodland  
 SWS - Southern Willow Scrub  
 UW - Unvegetated Wash  
 VOR - Valley Oak Riparian Woodland  
 WRF - Willow Riparian Forest  
 WRW - Willow Riparian Woodland
  - Bog and Marsh**  
 AM - Alkali Meadow  
 BR - Baltic Rush  
 CVFM - Coastal and Valley Freshwater Marsh  
 SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
 AG - Agricultural  
 DEVL - Developed  
 DEVL/DIST - Developed/Disturbed  
 DIST - Disturbed  
 ORN - Ornamental  
 SLIDE - Disturbed (Landslide)  
 WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

Centennial Project

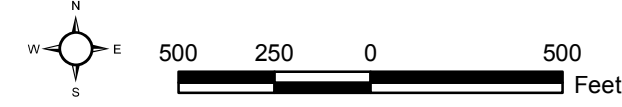
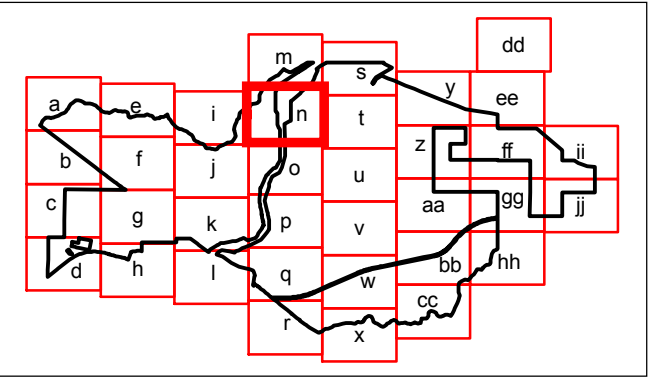
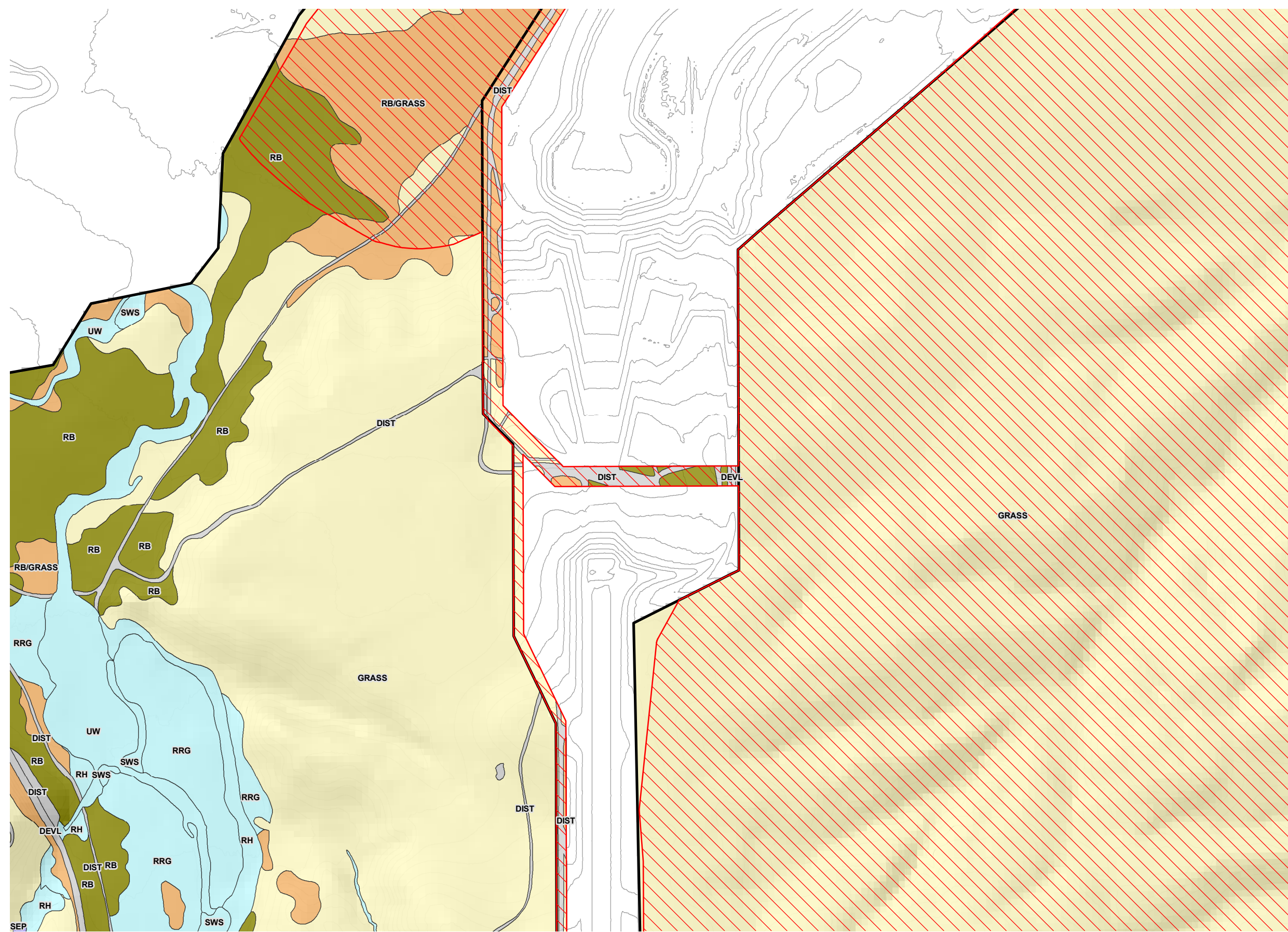


Exhibit 5.7-17m

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd





- Project Boundary
  Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

Centennial Project

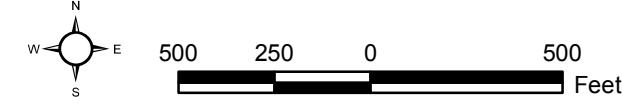
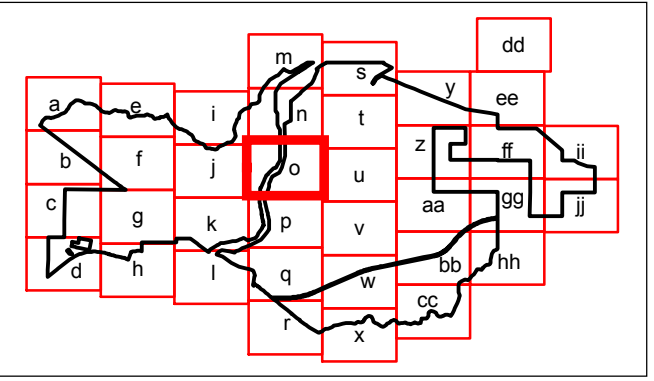
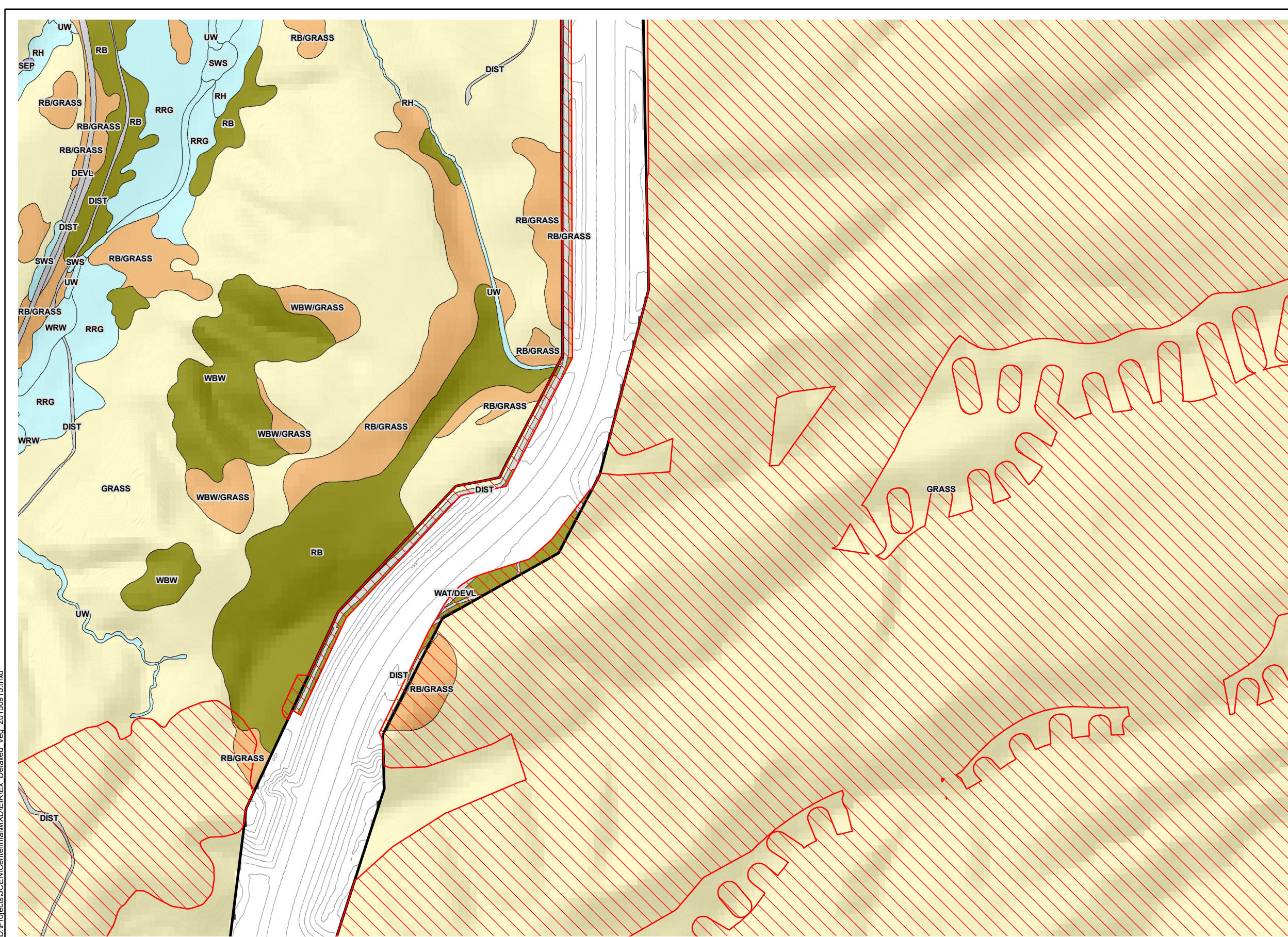


Exhibit 5.7-17n

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd





- Project Boundary**  **Impact Area**
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

Centennial Project

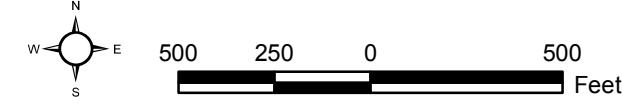
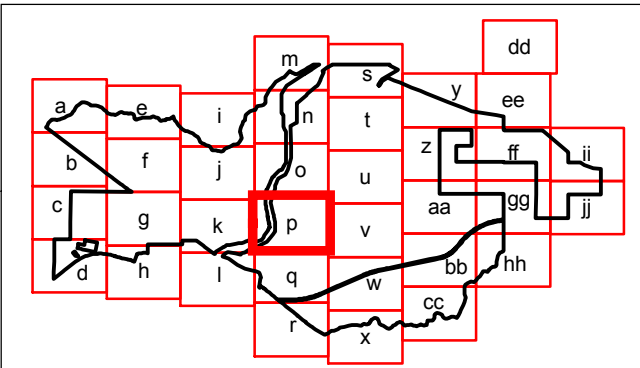
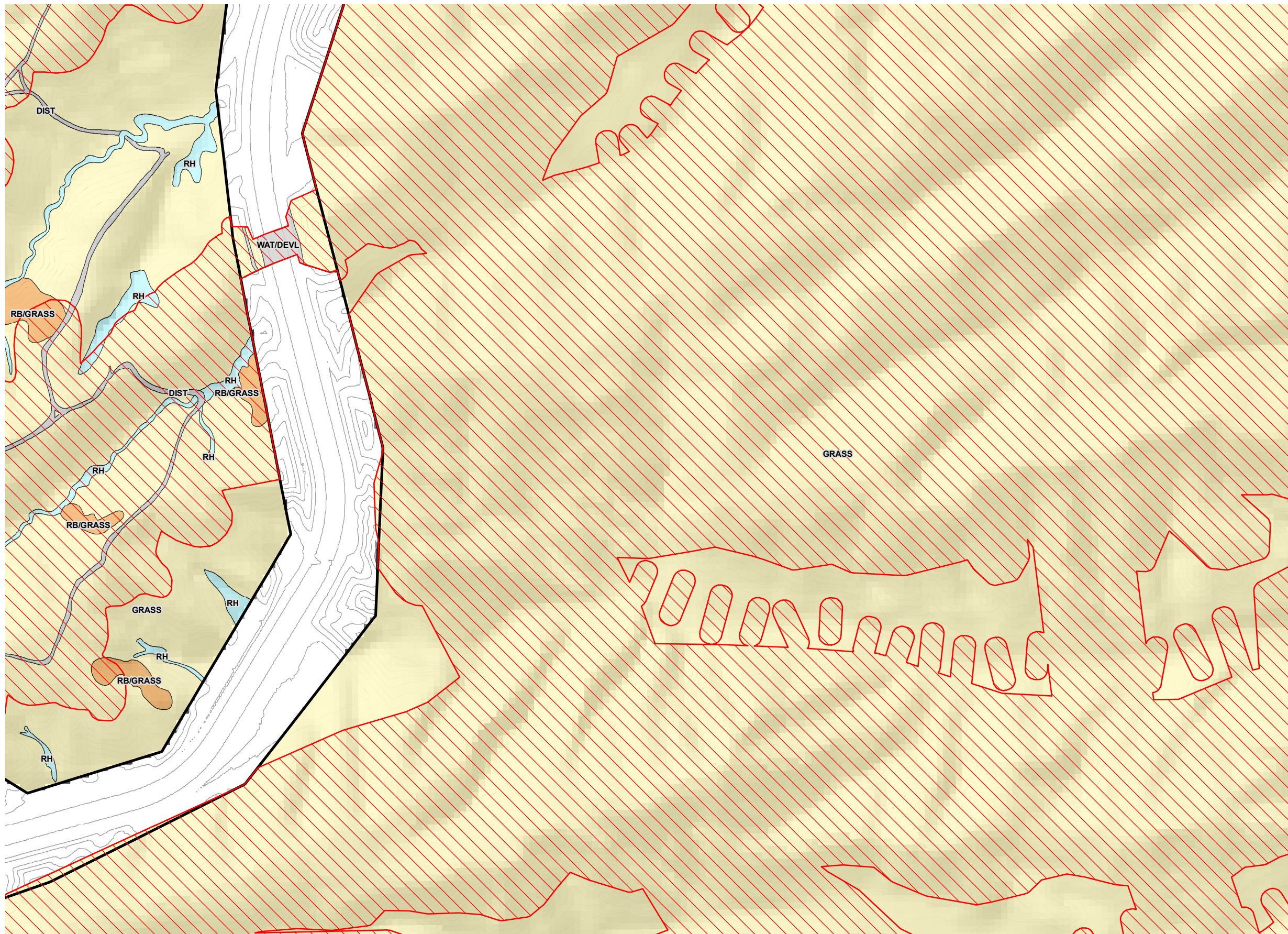


Exhibit 5.7-17o

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd





- Project Boundary
- Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
- Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
- Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
- Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
- Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
- Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
- Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

Centennial Project

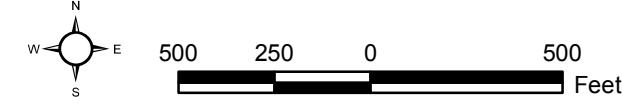
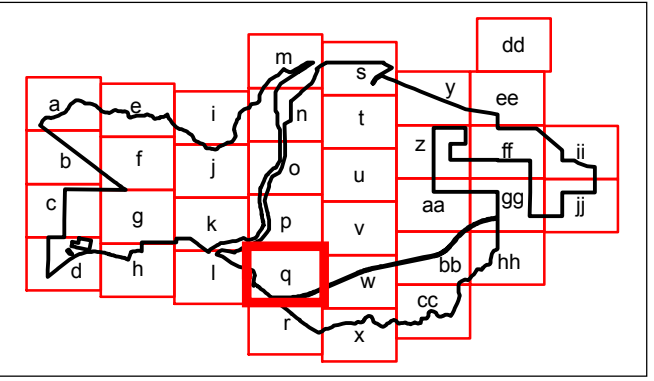
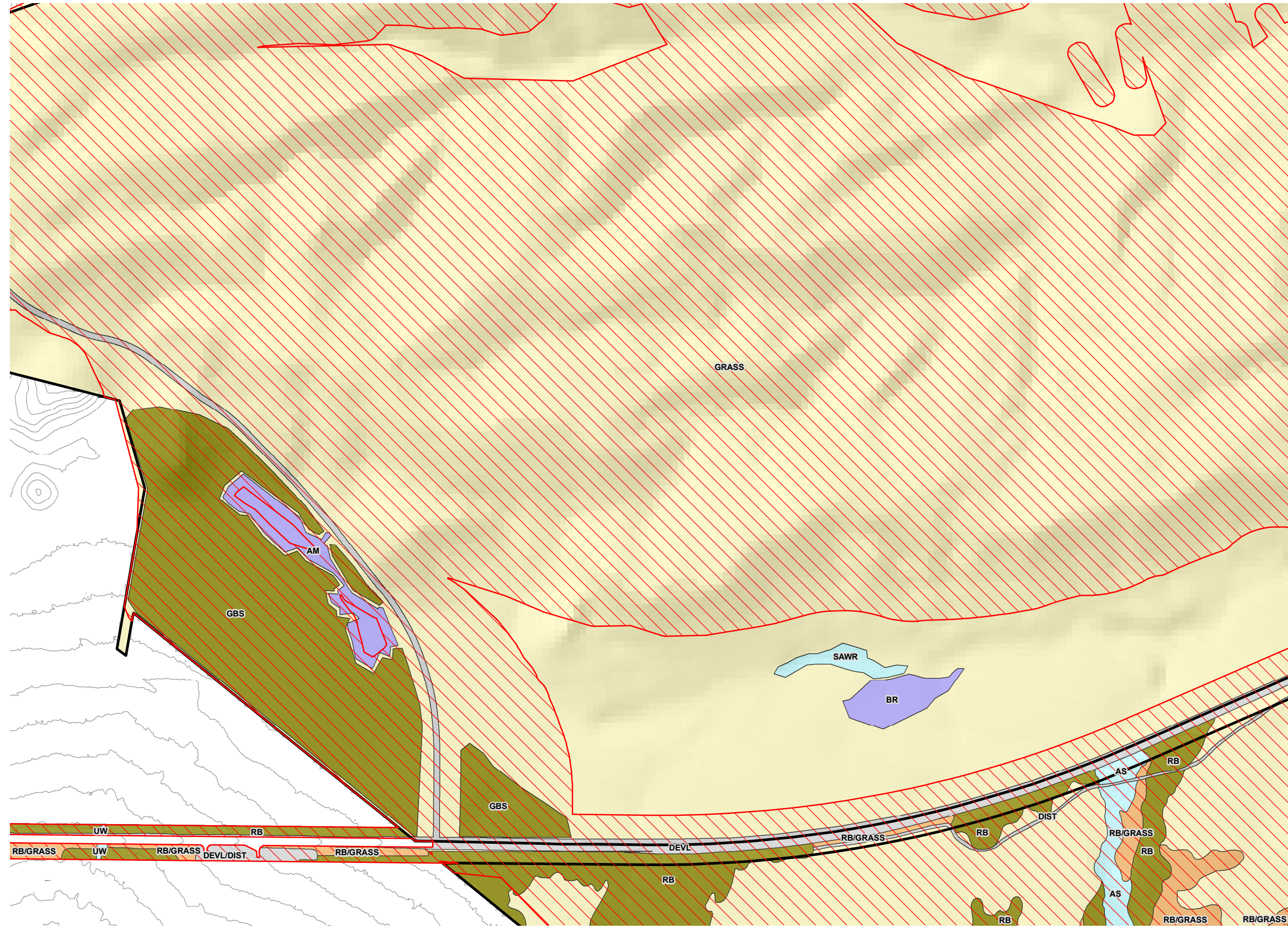


Exhibit 5.7-17p

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd





- Project Boundary
  - Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

Centennial Project

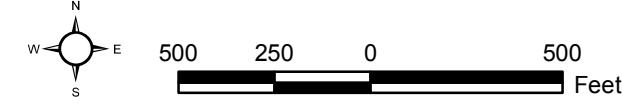
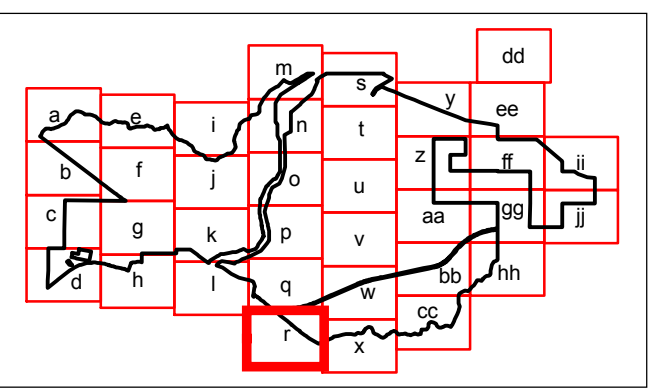
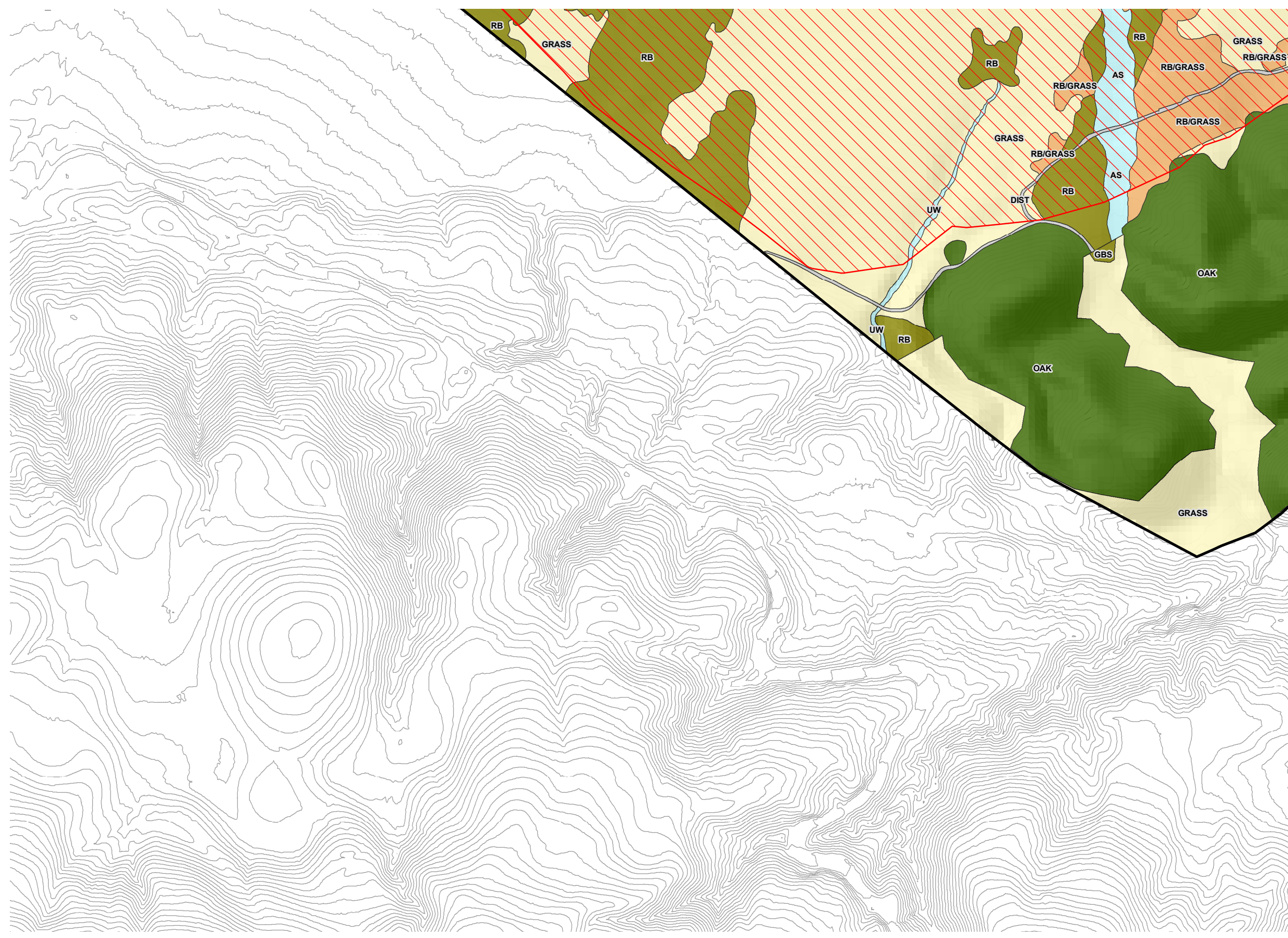


Exhibit 5.7-17q

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd



D:\Projects\306\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd

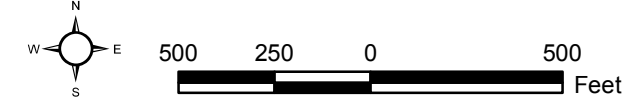


- Project Boundary
- Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
- Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
- Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
- Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
- Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
- Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
- Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

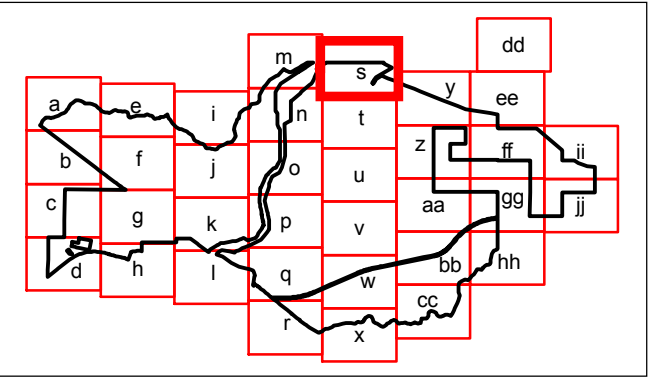
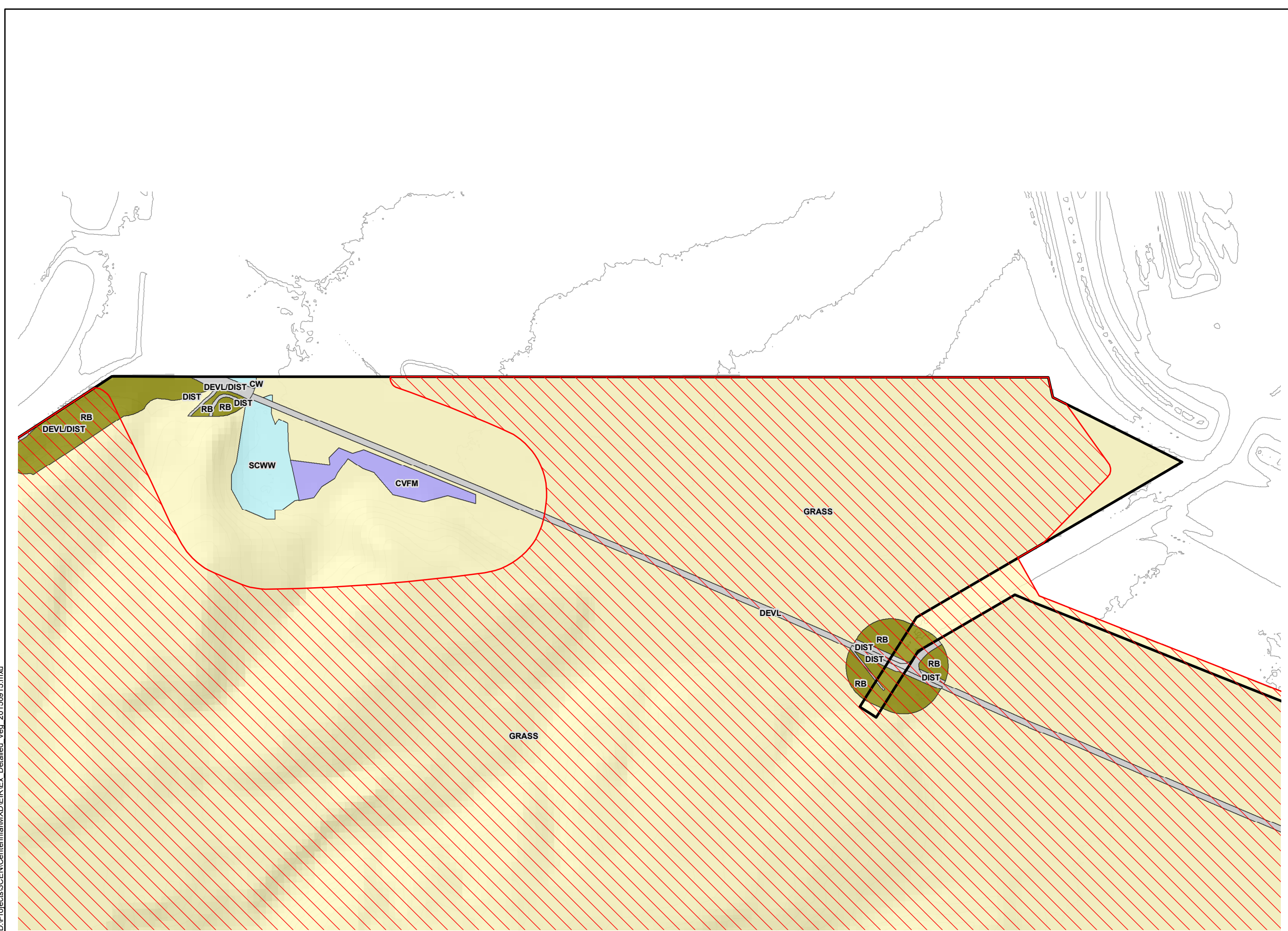
### Detailed Vegetation Map

Exhibit 5.7-17r

Centennial Project







- Project Boundary**  **Impact Area**
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

Centennial Project

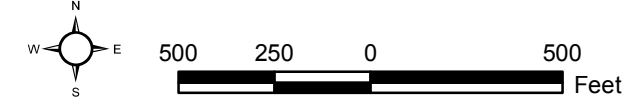
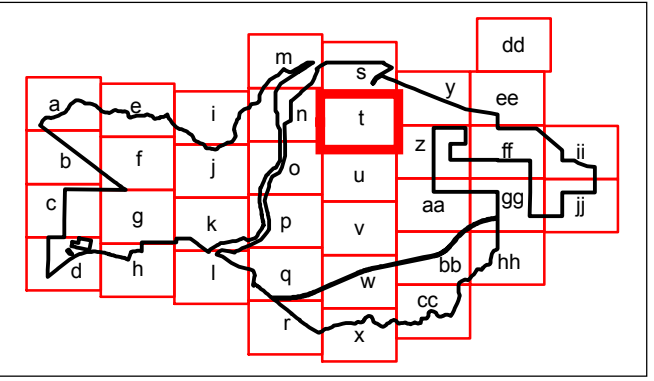
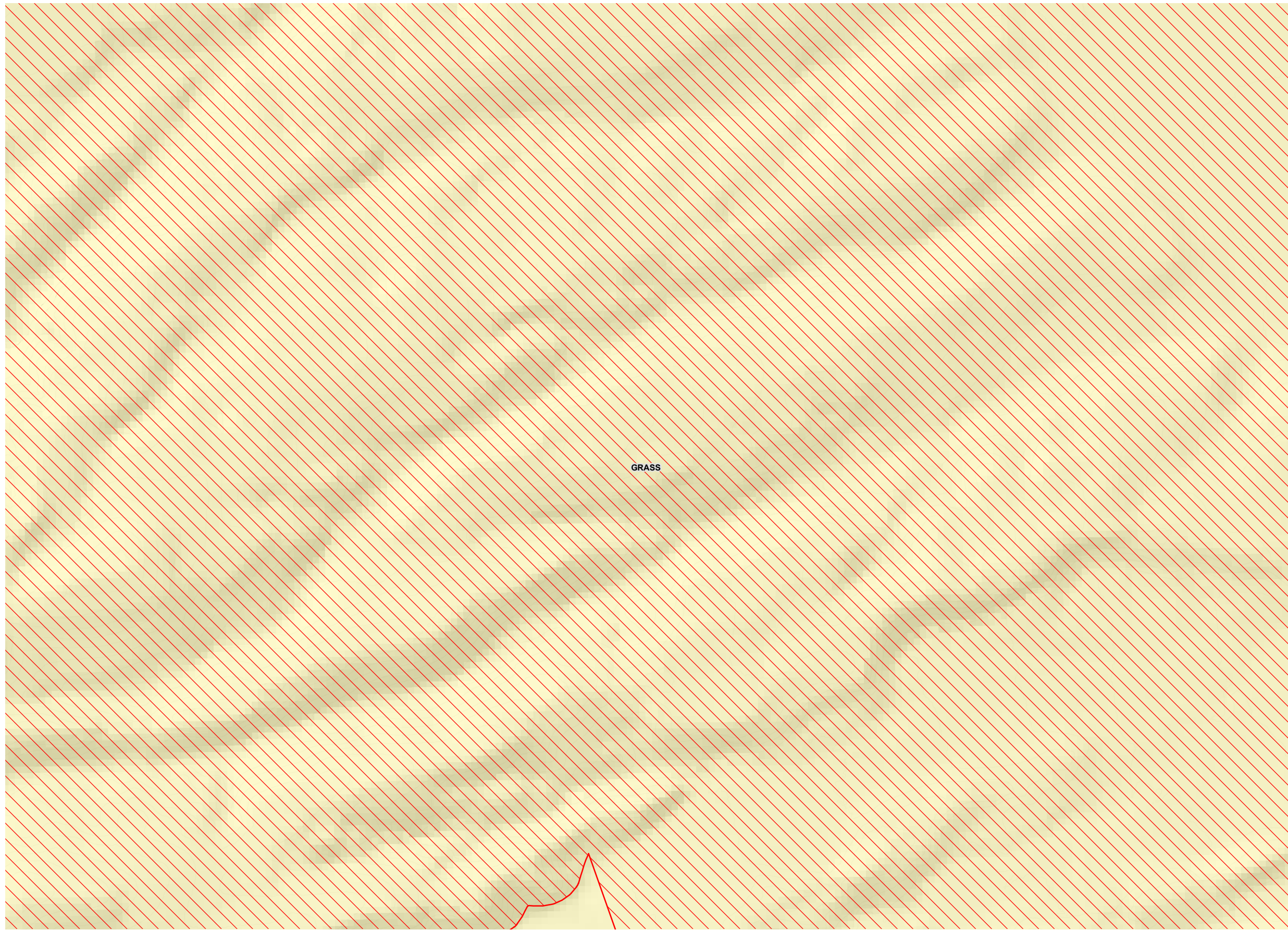


Exhibit 5.7-17s

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd

D:\Projects\306\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd

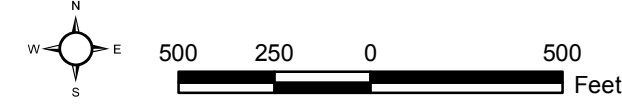


- Project Boundary      Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

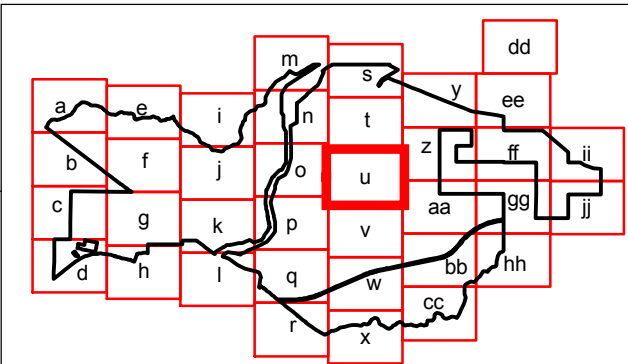
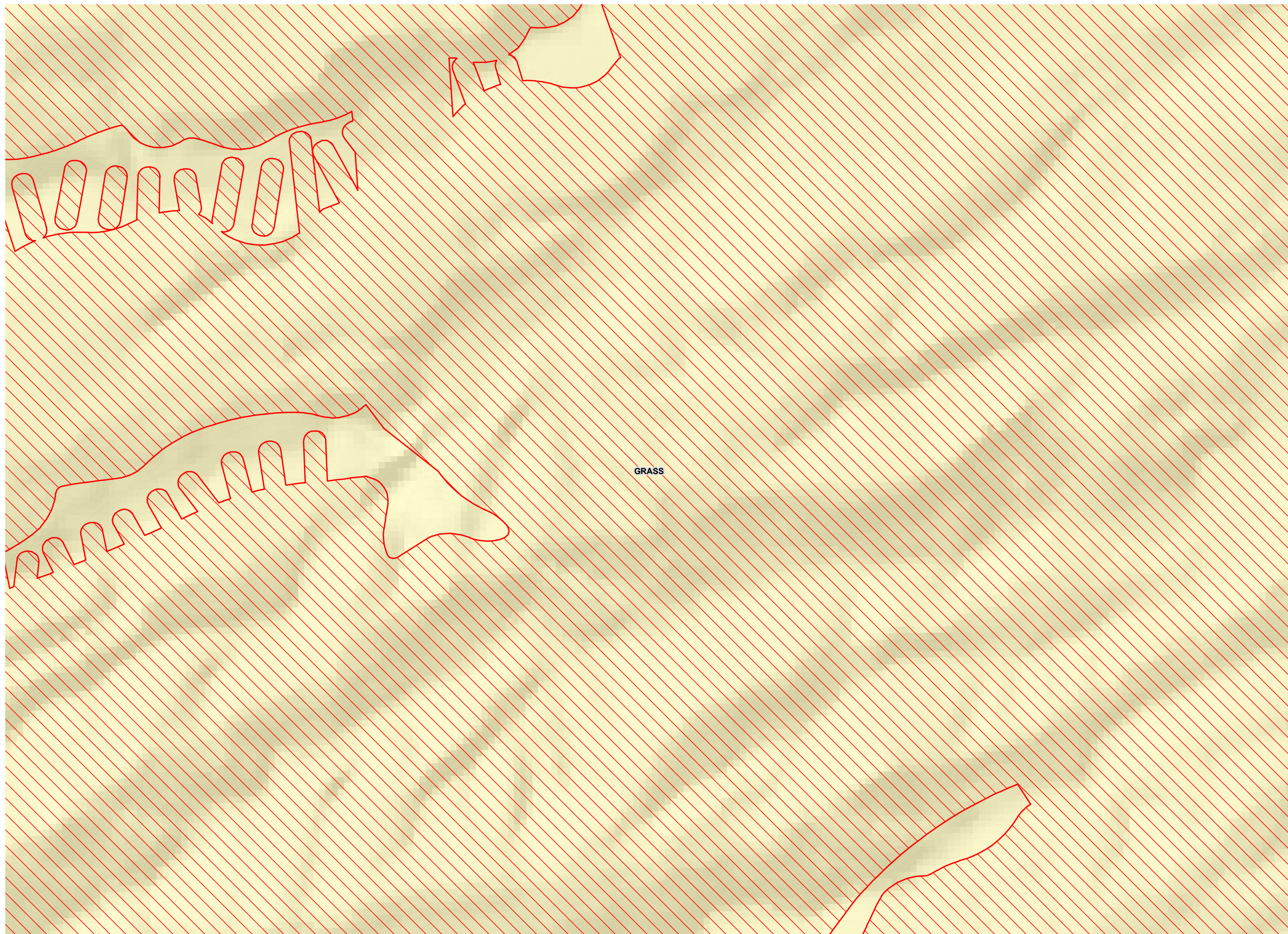
### Detailed Vegetation Map

Exhibit 5.7-17t

Centennial Project





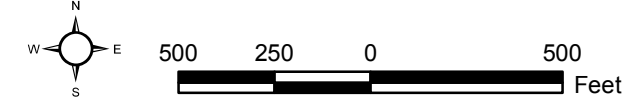


- Project Boundary
  Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
 BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
 BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
 RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
 WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
 BLS - Bush Lupine Scrub  
 BPS - Bladderpod Scrub  
 BUS - California Buckwheat Scrub  
 BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
 CHBG - Chamise/Bigberry Manzanita Chaparral  
 COF - Coffeeberry Scrub  
 GS - Goldenbush Scrub  
 GBS - Great Basin Scrubs  
 JUBU - California juniper/California buckwheat Scrub  
 RB - Rabbitbrush Scrub  
 WBS - Wand Buckwheat Scrub  
 WBW - Wright's Buckwheat Scrub  
 YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
 AS - Alluvial Scrub  
 CW - Cottonwood Woodland  
 RH - Riparian Herb  
 RRG - Rush Riparian Grassland  
 SAWR - Southern Arroyo Willow Riparian  
 SCWW - Southern Cottonwood Willow Woodland  
 SWS - Southern Willow Scrub  
 UW - Unvegetated Wash  
 VOR - Valley Oak Riparian Woodland  
 WRF - Willow Riparian Forest  
 WRW - Willow Riparian Woodland
  - Bog and Marsh**  
 AM - Alkali Meadow  
 BR - Baltic Rush  
 CVFM - Coastal and Valley Freshwater Marsh  
 SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
 AG - Agricultural  
 DEVL - Developed  
 DEVL/DIST - Developed/Disturbed  
 DIST - Disturbed  
 ORN - Ornamental  
 SLIDE - Disturbed (Landslide)  
 WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

**Exhibit 5.7-17u**

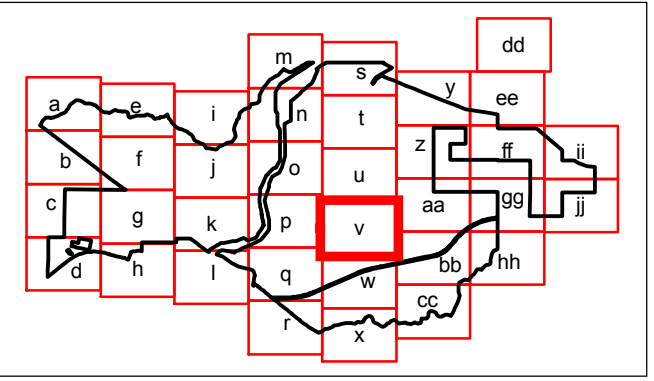
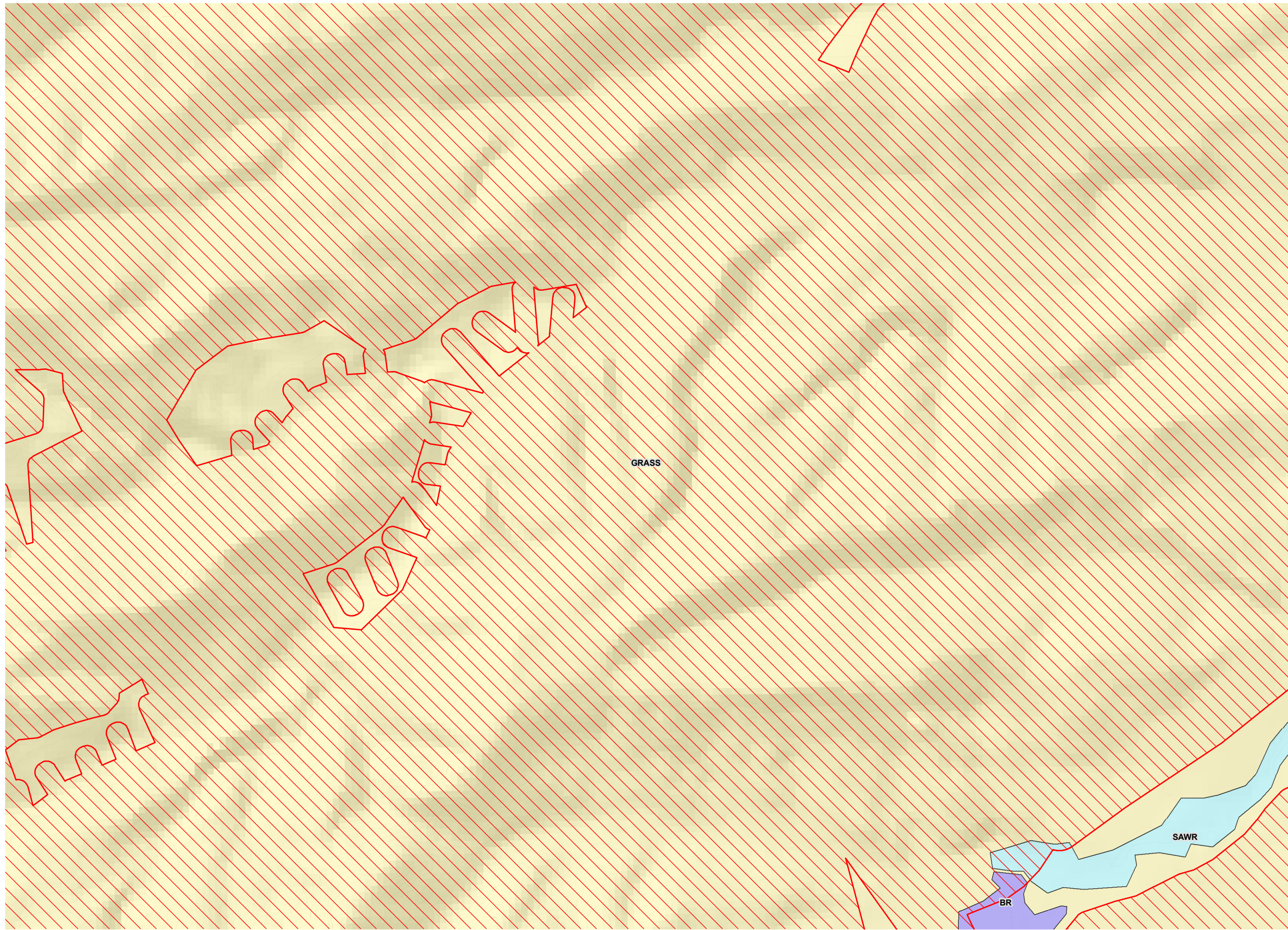
Centennial Project



D:\Projects\306\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd



D:\Projects\306\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd

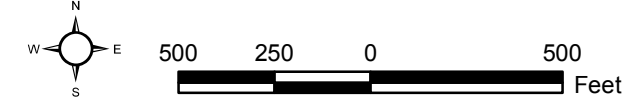


- Project Boundary** **Impact Area**
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

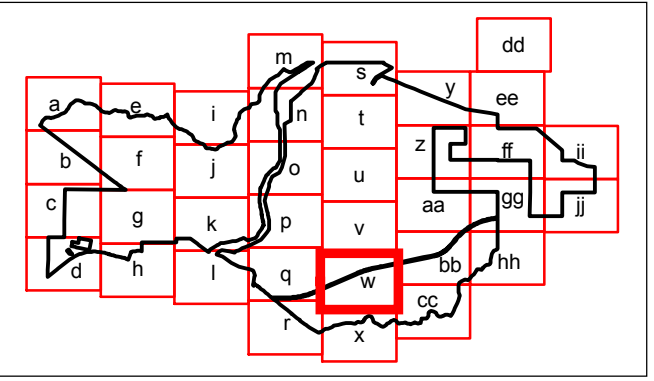
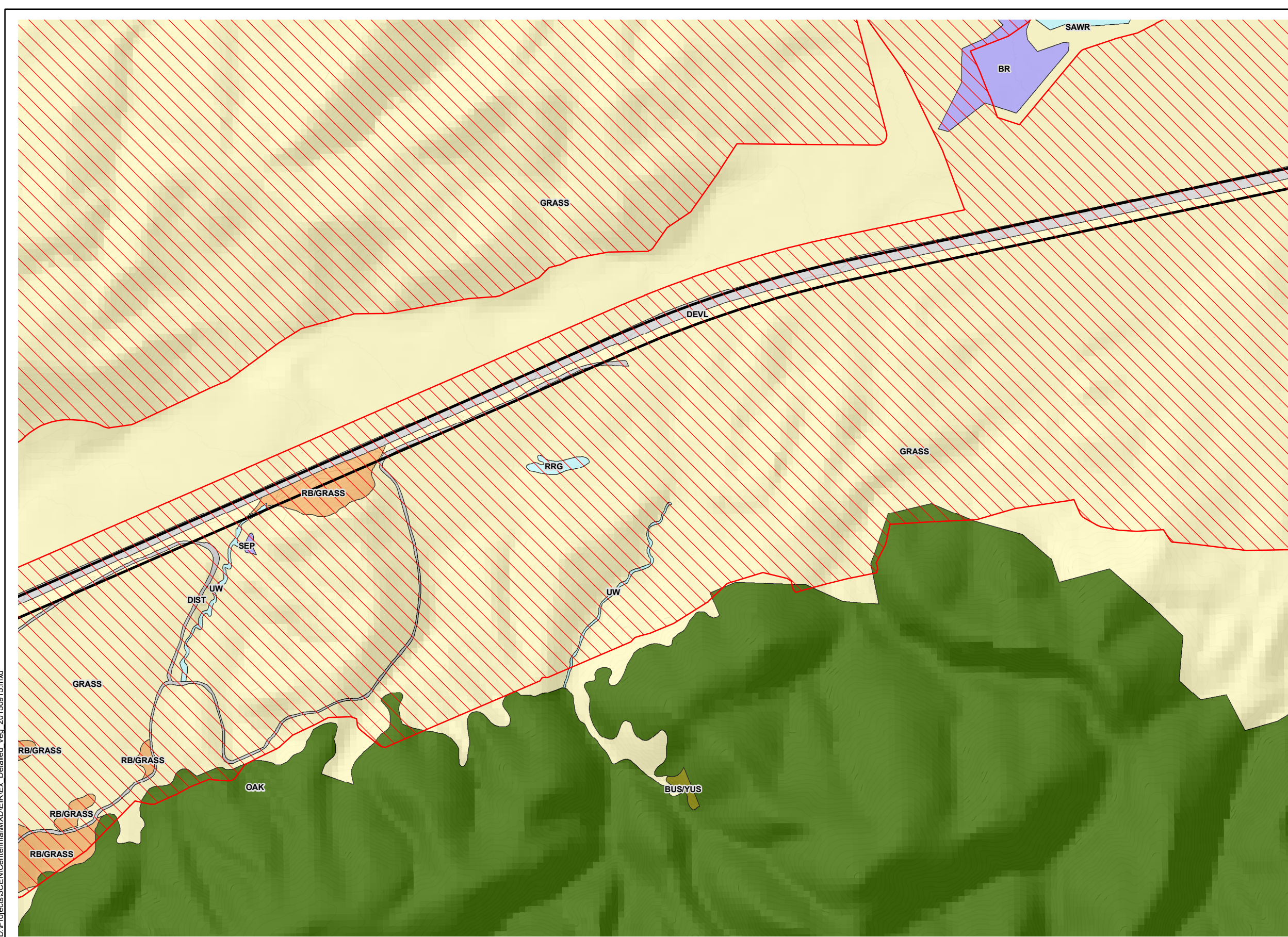
### Detailed Vegetation Map

Exhibit 5.7-17v

Centennial Project







- Project Boundary** **Impact Area**
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

Centennial Project

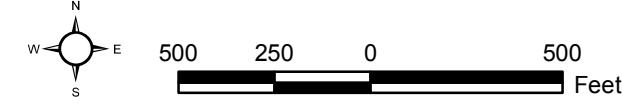
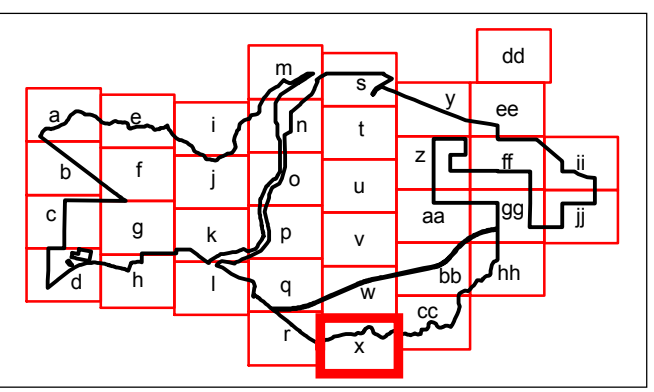


Exhibit 5.7-17w

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd





- Project Boundary
  Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
 BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
 BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
 RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
 WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
 BLS - Bush Lupine Scrub  
 BPS - Bladderpod Scrub  
 BUS - California Buckwheat Scrub  
 BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
 CHBG - Chamise/Bigberry Manzanita Chaparral  
 COF - Coffeeberry Scrub  
 GS - Goldenbush Scrub  
 GBS - Great Basin Scrubs  
 JUBU - California juniper/California buckwheat Scrub  
 RB - Rabbitbrush Scrub  
 WBS - Wand Buckwheat Scrub  
 WBW - Wright's Buckwheat Scrub  
 YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
 AS - Alluvial Scrub  
 CW - Cottonwood Woodland  
 RH - Riparian Herb  
 RRG - Rush Riparian Grassland  
 SAWR - Southern Arroyo Willow Riparian  
 SCWW - Southern Cottonwood Willow Woodland  
 SWS - Southern Willow Scrub  
 UW - Unvegetated Wash  
 VOR - Valley Oak Riparian Woodland  
 WRF - Willow Riparian Forest  
 WRW - Willow Riparian Woodland
  - Bog and Marsh**  
 AM - Alkali Meadow  
 BR - Baltic Rush  
 CVFM - Coastal and Valley Freshwater Marsh  
 SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
 AG - Agricultural  
 DEVL - Developed  
 DEVL/DIST - Developed/Disturbed  
 DIST - Disturbed  
 ORN - Ornamental  
 SLIDE - Disturbed (Landslide)  
 WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

Centennial Project

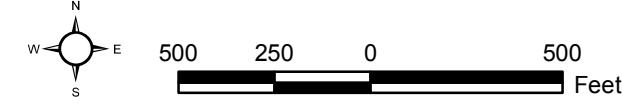
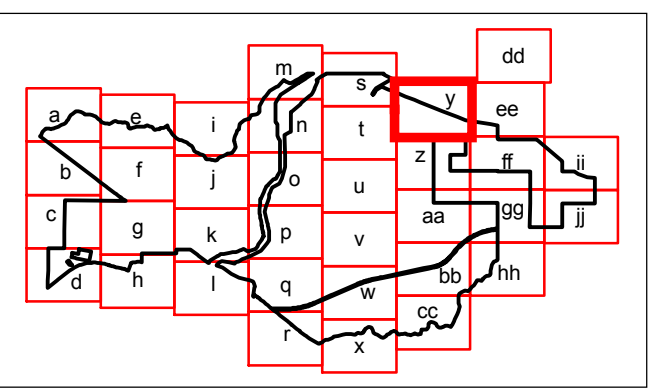
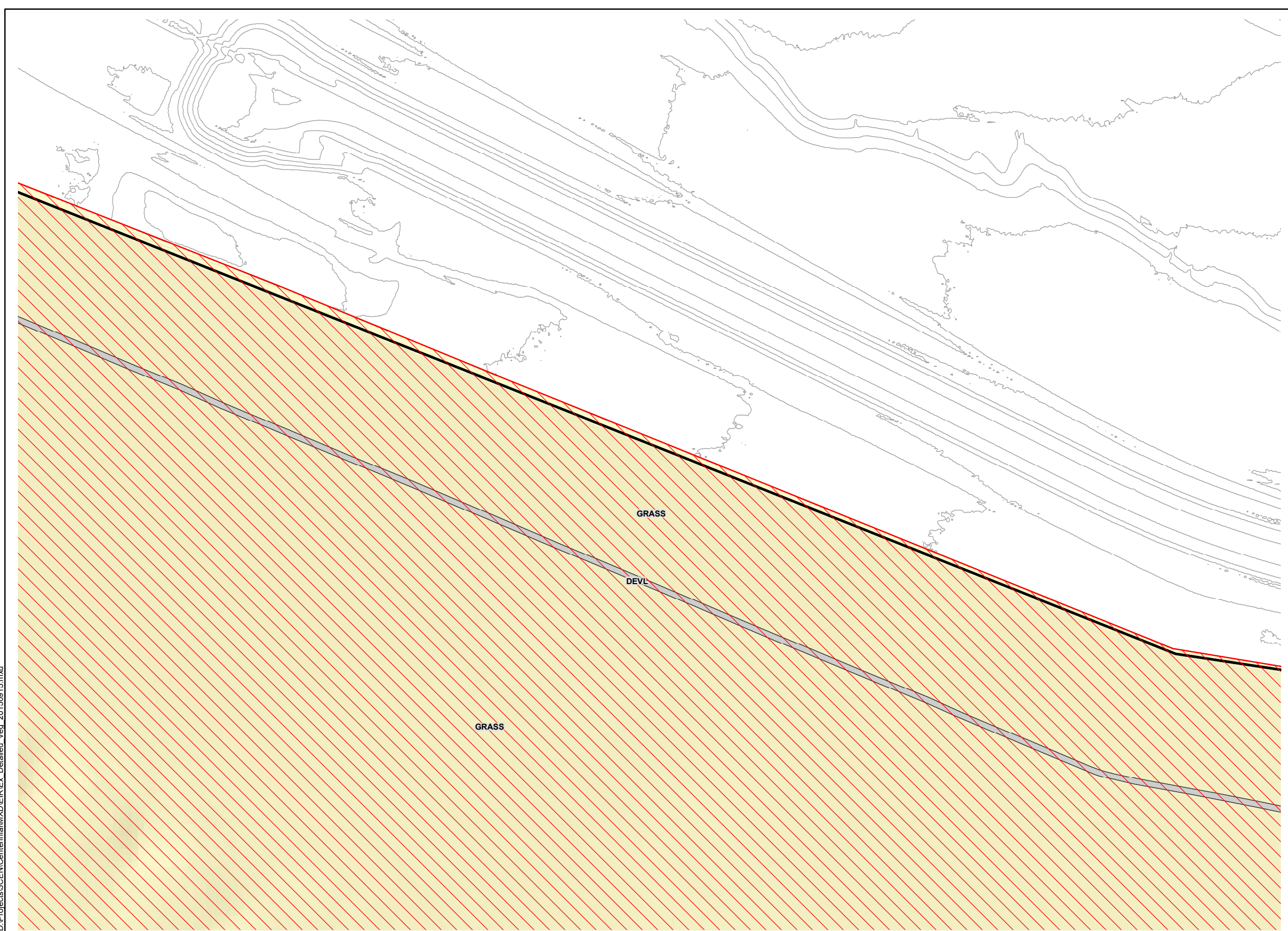


Exhibit 5.7-17x

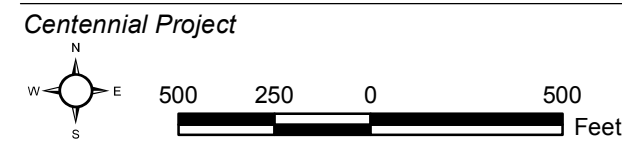
D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd



- Project Boundary
  Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
 BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
 BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
 RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
 WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
 BLS - Bush Lupine Scrub  
 BPS - Bladderpod Scrub  
 BUS - California Buckwheat Scrub  
 BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
 CHBG - Chamise/Bigberry Manzanita Chaparral  
 COF - Coffeeberry Scrub  
 GS - Goldenbush Scrub  
 GBS - Great Basin Scrubs  
 JUBU - California juniper/California buckwheat Scrub  
 RB - Rabbitbrush Scrub  
 WBS - Wand Buckwheat Scrub  
 WBW - Wright's Buckwheat Scrub  
 YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
 AS - Alluvial Scrub  
 CW - Cottonwood Woodland  
 RH - Riparian Herb  
 RRG - Rush Riparian Grassland  
 SAWR - Southern Arroyo Willow Riparian  
 SCWW - Southern Cottonwood Willow Woodland  
 SWS - Southern Willow Scrub  
 UW - Unvegetated Wash  
 VOR - Valley Oak Riparian Woodland  
 WRF - Willow Riparian Forest  
 WRW - Willow Riparian Woodland
  - Bog and Marsh**  
 AM - Alkali Meadow  
 BR - Baltic Rush  
 CVFM - Coastal and Valley Freshwater Marsh  
 SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
 AG - Agricultural  
 DEVL - Developed  
 DEVL/DIST - Developed/Disturbed  
 DIST - Disturbed  
 ORN - Ornamental  
 SLIDE - Disturbed (Landslide)  
 WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

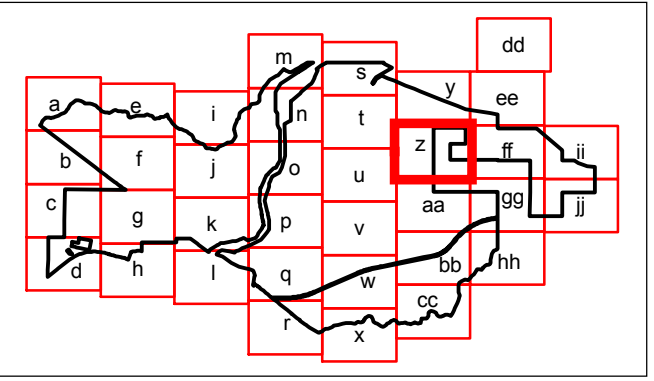
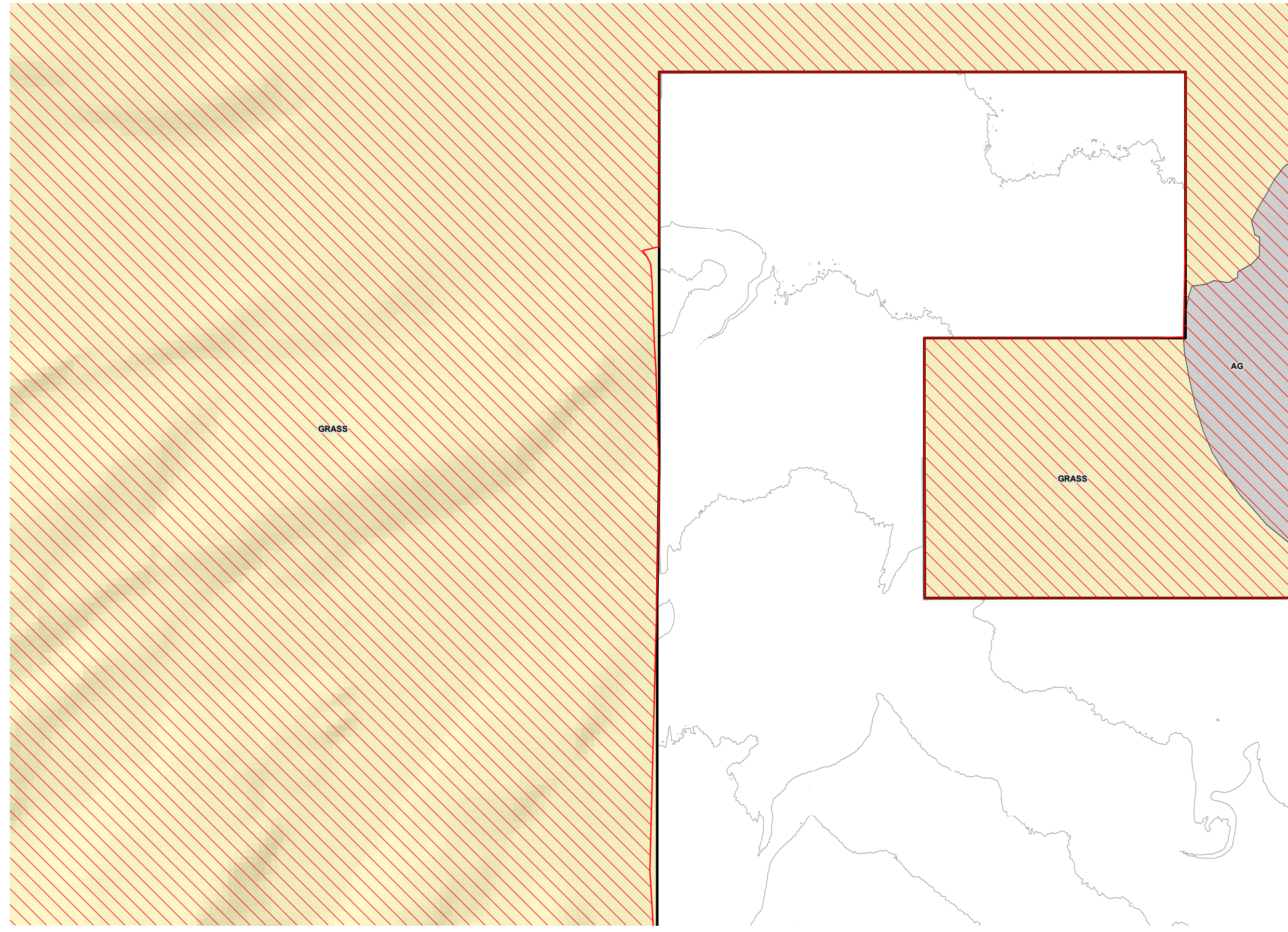
**Exhibit 5.7-17y**



D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd



D:\Projects\3\GEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd



- Project Boundary      Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

### Detailed Vegetation Map

Centennial Project

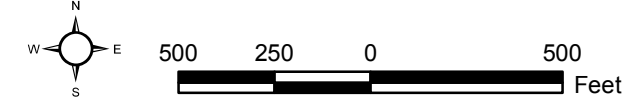
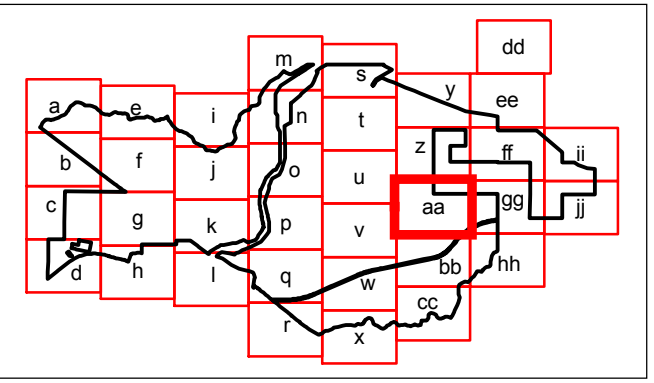
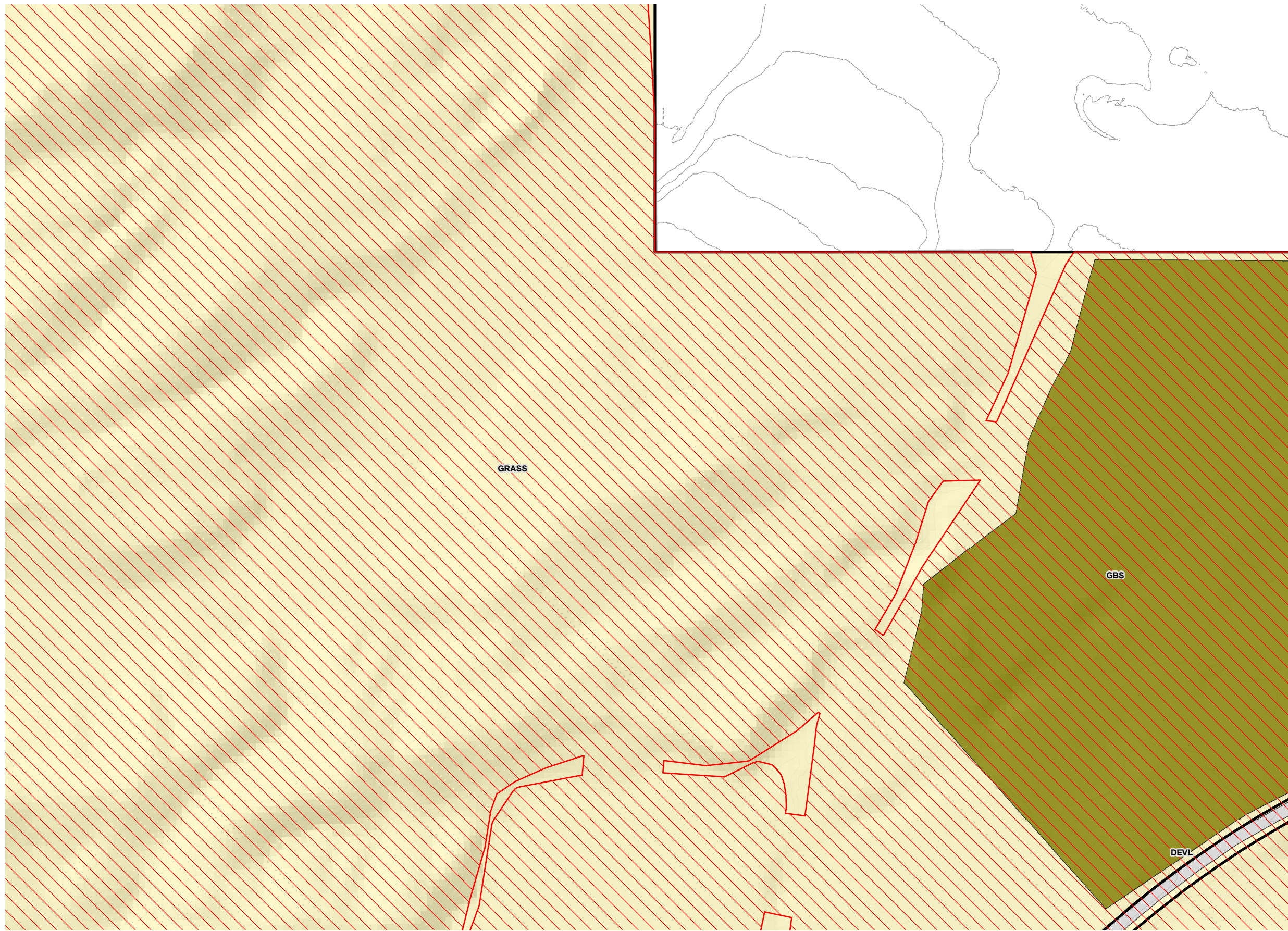


Exhibit 5.7-17z

D:\Projects\306EN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd

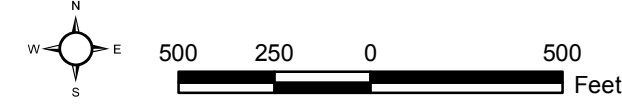


- Project Boundary**      **Impact Area**
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

### Detailed Vegetation Map

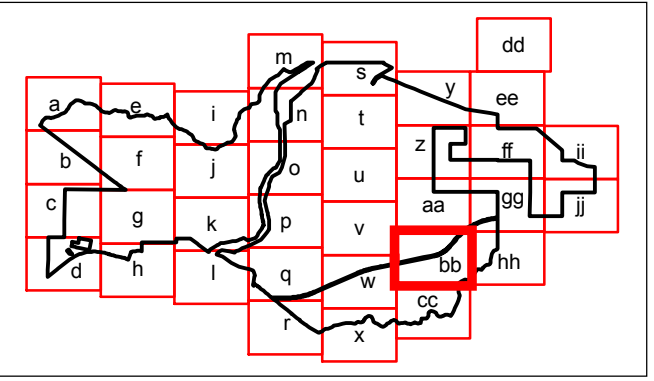
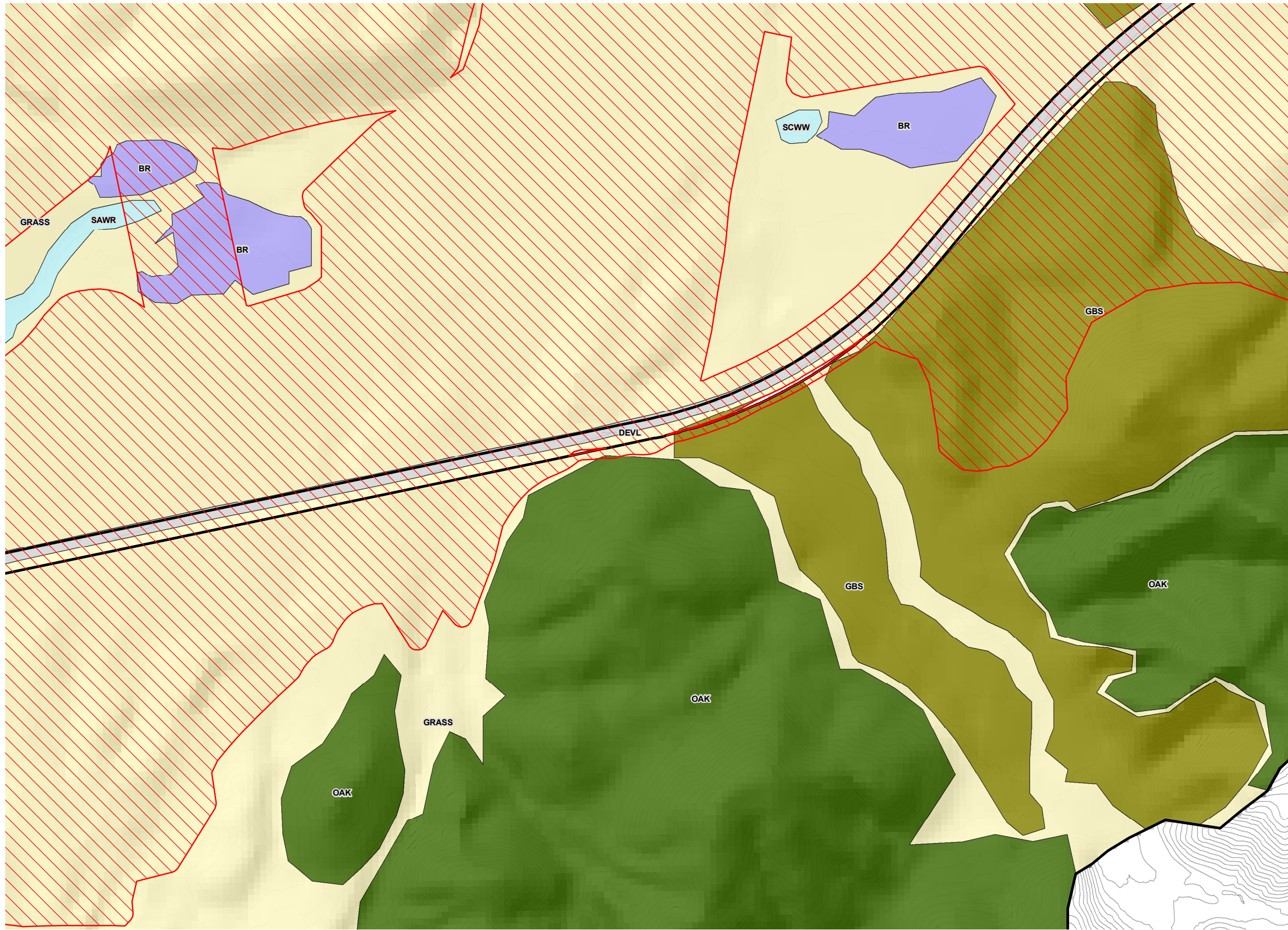
Exhibit 5.7-17aa

Centennial Project





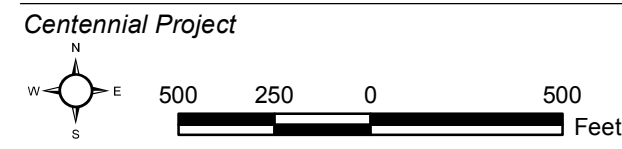
D:\Projects\306\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd



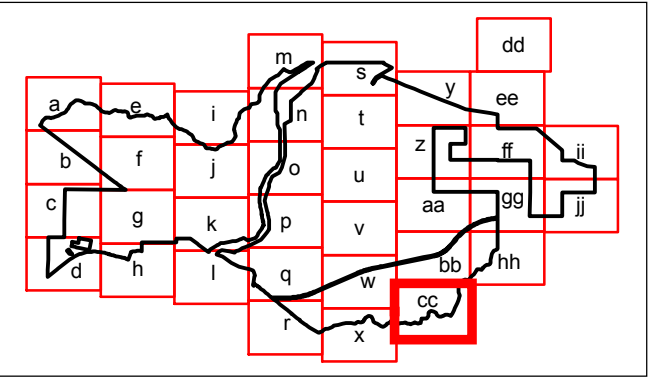
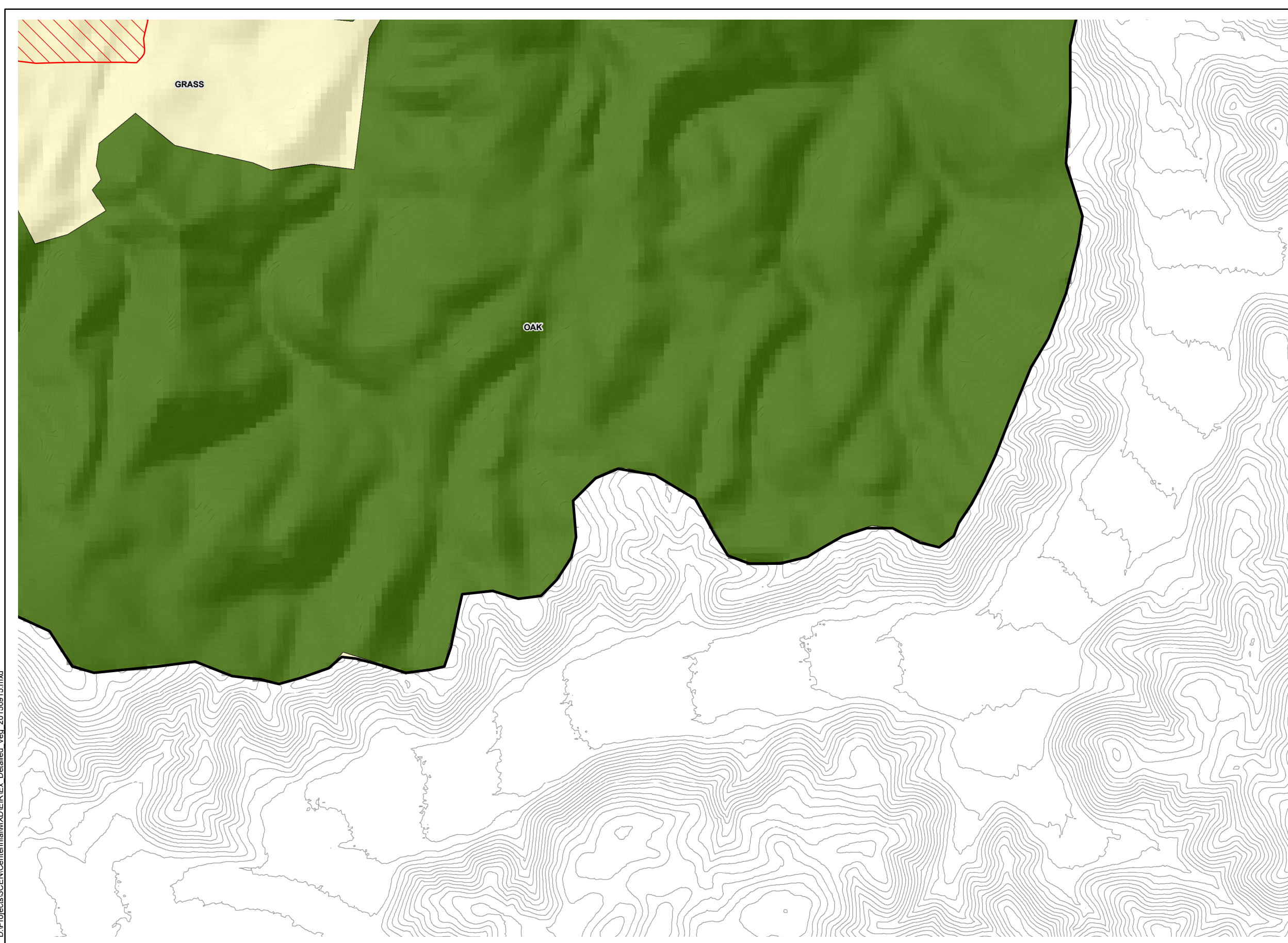
- Project Boundary**  **Impact Area**
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

**Exhibit 5.7-17bb**



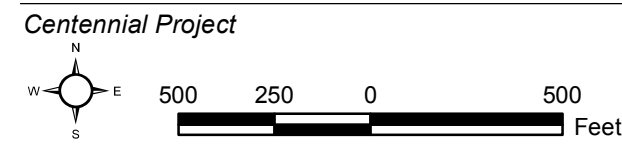




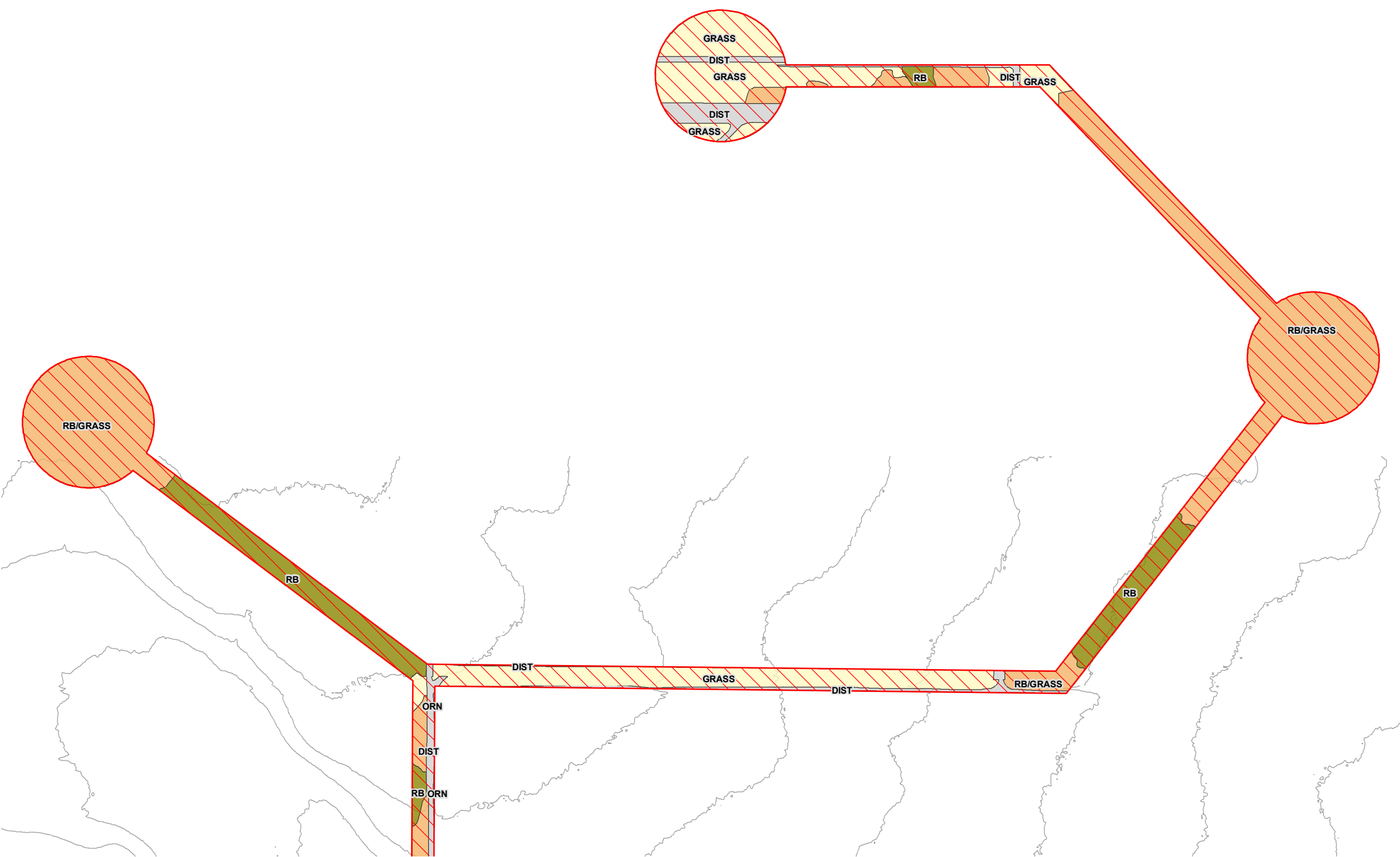
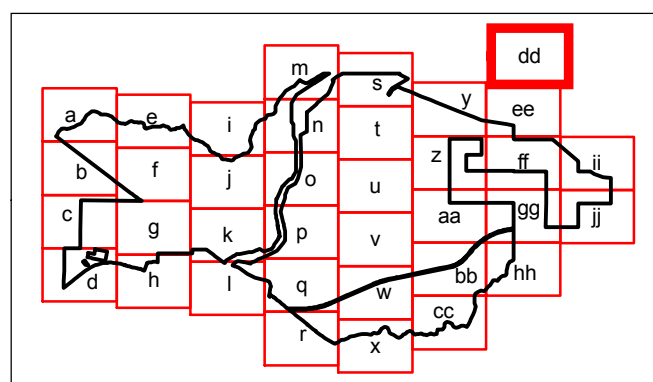
- Project Boundary
  Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
 BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
 BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
 RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
 WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
 BLS - Bush Lupine Scrub  
 BPS - Bladderpod Scrub  
 BUS - California Buckwheat Scrub  
 BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
 CHBG - Chamise/Bigberry Manzanita Chaparral  
 COF - Coffeeberry Scrub  
 GS - Goldenbush Scrub  
 GBS - Great Basin Scrubs  
 JUBU - California juniper/California buckwheat Scrub  
 RB - Rabbitbrush Scrub  
 WBS - Wand Buckwheat Scrub  
 WBW - Wright's Buckwheat Scrub  
 YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
 AS - Alluvial Scrub  
 CW - Cottonwood Woodland  
 RH - Riparian Herb  
 RRG - Rush Riparian Grassland  
 SAWR - Southern Arroyo Willow Riparian  
 SCWW - Southern Cottonwood Willow Woodland  
 SWS - Southern Willow Scrub  
 UW - Unvegetated Wash  
 VOR - Valley Oak Riparian Woodland  
 WRF - Willow Riparian Forest  
 WRW - Willow Riparian Woodland
  - Bog and Marsh**  
 AM - Alkali Meadow  
 BR - Baltic Rush  
 CVFM - Coastal and Valley Freshwater Marsh  
 SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
 AG - Agricultural  
 DEVL - Developed  
 DEVL/DIST - Developed/Disturbed  
 DIST - Disturbed  
 ORN - Ornamental  
 SLIDE - Disturbed (Landslide)  
 WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

**Exhibit 5.7-17cc**



D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd



- Project Boundary
  Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

Centennial Project

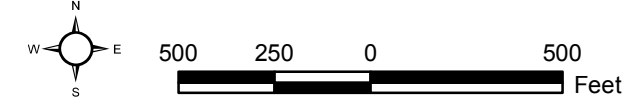
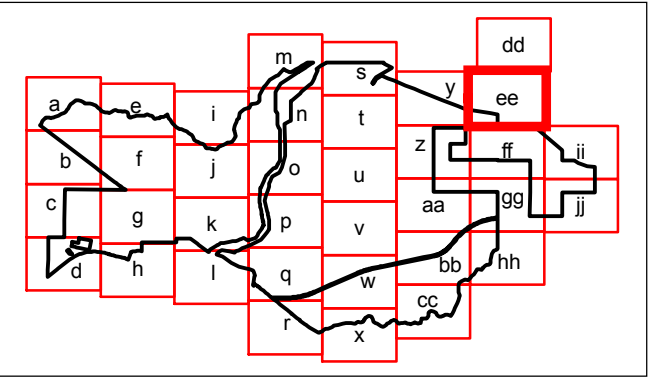
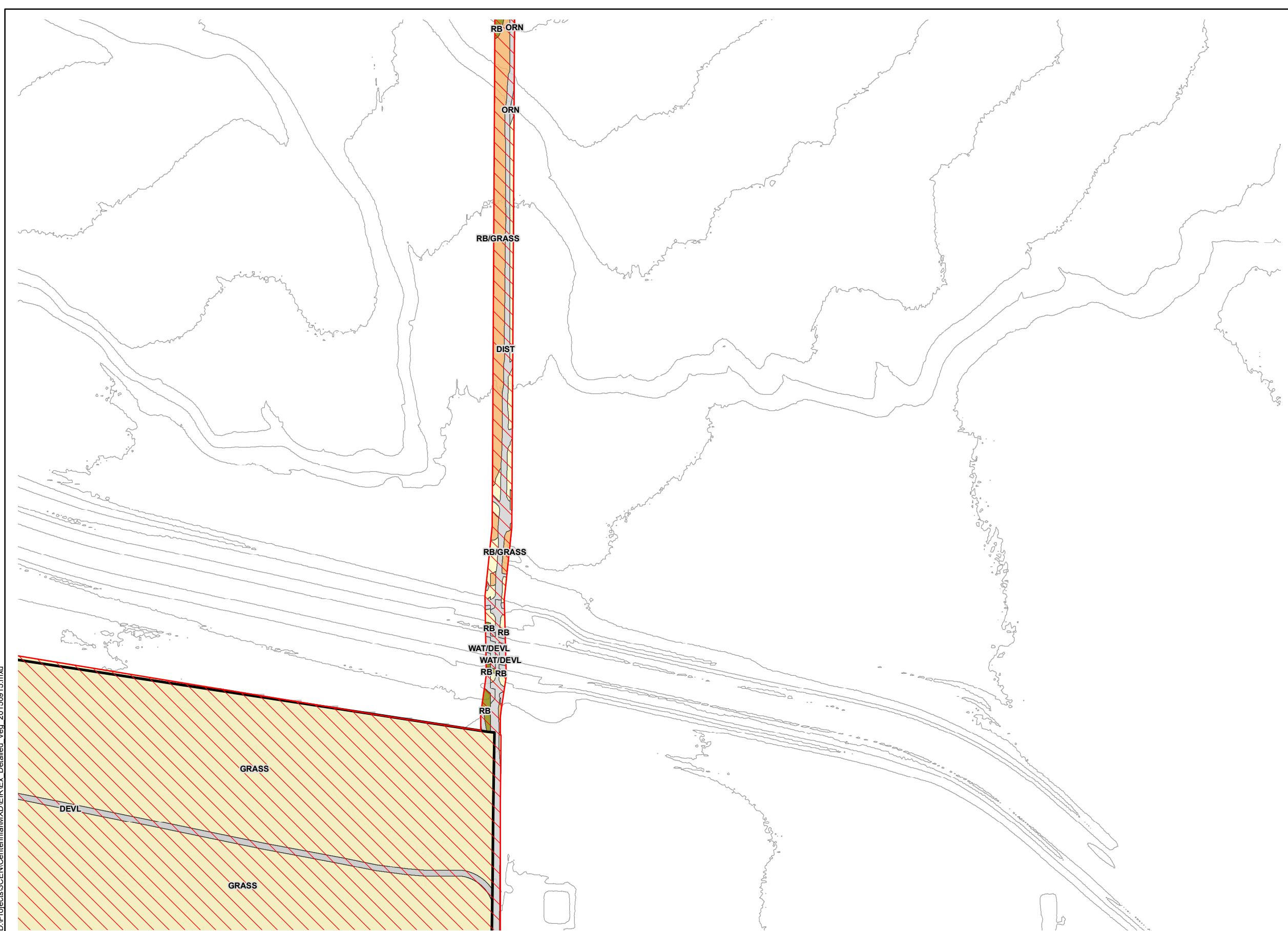


Exhibit 5.7-17dd

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd





- Project Boundary
  Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
 BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
 BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
 RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
 WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
 BLS - Bush Lupine Scrub  
 BPS - Bladderpod Scrub  
 BUS - California Buckwheat Scrub  
 BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
 CHBG - Chamise/Bigberry Manzanita Chaparral  
 COF - Coffeeberry Scrub  
 GS - Goldenbush Scrub  
 GBS - Great Basin Scrubs  
 JUBU - California juniper/California buckwheat Scrub  
 RB - Rabbitbrush Scrub  
 WBS - Wand Buckwheat Scrub  
 WBW - Wright's Buckwheat Scrub  
 YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
 AS - Alluvial Scrub  
 CW - Cottonwood Woodland  
 RH - Riparian Herb  
 RRG - Rush Riparian Grassland  
 SAWR - Southern Arroyo Willow Riparian  
 SCWW - Southern Cottonwood Willow Woodland  
 SWS - Southern Willow Scrub  
 UW - Unvegetated Wash  
 VOR - Valley Oak Riparian Woodland  
 WRF - Willow Riparian Forest  
 WRW - Willow Riparian Woodland
  - Bog and Marsh**  
 AM - Alkali Meadow  
 BR - Baltic Rush  
 CVFM - Coastal and Valley Freshwater Marsh  
 SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
 AG - Agricultural  
 DEVL - Developed  
 DEVL/DIST - Developed/Disturbed  
 DIST - Disturbed  
 ORN - Ornamental  
 SLIDE - Disturbed (Landslide)  
 WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

Centennial Project

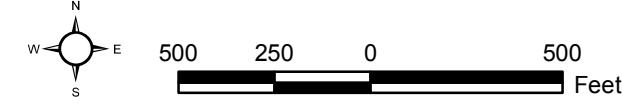
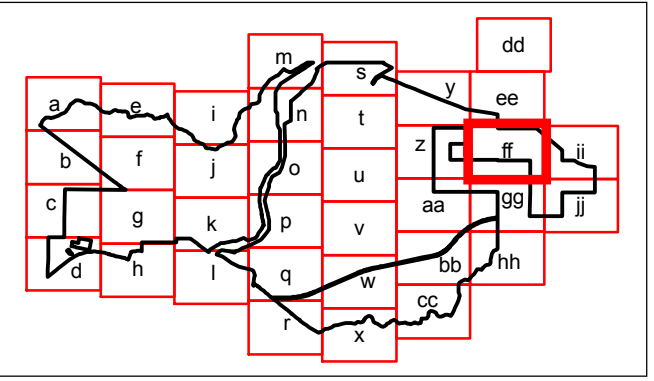
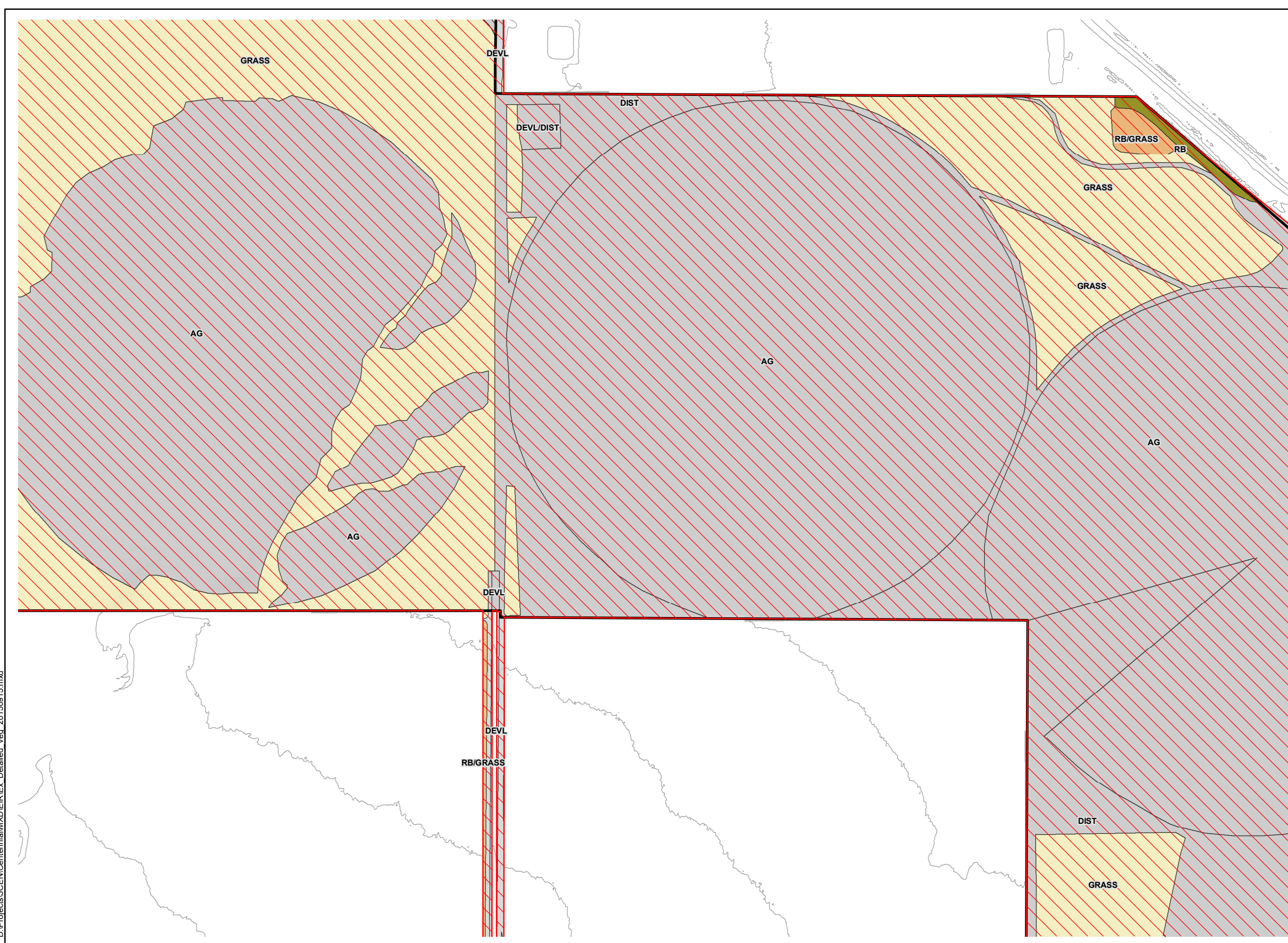


Exhibit 5.7-17ee

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd



- Project Boundary
  Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
 BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
 BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
 RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
 WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
 BLS - Bush Lupine Scrub  
 BPS - Bladderpod Scrub  
 BUS - California Buckwheat Scrub  
 BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
 CHBG - Chamise/Bigberry Manzanita Chaparral  
 COF - Coffeeberry Scrub  
 GS - Goldenbush Scrub  
 GBS - Great Basin Scrubs  
 JUBU - California juniper/California buckwheat Scrub  
 RB - Rabbitbrush Scrub  
 WBS - Wand Buckwheat Scrub  
 WBW - Wright's Buckwheat Scrub  
 YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
 AS - Alluvial Scrub  
 CW - Cottonwood Woodland  
 RH - Riparian Herb  
 RRG - Rush Riparian Grassland  
 SAWR - Southern Arroyo Willow Riparian  
 SCWW - Southern Cottonwood Willow Woodland  
 SWS - Southern Willow Scrub  
 UW - Unvegetated Wash  
 VOR - Valley Oak Riparian Woodland  
 WRF - Willow Riparian Forest  
 WRW - Willow Riparian Woodland
  - Bog and Marsh**  
 AM - Alkali Meadow  
 BR - Baltic Rush  
 CVFM - Coastal and Valley Freshwater Marsh  
 SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
 AG - Agricultural  
 DEVL - Developed  
 DEVL/DIST - Developed/Disturbed  
 DIST - Disturbed  
 ORN - Ornamental  
 SLIDE - Disturbed (Landslide)  
 WAT/DEVL - Open Water/Developed

**Detailed Vegetation Map**

Centennial Project

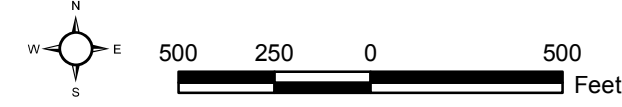
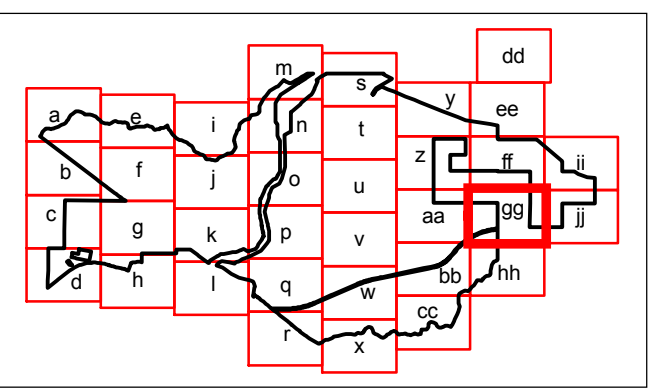
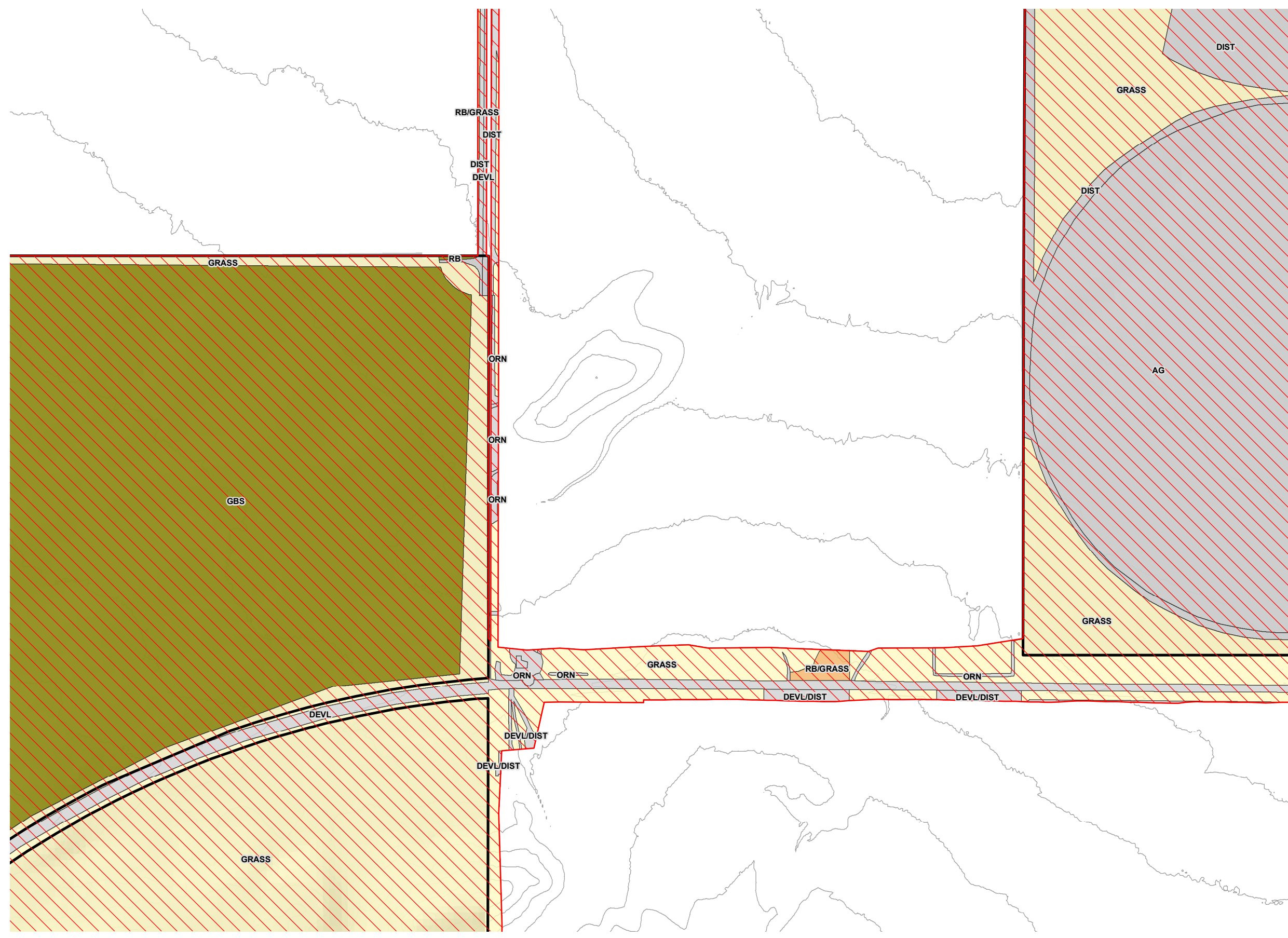


Exhibit 5.7-17ff

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd

D:\Projects\306\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd



- Legend**
- Project Boundary
  - Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
BLS - Bush Lupine Scrub  
BPS - Bladderpod Scrub  
BUS - California Buckwheat Scrub  
BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
CHBG - Chamise/Bigberry Manzanita Chaparral  
COF - Coffeeberry Scrub  
GS - Goldenbush Scrub  
GBS - Great Basin Scrubs  
JUBU - California juniper/California buckwheat Scrub  
RB - Rabbitbrush Scrub  
WBS - Wand Buckwheat Scrub  
WBW - Wright's Buckwheat Scrub  
YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
AS - Alluvial Scrub  
CW - Cottonwood Woodland  
RH - Riparian Herb  
RRG - Rush Riparian Grassland  
SAWR - Southern Arroyo Willow Riparian  
SCWW - Southern Cottonwood Willow Woodland  
SWS - Southern Willow Scrub  
UW - Unvegetated Wash  
VOR - Valley Oak Riparian Woodland  
WRF - Willow Riparian Forest  
WRW - Willow Riparian Woodland
  - Bog and Marsh**  
AM - Alkali Meadow  
BR - Baltic Rush  
CVFM - Coastal and Valley Freshwater Marsh  
SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
AG - Agricultural  
DEVL - Developed  
DEVL/DIST - Developed/Disturbed  
DIST - Disturbed  
ORN - Ornamental  
SLIDE - Disturbed (Landslide)  
WAT/DEVL - Open Water/Developed

### Detailed Vegetation Map

Centennial Project

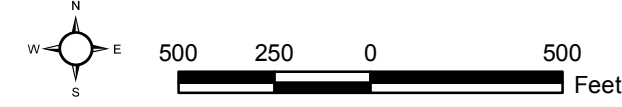
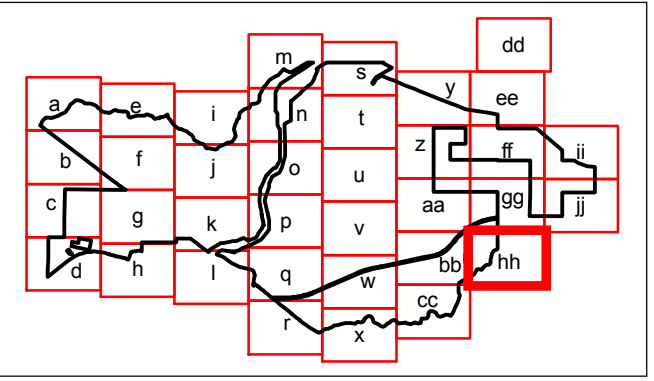
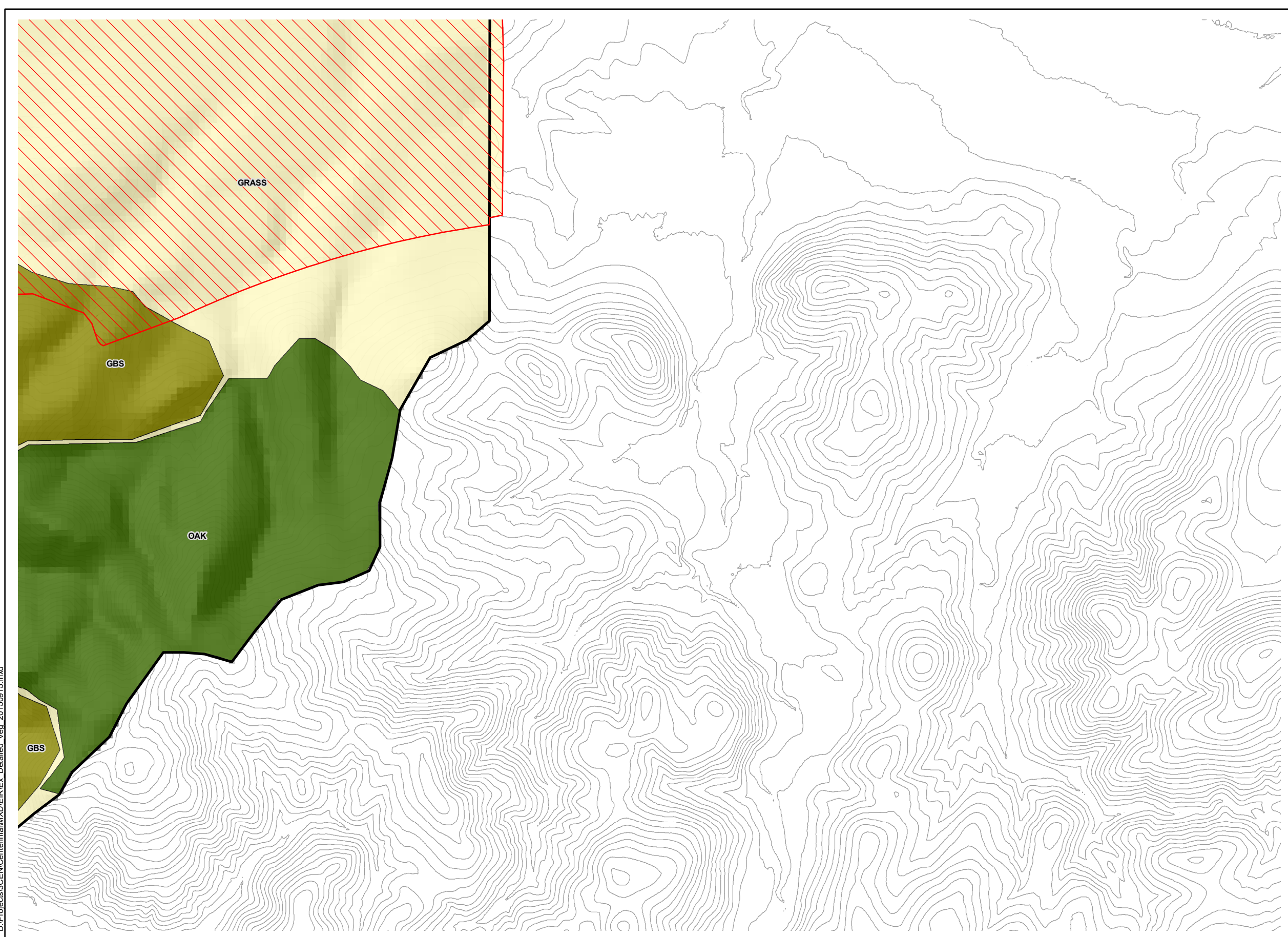


Exhibit 5.7-17gg

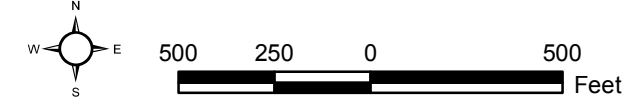




- Project Boundary
  Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
 BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
 BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
 RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
 WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
 BLS - Bush Lupine Scrub  
 BPS - Bladderpod Scrub  
 BUS - California Buckwheat Scrub  
 BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
 CHBG - Chamise/Bigberry Manzanita Chaparral  
 COF - Coffeeberry Scrub  
 GS - Goldenbush Scrub  
 GBS - Great Basin Scrubs  
 JUBU - California juniper/California buckwheat Scrub  
 RB - Rabbitbrush Scrub  
 WBS - Wand Buckwheat Scrub  
 WBW - Wright's Buckwheat Scrub  
 YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
 AS - Alluvial Scrub  
 CW - Cottonwood Woodland  
 RH - Riparian Herb  
 RRG - Rush Riparian Grassland  
 SAWR - Southern Arroyo Willow Riparian  
 SCWW - Southern Cottonwood Willow Woodland  
 SWS - Southern Willow Scrub  
 UW - Unvegetated Wash  
 VOR - Valley Oak Riparian Woodland  
 WRF - Willow Riparian Forest  
 WRW - Willow Riparian Woodland
  - Bog and Marsh**  
 AM - Alkali Meadow  
 BR - Baltic Rush  
 CVFM - Coastal and Valley Freshwater Marsh  
 SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
 AG - Agricultural  
 DEVL - Developed  
 DEVL/DIST - Developed/Disturbed  
 DIST - Disturbed  
 ORN - Ornamental  
 SLIDE - Disturbed (Landslide)  
 WAT/DEVL - Open Water/Developed

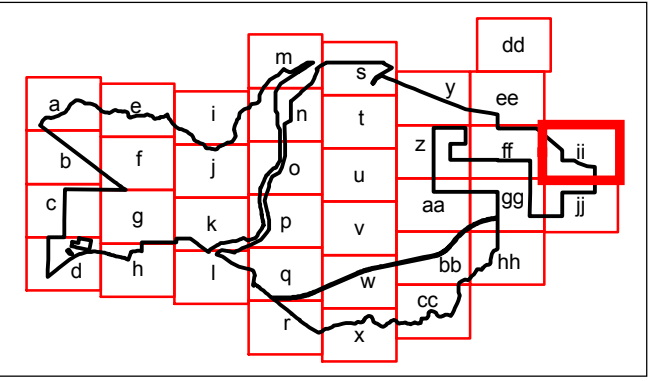
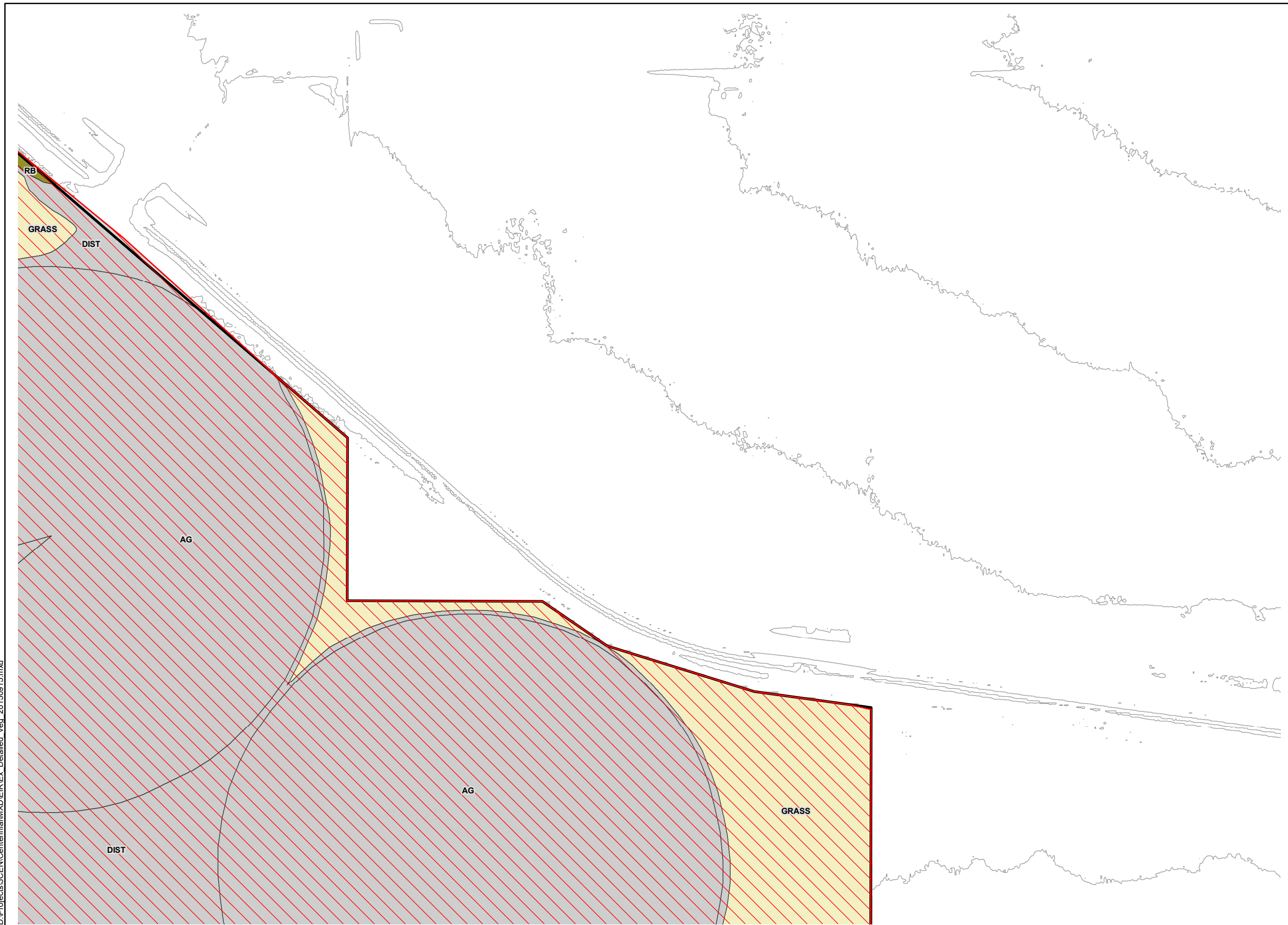
**Detailed Vegetation Map**

Centennial Project



**Exhibit 5.7-17hh**

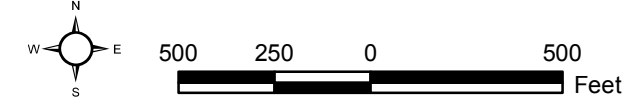
D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd



- Project Boundary
  - Impact Area
- Vegetation Types and Other Areas**
- Native Perennial/CA Annual Grassland**  
GRASS - Native Perennial/CA Annual Grassland
  - Mixed Chaparral or Scrub and Native Perennial**  
 BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
 BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
 RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
 WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland
  - Scrub and Chaparral**  
 BLS - Bush Lupine Scrub  
 BPS - Bladderpod Scrub  
 BUS - California Buckwheat Scrub  
 BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
 CHBG - Chamise/Bigberry Manzanita Chaparral  
 COF - Coffeeberry Scrub  
 GS - Goldenbush Scrub  
 GBS - Great Basin Scrubs  
 JUBU - California juniper/California buckwheat Scrub  
 RB - Rabbitbrush Scrub  
 WBS - Wand Buckwheat Scrub  
 WBW - Wright's Buckwheat Scrub  
 YUS - Yucca Scrub
  - Broad Leafed Upland Tree Dominated**  
OAK - Mixed Oak Woodland
  - Riparian and Bottomland Habitat**  
 AS - Alluvial Scrub  
 CW - Cottonwood Woodland  
 RH - Riparian Herb  
 RRG - Rush Riparian Grassland  
 SAWR - Southern Arroyo Willow Riparian  
 SCWW - Southern Cottonwood Willow Woodland  
 SWS - Southern Willow Scrub  
 UW - Unvegetated Wash  
 VOR - Valley Oak Riparian Woodland  
 WRF - Willow Riparian Forest  
 WRW - Willow Riparian Woodland
  - Bog and Marsh**  
 AM - Alkali Meadow  
 BR - Baltic Rush  
 CVFM - Coastal and Valley Freshwater Marsh  
 SEP - Seeps and Ephemeral Ponds
  - Other Areas**  
 AG - Agricultural  
 DEVL - Developed  
 DEVL/DIST - Developed/Disturbed  
 DIST - Disturbed  
 ORN - Ornamental  
 SLIDE - Disturbed (Landslide)  
 WAT/DEVL - Open Water/Developed

### Detailed Vegetation Map

Centennial Project

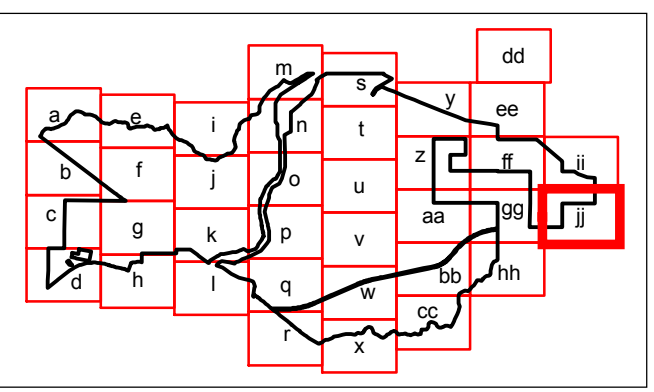
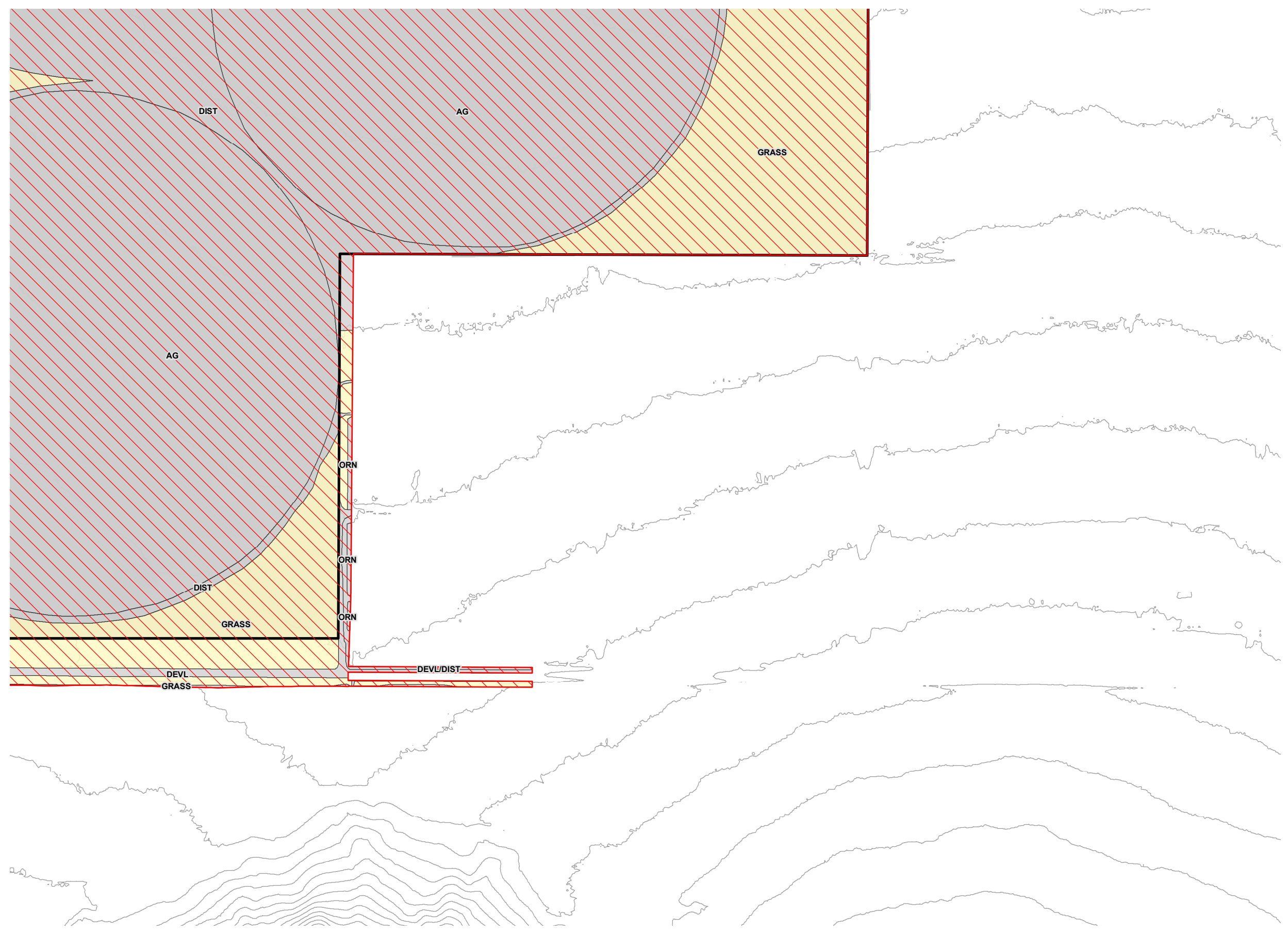


### Exhibit 5.7-17ii

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd



D:\Projects\306\Centennial\MXD\EIR\Ex\_Detailed\_Veg\_20150915.mxd



**Legend**

Project Boundary
  Impact Area

**Vegetation Types and Other Areas**

**Native Perennial/CA Annual Grassland**  
 GRASS - Native Perennial/CA Annual Grassland

**Mixed Chaparral or Scrub and Native Perennial**  
 BLS/GRASS - Bush Lupine Scrub/Native Perennial/CA Annual Grassland  
 BUS/GRASS - California Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 GBS/GRASS - Goldenbush Scrub/Native Perennial/CA Annual Grassland  
 RB/GRASS - Rabbitbrush Scrub/Native Perennial/CA Annual Grassland  
 WBS/GRASS - Wand Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 WBW/GRASS - Wright's Buckwheat Scrub/Native Perennial/CA Annual Grassland  
 YUS/GRASS - Yucca Scrub/Native Perennial/CA Annual Grassland

**Scrub and Chaparral**  
 BLS - Bush Lupine Scrub  
 BPS - Bladderpod Scrub  
 BUS - California Buckwheat Scrub  
 BUS/YUS - California Buckwheat Scrub/Yucca Scrub  
 CHBG - Chamise/Bigberry Manzanita Chaparral  
 COF - Coffeeberry Scrub  
 GS - Goldenbush Scrub  
 GBS - Great Basin Scrubs  
 JUBU - California juniper/California buckwheat Scrub  
 RB - Rabbitbrush Scrub  
 WBS - Wand Buckwheat Scrub  
 WBW - Wright's Buckwheat Scrub  
 YUS - Yucca Scrub

**Broad Leafed Upland Tree Dominated**  
 OAK - Mixed Oak Woodland

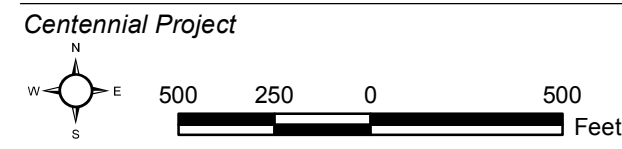
**Riparian and Bottomland Habitat**  
 AS - Alluvial Scrub  
 CW - Cottonwood Woodland  
 RH - Riparian Herb  
 RRG - Rush Riparian Grassland  
 SAWR - Southern Arroyo Willow Riparian  
 SCWW - Southern Cottonwood Willow Woodland  
 SWS - Southern Willow Scrub  
 UW - Unvegetated Wash  
 VOR - Valley Oak Riparian Woodland  
 WRF - Willow Riparian Forest  
 WRW - Willow Riparian Woodland

**Bog and Marsh**  
 AM - Alkali Meadow  
 BR - Baltic Rush  
 CVFM - Coastal and Valley Freshwater Marsh  
 SEP - Seeps and Ephemeral Ponds

**Other Areas**  
 AG - Agricultural  
 DEVL - Developed  
 DEVL/DIST - Developed/Disturbed  
 DIST - Disturbed  
 ORN - Ornamental  
 SLIDE - Disturbed (Landslide)  
 WAT/DEVL - Open Water/Developed

## Detailed Vegetation Map

Exhibit 5.7-17jj



- 88–187, prepared for the U.S. Fish and Wildlife Service). Sacramento, CA: Jones and Stokes Associates, Inc.
- Beier, P. 2003 (April 21). *Linkage Analysis for the Southernmost Portion of the Linkage from Sierra Madre to Sierra Nevada* (Prepared for Tejon Ranch Company) (Appendix 5.7-B, WM-2).
- Bennett, A.F. 1990. Habitat Corridors and the Conservation of Small Mammals in the Fragmented Forest Environment. *Landscape Ecology* 4(2–3):109–122. New York, NY: International Association for Landscape Ecology.
- Bloom, P. H. 2009 (July). *Environmental Assessment of the Centennial Specific Plan Project on the California Condor (*Gymnogyps californianus*)*. Santa Ana, CA: Bloom Biological, Inc. (Appendix 5.7-B, Birds-6).
- . 1980 (November). *The Status of Swainson's Hawks in California, 1979* (Bureau of Land Management and Federal Aid in Wildlife Restoration Project W-54-R-12, Final Report 1980). Sacramento, CA: CDFG.
- Bolger, D.T. 2007. Spatial and Temporal Variation in the Argentine Ant Edge Effect: Implications for the Mechanisms of Edge Limitation. *Biological Conservation* 136:295–305. Amsterdam, The Netherlands: Elsevier Ltd.
- BonTerra Consulting. 2010 (April). *Results of Mountain Plover Survey on the Centennial Specific Plan Site, Los Angeles County, California* (prepared for Centennial Founders, LLC). Pasadena, CA: BonTerra Consulting (Appendix 5.7-B, Birds-7).
- . 2009a. *Oak Tree Supplemental Report: Centennial Specific Plan*. (Appendix 5.7-B, Plant-11).
- . 2009b. *Results of Special Status Plant Surveys for Portions of the Centennial Specific Plan Project Site, Los Angeles County, California*. (Appendix 5.7-B, Plant-12)
- . 2008 (August). *Results of Focused Presence/Absence Surveys for the Southwestern Willow Flycatcher and Least Bell's Vireo on the Centennial Specific Plan Project Site, Los Angeles County, California* (Prepared for U.S. Fish and Wildlife Service). Pasadena, CA: BonTerra Consulting (Appendix 5.7-B, Birds-5).
- . 2006a (September). *Results of Focused Presence/Absence Surveys for the California Spotted Owl on the Centennial Plan Project Site, Los Angeles County, California* (prepared for the California Department of Fish and Game). Pasadena, CA: BonTerra Consulting (Appendix 5.7-B, Birds-2).
- . 2006b (September). *Results of Focused Surveys for the Southwestern Willow Flycatcher and Least Bell's Vireo on the Centennial Project Site, Los Angeles County, California* (prepared for the U.S. Fish and Wildlife Service). Pasadena, CA: BonTerra Consulting (Appendix 5.7-B, Birds-3).



- 
- . 2005 (December). *Results of Focused Presence/Absence Surveys for the Western Spadefoot on the Approximate 2,855-acre Survey Area of the 11,676-acre Centennial Specific Plan Project Site, Los Angeles County, California*. (Prepared for Centennial Founders, LLC). Pasadena, CA: BonTerra Consulting (Appendix 5.7-B, Herp-4).
- BonTerra Psomas. 2015a (November). *Jurisdictional Delineation Report, Centennial Project, Los Angeles County, California*. Pasadena, CA: BonTerra Psomas (Appendix 5.7-B, JD-8).
- . 2015b (August). *Results of Focused Special Status Plant Survey Conducted for the Centennial Project Site, Los Angeles County, California* (prepared for Centennial Founders, LLC). Pasadena, CA: BonTerra Psomas (Appendix 5.7-B, Plant-14).
- . 2015c (October). *Results of Tricolored Blackbird Surveys Conducted for the Centennial Project, Los Angeles County, California* (prepared for Centennial Founders, LLC). Pasadena, CA: BonTerra Psomas (Appendix 5.7-B, Birds-9).
- . 2015d (August). *Update to the 2009 California Condor Assessment for the Centennial Project, Los Angeles County, California* (prepared for Centennial Founders, LLC). Pasadena, CA: BonTerra Psomas (Appendix 5.7-B, Birds-10).
- . 2013 (October). *Results of Swainson's Hawk Surveys for the Centennial Project in Unincorporated Los Angeles County, California*. (prepared for Centennial Founders, LLC). Pasadena, CA: BonTerra Psomas (Appendix 5.7-B, Birds-8).
- Boyd, S. 1999. Vascular Flora of the Liebre Mountains, Western Transverse Ranges, California. *Aliso* 18: 93–139. Claremont, CA: Rancho Santa Ana Botanic Garden.
- Bruyea Biological Consulting. 2004 (October). *Sensitive Insect Survey for Centennial Project, Los Angeles County, California* (Prepared for Impact Sciences). Hemet, CA: Bruyea Biological Consulting (Appendix 5.7-B, Inv-4).
- . 2003 (August). *Sensitive Insect Survey for Centennial Project, Los Angeles County, California* (Prepared for Impact Sciences). Hemet, CA: Bruyea Biological Consulting (Appendix 5.7-B, Inv-3).
- . 2001 (August). *Results of Butterfly Survey for Rolling Meadows Project, Los Angeles County, California* (Prepared for Impact Sciences). Hemet, CA: Bruyea Biological Consulting (Appendix 5.7-B, Inv-1).
- Brylski, P.V., P.W. Collins, E.D. Pierson, W.E. Rainey, and T.E. Kucera. 1998. *Terrestrial Mammal Species of Special Concern in California: Draft Final Report* (B.C. Bolster, Ed.). Sacramento, CA: CDFG, Wildlife Management Division, Nongame Bird and Mammal Conservation Program.
- California Department of Fish and Game (CDFG). 2010 (September). *List of Vegetation Alliances and Associations, Vegetation Classification and Mapping Program*. Sacramento, CA: CDFG.

- California Department of Fish and Wildlife, Biogeographic Data Branch (CDFW BDB). 2014. Wildlife Habitats — California Wildlife Habitat Relationships System. Sacramento, CA: CDFW BDB. <https://www.wildlife.ca.gov/Explore/Organization/BDB>.
- California Department of Fish and Wildlife (CDFW). 2017a (April). *Special Vascular Plants, Bryophytes, and Lichens List*. Sacramento, CA: CDFW, Natural Heritage Division. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109383>.
- . 2017b (April). *Special Animals*. Sacramento, CA: CDFW, Natural Heritage Division. <https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=109406&inline>.
- . 2016. Public Notice. Sacramento, CA: CDFG, Natural Heritage Division.
- . 2015a. California Natural Diversity Database. Records of Occurrence for the USGS Grapevine, Pastoria Creek, Winters Ridge, Liebre Twins, Frazier Mountain, Lebec, La Liebre Ranch, Neenach School, Alamo Mountain, Black Mountain, Liebre Mountain, and Burnt Peak, California 7.5-minute quadrangle maps. Sacramento, CA: CDFG, Natural Heritage Division.
- . 2014 (January 7). CDFW Seeks Public Comment Related to Townsend's Big-eared Bat. CDFW News. Sacramento, CA: CDFW.
- . 2013. *Report to the Fish and Game Commission, Evaluation of the Petition from the Center for Biological Diversity to List Townsend's Big-Eared Bat (Corynorhinus townsendii) as Threatened or Endangered under the California Endangered Species Act*. Sacramento, CA: CDFW, Natural Heritage Division
- California Department of Water Resources, Public Affairs (DWR, Public Affairs). 2009. State Water Project Recreation Sites: Quail Lake. Sacramento, CA: DWR, Public Affairs.
- California Energy Commission and California Department of Fish and Game (CEC and CDFG). 2010 (June). *Swainson's Hawk Survey Protocols, Impact Avoidance, and Minimization Measures for Renewable Energy Projects in the Antelope Valley of Los Angeles and Kern Counties, California*. Sacramento, CA: CDFG.
- California Native Plant Society (CNPS). 2015. Inventory of Rare and Endangered Plants of California (v7-09a). Records of Occurrence for the USGS Grapevine, Pastoria Creek, Winters Ridge, Liebre Twins, Frazier Mountain, Lebec, La Liebre Ranch, Neenach School, Alamo Mountain, Black Mountain, Liebre Mountain, and Burnt Peak, California 7.5-minute quadrangle maps. Sacramento, CA: CNPS. <http://www.cnps.org/inventory>.
- California, State of. 2004a. *California Fish and Game Code* (Section 1600–1616, Fish and Wildlife Protection and Conservation). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=FGC&division=2.&title=&part=&chapter=6.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=FGC&division=2.&title=&part=&chapter=6.&article=)

- . 2004b (January, effective date). *California Public Resources Code* (Section 21083.4). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=13.&title=&part=&chapter=2.6.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=13.&title=&part=&chapter=2.6.&article=).
- . 2001 (as amended). *California Fish and Game Code* (Division 2, Department of Fish and Wildlife; Chapter 4, Wildlife Conservation Law of 1947; Article 3.5, Oak Woodlands Conservation Act; Sections 1360–1372). Sacramento, CA: the State.
- . 1998 (January, effective). *California Fish and Game Code* (Division 3, Fish and Game Generally; Chapter 1.5, Endangered Species; Article 3, Taking, Importation, Exportation, or Sale; Section 2081). Sacramento, CA: the State.
- . 1981 (as amended). *California Code of Regulations* (Title 14, Natural Resources; Division 1, Fish and Game Commission-Department of Fish and Game; Subdivision 3, General Regulations; Chapter 3, Miscellaneous [Refs & Annos]; Section 670.7, Permits to Take Fully Protected Animals for Scientific Purposed). Sacramento, CA: the State.
- . 1974 (as amended). *California Code of Regulations* (Title 14, Natural Resources; Division 1, Fish and Game Commission-Department of Fish and Game; Subdivision 3, General Regulations; Chapter 1, Collecting Permits [Refs & Annos]; Section 650, Scientific Collecting Permits). Sacramento, CA: the State.
- . 1969 (as amended). *California Water Code* (Division 7, Water Quality; Sections 13000–16104). Sacramento, CA: the State.
- . 1957. *California Fish and Game Code* (Division 0.5, General Provisions and Definitions; Chapter 1, General Definitions; Section 86). Sacramento, CA: the State.
- California Water Resources Control Board (SWRCB). 2009 (January 1, amendments through). Porter-Cologne Water Quality Control Act (With Additions and Amendments Effective January 1, 2009). Sacramento, CA: SWRCB. [http://www.swrcb.ca.gov/laws\\_regulations/docs/portercologne.pdf](http://www.swrcb.ca.gov/laws_regulations/docs/portercologne.pdf).
- Consortium of California Herbaria (CCH). 2016 (database extract updated July 14, 2016). Consortium of California Herbaria. Data provided by the participants of the Consortium of California Herbaria for Bakersfield cactus. Berkeley, CA: University of California. <http://ucjeps.berkeley.edu/consortium/>.
- Crawford, D. 2003 (June). *Results of Small Mammal Trapping Surveys Conducted at the Centennial Project Site, Los Angeles, California* (Prepared for Impact Sciences) (Appendix 5.7-B, Mamm-1).
- Crooks, K.R., A.V. Suarez, and D.T. Bolger. 2004. Avian Assemblages along a Gradient of Urbanization in a Highly Fragmented Landscape. *Biological Conservation* 115: 451–462. Amsterdam, The Netherlands: Elsevier Ltd.

- Daw, S. 2014 (March 25, last revised). Species Fact Sheet: Western Yellow-billed Cuckoo (*Coccyzus americanus occidentalis*). Southwestlearning.org.
- del Hoyo, J., A. Elliott, and J. Sargatal, Eds. 1994. *Handbook of the Birds of the World* (Vol. 2: New World Vultures to Guineafowl). Barcelona, Spain: Lynx Editions.
- Dudek and Associates, Inc. (Dudek). 2013. *Final Tehachapi Upland Multiple Species Habitat Conservation Plan* (Prepared for the Tejon Ranch Corp). Encinitas, CA: Dudek.  
[http://www.fws.gov/ventura/docs/hcps/final/TehachapiUpland/April2013FinalM SHCP/00\\_Cover%20and%20TOC.pdf](http://www.fws.gov/ventura/docs/hcps/final/TehachapiUpland/April2013FinalM SHCP/00_Cover%20and%20TOC.pdf).
- Dunn, J.L. and K.L. Garrett. 1997. *A Field Guide to Warblers of North America* (Peterson's Field Guide Series 49). Boston, MA: Houghton Mifflin Company.
- East Contra Costa County Habitat Conservancy (ECCCHC). 2007 (October). *Final East Contra Costa County Habitat Conservation Plan and Natural Community Conservation Plan* (Appendix D: San Joaquin Kit Fox Species Profile). Martinez, CA: ECCCHC.  
[http://www.co.contra-costa.ca.us/depart/cd/water/HCP/archive/final-hcp-rev/final\\_hcp\\_nccp\\_figures.html#AppD](http://www.co.contra-costa.ca.us/depart/cd/water/HCP/archive/final-hcp-rev/final_hcp_nccp_figures.html#AppD).
- Ecological Sciences. 2006 (September). *A Focused Survey for the Tehachapi Pocket Mouse (*Perognathus alticola inexpectatus*)*, Centennial Specific Plan (Prepared for BonTerra Consulting). Santa Paula, CA: Ecological Sciences (Appendix 5.7-B, Mamm-3).
- . 2005 (January). *Results of Small Mammal Trapping Survey, Centennial Site, Los Angeles County, California* (Prepared for Centennial Founders, LLC). Santa Paula, CA: Ecological Sciences (Appendix 5.7-B, Mamm-2).
- Egoscue, H.J. 1975. Population Dynamics of the Kit Fox in Western Utah. *Bulletin of the Southern California Academy of Sciences*. 74: 122–127. Los Angeles, CA: Southern California Academy of Sciences.
- Ehrlich, P.R., D.S. Dobkin, and D. Wheye. 1988. *The Birder's Handbook: A Field Guide to the Natural History of North American Birds*. New York, NY: Simon and Schuster.
- England and Nelson Environmental Consultants. 1976. *Los Angeles County Significant Ecological Area Study*. (Prepared for the Los Angeles County Department of Regional Planning and Environmental Systems Research Institute). Riverside, CA: England and Nelson Environmental Consultants.
- England, A.S., M.J. Bechard, and C.S. Houston. 1997. Swainson's Hawk (*Buteo swainsoni*). *The Birds of North America*, No. 265 (A. Poole and F. Gill, Eds.). Washington, D.C.: The Academy of Natural Sciences and The American Ornithologists' Union,
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual* (Technical Report Y-87-1). Vicksburg, MS: U.S. Army Engineer Waterways Experiment Station.

- Environmental Science Associates. 1989 (September). *Gorman Properties, Preliminary Biological Assessment*. San Francisco, CA: Environmental Science Associates (Appendix 5.7-B, Gen-1).
- Eriksen, C. and D. Belk. 1999. *Fairy Shrimps of California's Puddles, Pools, and Playas*. Eureka, CA: Mad River Press, Inc.
- Ferrel, C.M. and H.R. Leach. 1950. Food Habits of the Prong-horn Antelope of California. *California Fish and Game "Conservation of Wild Life Through Education"* 36(1): 21–26. San Francisco, CA: California Fish and Game Commission.
- Fisher, R.N., A.V. Suarez, and T.J. Case. 2002. Spatial Patterns in the Abundance of the Coastal Horned Lizard. *Conservation Biology* 16(1): 205–215. Hoboken, NJ: John Wiley and Sons, Inc.
- Garrett, K. and J. Dunn. 1981. *Birds of Southern California: Status and Distribution*. Los Angeles, CA: Audubon Press.
- Geivet, D. 2009. Personal Communication. Phone conversation between D. Geivet, Vice President – Ranch Operations (Tejon Ranch Company) and M. Blain, Biological Resources Manager (BonTerra Consulting).
- Germano, D.J., G.B. Rathbun, L.R. Saslaw. 2001. Managing Exotic Grasses and Conserving Declining Species. *Wildlife Society Bulletin* 29(2): 551–559. Bethesda, MD: Wildlife Society.
- Germano, D.J. and W.M. Rhodehamel. 1995. Characteristics of Kangaroo Rat Burrows in Fallow Fields of the Southern San Joaquin Valley. *Transactions of the Western Section of the Wildlife Society*. Rancho Cordova, CA: The Wildlife Society, Western Section.
- Glenn Lukos Associates (GLA). 2009a. *Wetland Functional Assessment for Areas within the Jurisdiction of the United States Army Corps of Engineers pursuant to Section 404 of the Clean Water Act and the California Department of Fish and Game pursuant to Section 1600 of the California Department of Fish and Game Code, Centennial Specific Plan Project, City of Santa Clarita and County of Los Angeles*. Lake Forest, CA: Glenn Lukos Associates (Appendix 5.7-B, JD-7).
- . 2009b (August). *Project-Level Delineation For the Centennial Property at Tejon Ranch, an approximately 11,680-Acre Property Located in Los Angeles County, California*. Lake Forest, CA: Glenn Lukos Associates (Appendix 5.7-B, JD-6).
- . 2007 (March). *Report of a Dry Season Survey for Vernal Pool Branchiopod Cysts for Tentative Tract Maps 60020, 60021 and 60023 of the Centennial Specific Plan Property, Los Angeles County, California*. Lake Forest, CA: Glenn Lukos Associates (Appendix 5.7-B, Inv-9).
- . 2006a (August). *90-Day Report for a Wet-Season Presence/Absence Survey for Listed Branchiopods Conducted for Tentative Tract Maps 60020, 60021 and 60023 of the*

- Centennial Property, Los Angeles County, California* (Prepared for BonTerra Consulting). Lake Forest, CA: Glenn Lukos Associates (Appendix 5.7-B, Inv-7).
- . 2006b (November). *Hybrid Wetland Functional Assessment for Areas Within the Jurisdiction of the United States Army Corps of Engineers pursuant to Section 404 of the Clean Water Act and the California Department of Fish and Game Pursuant to Section 1600 of the California Department of Fish and Game Code, Tejon Ranch, City of Santa Clarita and County of Los Angeles*. Lake Forest, CA: Glenn Lukos Associates (Appendix 5.7-B, No. JD-4).
- . 2006c (January). *Project-Level Delineation for Tentative Tract Maps 60020, 60021 and 60023 of the Centennial Property, Los Angeles County, California* (Prepared for BonTerra Consulting). Lake Forest, CA: Glenn Lukos Associates (Appendix 5.7-B, No. JD-5).
- . 2006d (January). *Results of a Dry Season Survey for Branchiopod Cysts for Two Seasonal Ponds at the Centennial Project Site, Los Angeles County, California* (Letter Report addressed to U.S. Fish and Wildlife Service). Lake Forest, CA: Glenn Lukos Associates (Appendix 5.7-B, Inv-8).
- . 2005a (July). *90-day Report for a Wet-Season Presence/Absence Survey for Listed Branchiopods Conducted for Two Seasonal Ponds at the Centennial Project Site, Tejon Ranch Property, Los Angeles County, California* (Letter Report addressed to U.S. Fish and Wildlife Service) Lake Forest, CA: Glenn Lukos Associates (Appendix 5.7-B, Inv-5).
- . 2005b (October). *Centennial Project, Tejon Ranch, Los Angeles County: Results of Fairy Shrimp Habitat Assessment for the 3,000-Acre Centennial Project Study Area* (Prepared for Centennial Founders, LLC). Lake Forest, CA: Glenn Lukos Associates (Appendix 5.7-B, Inv-6).
- . 2005c (November). *Planning-Level Delineation For Areas Within The Centennial Property Boundary That Were Excluded From The Previous Impact Sciences Jurisdictional Delineation* (Prepared for BonTerra Consulting). Lake Forest, CA: Glenn Lukos Associates (Appendix 5.7-B, JD-3).
- Grinnell, J., J. Dixon, and J. Linsdale. 1937. *Fur-Bearing Mammals of California*. Berkeley, CA: University of California Press.
- Grinnell, J. and A.H. Miller. 1986 (April). *The Distribution of the Birds of California* (reprint from Cooper Ornithological Club's December 30, 1944, Pacific Coast Avifauna No. 27). Lee Vining, CA: Artemesia Press.
- Gutiérrez, R.J., A.B. Franklin, and W.S. LaHaye. 1995. Spotted owl (*Strix occidentalis*). *The Birds of North America, No. 179* (A. Poole and F. Gill Eds.). Philadelphia, PA and Washington, D.C.: the Academy of Natural Sciences and the American Ornithologists' Union, respectively.

- Hamilton, J.G. 1997. Changing Perceptions of Pre-European Grasslands in California. *Madroño* 44(4): 311–333. Berkeley, CA: California Botanical Society.
- Hansen, R.W. and D.B. Wake. 2005. *Batrachoseps stebbinsi* (pp. 693–695). *Amphibian Declines, The Conservation Status of United States Species* (M. Lannoo, Ed.). Berkeley, CA: University of California Press.
- Harris, J.H. and D.M. Stearns. 1991. Population Density, Census Methods, Habitat Relationships, and Home Range of the San Joaquin Antelope Ground Squirrel, 1988–89. *California Department of Fish and Game, Nongame Bird and Mammal Section Report* 91(02): 1–37. Sacramento, CA: CDFG.
- Harris, L.D. and P.B. Gallagher. 1989. New Initiatives for Wildlife Conservation: The Need for Movement Corridors (pp. 11-34). *Preserving Communities and Corridors* (G. Mackintosh, Ed.). Washington, D.C.: Defenders of Wildlife.
- Heady, H.F. 1977. *Valley Grasslands. Terrestrial Vegetation of California* (M.G. Barbour and J. Major eds.). New York, NY: John Wiley.
- Hickman, J.C., Ed. 1993. *The Jepson Manual of Higher Plants of California*. Berkeley, CA: University of California Press.
- Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Natural Communities of California*. Sacramento, CA: CDFG, Non-game Heritage Program.
- Hughes, J.M. 1999. Yellow-Billed Cuckoo (*Coccyzus americanus*). *The Birds of North America, No. 418* (A. Poole and F. Gill, Eds.). Philadelphia, PA: The Academy of Natural Sciences.
- Impact Sciences, Inc. 2011 (July). *90-day Protocol Survey Report for U.S. Fish and Wildlife Service Listed Vernal Pool Branchiopods for the Santa Clarita Vernal Pool Project*. Pasadena, CA: Impact Sciences.
- . 2004a (July). *Biological Evaluation of Bird Species For Centennial Study Area, Tejon Ranch, 2003-2004 (DRAFT)* (Prepared for Pardee Homes). Camarillo, CA: Impact Sciences (Appendix 5.7-B, Birds-1).
- . 2004b (June). *DRAFT Focused Surveys for Western Spadefoot Toad, Centennial Project Site, Tejon Ranch*. Camarillo, CA: Impact Sciences (Appendix 5.7-B, Herp-3).
- . 2003 (October). *Centennial Biota Report, Los Angeles County, California* (Prepared for Los Angeles County Department of Regional Planning, Significant Ecological Area Technical Advisory Committee). Agoura Hills, CA: Impact Sciences (Appendix 5.7-B, Gen-6).
- . 2002a (December). *Biological Constraints Analysis, Centennial Project, Los Angeles County, California* (Prepared for Los Angeles County Department of Regional Planning). Agoura Hills, CA: Impact Sciences (Appendix 5.7-B, Gen-4).



- 
- . 2002b (February). *Jurisdictional Delineation: Waters of the United States and Streambeds, Centennial Project, Tejon Ranch, Los Angeles County, California*. Agoura Hills, CA: Impact Sciences (Appendix 5.7-B, JD-1).
- . 2001a (September). *DRAFT Focused Surveys for California Red-Legged Frogs at the Rolling Meadows Specific Plan Area, Tejon Ranch, Los Angeles County, California*. Agoura Hills, CA: Impact Sciences (Appendix 5.7-B, Herp-1).
- . 2001b (September). *DRAFT Interim Wildlife Movement Corridor Assessment Centennial Project Site, Tejon Ranch* (Prepared for Los Angeles County Department of Regional Planning). Agoura Hills, CA: Impact Sciences (Appendix 5.7-B, WM-1).
- . 2001c (April). *DRAFT Rolling Meadows Fairy Shrimp Observations*. Agoura Hills, CA: Impact Sciences (Appendix 5.7-B, Inv-2).
- . 2001d. *Draft Summary of Special-Status Biological Surveys, Centennial Study Area 1999 – 2001, Centennial Specific Plan, Los Angeles County, California*. Agoura Hills, CA: Impact Sciences (Appendix 5.7-B, Gen-3).
- . 2001e (April). *Rolling Meadows Preliminary Amphibian Surveys*. Agoura Hills, CA: Impact Sciences (Appendix 5.7-B, Herp-2).
- . 1999 (September). *Pyramid Ranch Biological Reconnaissance: Survey Results*. Agoura Hills, CA: Impact Sciences (Appendix 5.7-B, Gen-2).
- Jaramillo, A. 2008. Yellow-Headed Blackbird (*Xanthocephalus xanthocephalus*). *California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California* (W.D. Shuford and T. Gardali, Eds.). Camarillo and Sacramento, CA: Western Field Ornithologists and California Department of Fish and Game, respectively.
- Jennings, M.R. and M.P. Hayes. 1994. *Amphibian and Reptile Species of Special Concern in California* (Contract No. 8023). Sacramento, CA: CDFG, Inland Fisheries Division.
- Jepson Herbarium. 2015. Jepson eFlora. Berkeley, CA: Jepson Herbarium.  
<http://ucjeps.berkeley.edu/IJM.html>.
- Johnsgard, P.A. 1990. *Hawks, Eagles, and Falcons of North America: Biology and Natural History*. Washington, D.C.: Smithsonian Institution Press.
- Josselyn, M.N., D.D. Murphy, and B.M. Pavlik. 2009 (September). *Technical Memo: Inter-Annual Variation in the Distribution of Native Perennial Grasses and Forbs at Centennial* (Prepared For BonTerra Consulting) (Appendix 5.7-B, Plant-13).
- Knopf, F.L. 1996. Mountain Plover (*Charadrius montanus*). *The Birds of North America, No. 211* (A. Poole and F. Gill, Eds.). Philadelphia, PA: The Academy of Natural Sciences.

- Koch, A.J. and J.D. Yoakum. 2002. Reintroduction and Status of Pronghorn on the Carrizo Plain National Monument and Surrounding Areas in Southern California. *Proceedings of the Biennial Pronghorn Workshop* 20:25–41.
- Lady Bird Johnson Wildflower Center. 2017. Plants of North America (on-line) data set, <http://www.wildflower.org/>.
- Lehman, P.E. 1994. *The Birds of Santa Barbara County, California*. Santa Barbara, CA: Vertebrate Museum, University of California.
- Los Angeles, County of. 2015 (October 5, updated through). *Los Angeles County, California – Code of Ordinances*. Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles. [https://www.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances](https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances).
- Los Angeles, County of, Department of Regional Planning (LACDRP). 2015a (March). *Los Angeles County General Plan, Revised Draft*. Los Angeles, CA: LACDRP.
- . 2015b (Adopted June 16). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: LACDRP.
- . 2011 (May). *Los Angeles County Oak Woodlands Conservation Management Plan (Draft March 2011)*. Los Angeles, CA: Los Angeles County Oak Woodlands Habitat Conservation Strategic Alliance.  
[http://planning.lacounty.gov/assets/upl/project/oakwoodlands\\_conservation-management-plan.pdf](http://planning.lacounty.gov/assets/upl/project/oakwoodlands_conservation-management-plan.pdf).
- . 1988. *County of Los Angeles Oak Tree Ordinance (#88-0157)*. Los Angeles, CA: the County.
- Lovich, J. n.d. Western Pond Turtle, *Clemmys marmorata*. Riverside, CA: U.S. Geological Survey, Western Ecological Research Center.
- MacArthur, R.H. and E.O. Wilson. 1967. *The Theory of Island Biogeography*. Princeton, NJ: Princeton University Press.<sup>10</sup>
- Majka D, Jennes J, Beier P (2007) CorridorDesigner: ArcGIS tools for designing and evaluating corridors. <http://corridordesign.org>
- McCarty, R. 1975. *Onychomys torridus*. *Mammalian Species* 59:1–5. Northhampton, MA: Smith College, Clark Science Center.
- McCreary, D. 2004. *Oak Woodland Conservation Act of 2001*. Davis, CA: Sierra Foothill Research & Extension Center, University of California.

---

<sup>10</sup> This book can be found at the following university libraries: UCLA, USC, CSU Northridge, and CSU Bakersfield.

- Marks, J.S., D.L. Evans, and D.W. Holt. 1994. Long-eared Owl (*Asio otus*). *The Birds of North America, No. 133* (A. Poole and F. Gill, Eds.). Philadelphia, PA and Washington, D.C.: The Academy of Natural Sciences and the AOU (respectively).
- Marti, C. D., and Marks, J. S. 1989. Medium-Sized Owls (pgs. 124–133). *Proceedings of the Western Raptor Management Symposium and Workshop, Technical Series 12* (B. G. Pendleton, Ed.). Washington, D.C.: National Wildlife Federation.
- Meretsky, V.J. and N.F.R. Snyder. 1992. Range Use and Movements of California Condors. *Condor* 94:313–335. Los Angeles, CA: Cooper Ornithological Society.
- Mohr, R. 2008 (August 9). Personal communication. Phone call between R. Mohr, Associate Wildlife Biologist (CDFG) and M. Blain, Biological Resources Manager (BonTerra Consulting) regarding Antelope Valley Pronghorn Reintroduction.
- Morey, S. 2000 (March). Western Pond Turtle, *Actinemys marmorata*. Sacramento, CA: CDFW, California Wildlife Habitat Relationships System.
- Morton, K., P. Jones, and J. Taggart. 2008. Province and State Status Report on Pronghorn Antelope 2008. *Proceedings of the Biennial Pronghorn Workshop* 23:6–16.
- Munz, P.A. 1974. *A Flora of Southern California*. Berkeley, CA: University of California Press.
- Murphy, D.D. 2002 (December 27). *Biotic Conditions on the Proposed Centennial Development Site and Conservation Planning Considerations* (a Letter Report prepared for Impact Sciences). Reno, NV: University of Nevada, Reno. (Appendix 5.7-B, Gen-5).
- Murphy, D.D. and P.R. Ehrlich. 1989. Conservation Biology of California's Remnant Native Grasslands (pp. 201–211). *Grassland Structure and Function: California Annual Grassland* (L.F. Huenneke and H.A. Mooney, Eds.). Norwell, MA: Kluwer Academic Pubs.
- National Audubon Society (NAS). 2017 (access date). Audubon Christmas Bird Count: Historical Results By Count (Search for 1990 through 2015; United States, California). **Error! Hyperlink reference not valid.**  
<http://netapp.audubon.org/CBCObservation/CurrentYear/ResultsByCount.aspx>.
- Natural Resource Consultants. 2008a (June). *Methods, Results, and Conclusions of 2008 Focused Special Status Plant Surveys on the Approximately 11,700-acre Centennial Specific Plan Area and North and South Mitigation Areas Located in Los Angeles County, California*. Laguna Beach, CA: Natural Resource Consultants. (Appendix 5.7-B, Plant-9)
- . 2008b (June). *2008 Assessment of the Native Perennial Bunchgrass Model for the Centennial Specific Plan Area Site, Los Angeles County, California*. Laguna Beach, CA: Natural Resource Consultants. (Appendix 5.7-B, Plant-8)

- 
- . 2007a. *2007 Grassland and Wildflower Community Composition and Distribution in the South Tehachapi Regional Study Area, Los Angeles County, California*. Laguna Beach, CA: Natural Resource Consultants. (Appendix 5.7-B, Plant-5)
- . 2007b (March). *2006 Field Studies, Statistical Analyses and Modeling of Native Perennial Bunchgrass Distribution and Quality on the Approximately 11,680-Acre Centennial Specific Plan Site, Los Angeles County, California*. Laguna Beach, CA: Natural Resource Consultants. (Appendix 5.7-B, Plant-6)
- . 2007c. *Within and Between-Year Assessment of the 2006 Native Perennial Bunchgrass Model for the Centennial Specific Plan Site, Los Angeles, California* (Prepared for BonTerra Consulting). Laguna Beach, CA: Natural Resource Consultants (Appendix 5.7-B, Plant-7).
- . 2006a (March) *2006 Perennial Grassland Studies on the 11,700-acre Centennial Specific Plan Site, Los Angeles County, California*. Laguna Beach, CA: Natural Resource Consultants (Appendix 5.7-B, Plant-3).
- . 2006b (October). *Methods, Results, and Conclusions of Focused Sensitive Plant Surveys on the Approximately 11,700-acre Centennial Specific Plan Located in Los Angeles County, California*. Laguna Beach, CA: Natural Resource Consultants. (Appendix 5.7-B, Plant-4).
- . 2006c (October). *Status of Burrowing Owl (*Athene cunicularia*) on the 11,700-acre Centennial Specific Plan Located in Los Angeles County, California*. Laguna Beach, CA: Natural Resource Consultants (Appendix 5.7-B, Birds-4).
- Olson, T.E. and M.V. Gray. 1989. *Characteristics of Least Bell's Vireo Nest Sites Along the Santa Ynez River* (USDA Forest Service General Technical Report PSW-110). Presented at the California Riparian Systems Conference (September 22–24, 1988). Davis, California.
- PCR Services Corporation, Frank Hovore & Associates, and FORMA Systems (PCR et al.). 2000. *Biological Resources Assessment of the Proposed San Andreas Rift Zone Significant Ecological Area* (prepared for the Los Angeles County Department of Regional Planning). Irvine, CA: PCR Services Corporation.
- Penrod, K., C. Cabañero, P. Beier, W. Spencer, C. Luke, and E. Rubin. 2005 (March). *South Coast Missing Linkages Project: A Linkage Design for the Sierra Madre-Castaic Connection*. Idyllwild, CA: South Coast Wildlands.
- . 2004. *South Coast Missing Linkages Project: A Linkage Design for the San Gabriel-Castaic Connection*. Idyllwild, CA: South Coast Wildlands.
- . 2003 (September). *South Coast Missing Linkages Project: A Linkage Design for the Tehachapi Connection*. Unpublished Report. Monrovia, CA: South Coast Wildlands.

- Pike, J, D. Pellegrini, L. Hays, and R. Zembal. 2004. Least Bell's Vireos and Southwestern Willow Flycatchers in Prado Basin of the Santa Ana River Watershed, CA. Fountain Valley and Carlsbad, CA: Orange County Water District and USFWS.
- Pioneer Environmental Services. 2004 (July). *FINAL Evaluation of Potential Population Isolation for Wildlife at Tejon Ranch, Lebec, California* (Prepared for Tejon Ranch Company). Logan, UT: Pioneer Environmental Services (Appendix 5.7-B, WM-3).
- PlaceWorks. 2017. *Centennial Specific Plan*. Santa Ana, CA: PlaceWorks (Appendix 4.0-A).
- Prigge, B.A. and Gibson, A.C., 2007. "Researching a new flora of the Santa Monica Mountains and Simi Hills, California", In: *Flora and Ecology of the Santa Monica Mountains, Proceedings of the 32nd Annual Southern California Botanists Symposium*, D. Knapp (ed.)(Eds.), Fullerton, CA Southern California Botanists Special Publication 4 55 (1): 29-34.
- Remsen, J.V., Jr. 1978. *Bird Species of Special Concern in California: An Annotated List of Declining or Vulnerable Bird Species* (Administrative Report No. 78-1). Sacramento, CA: CDFG, Wildlife Management Branch.
- Robinson, W.D. 1996. Summer Tanager (a comprehensive life history account). *Birds of North America. No. 248* (A. Poole, P. Stettenheim, and F. Gill, eds). Philadelphia and Washington D.C.: Academy of Natural Sciences and American Ornithologists' Union (respectively).
- Safford, H. D., Viers, J. H. and Harrison, S. P. 2005. Serpentine Endemism in the California Flora: A Database of Serpentine Affinity Madrono, California Botanical Society, Northridge, Calif, Vol 52(4):222-257.
- Sanders A.C. 2015 (June 18). Personal Communication. In-person conversation between Andy. C. Sanders (University of California, Riverside Herbarium) and Jordan Zylstra (BonTerra Psomas).
- Sawyer, J.O. and T. Keeler-Wolf. 1995. *A Manual of California Vegetation*. Sacramento, CA: CNPS.
- Shaffer, H.B., G.M. Fellers, S.R. Voss, J.C. Oliver, and G.B. Pauly. 2004. Species Boundaries, Phylogeography and Conservation Genetics of the Red-Legged Frog (*Rana aurora/draytonii*) Complex. *Molecular Ecology* 13:2667-2677. Boston, MA: Blackwell Publishing Ltd.
- Shuford, W.D. and T. Gardali (Eds.). 2008. California Bird Species of Special Concern: A Ranked Assessment of Species, Subspecies, and Distinct Populations of Birds of Immediate Conservation Concern in California. *Studies of Western Birds 1*. Camarillo, CA and Sacramento, CA: Western Field Ornithologists and CDFG (respectively).
- Small, A. 1994. *California Birds: Their Status and Distribution*. Vista, CA: Ibis Publishing Company.

- Smith, R.L. 1996. *Ecology and Field Biology* (5<sup>th</sup> ed.) New York, NY: HarperCollins College Publishers, Inc.
- Snyder, N. and H. Snyder. 2000. *The California Condor, a Saga of Natural History and Conservation*. London, England: Academic Press.
- Soule, M.E. 1987. *Viable Populations for Conservation*. New York, NY: Cambridge University Press.
- Sweet, S. 2011 (May 6). SoCal Endangered Species Herping, Part 6. Sacramento, CA: Herp Nation Media. <http://www.fieldherpforum.com/forum/viewtopic.php?f=2&t=6015&p=88363&hilit=sam+sweet+part+5#p88363>.
- Tejon Ranch Conservancy (TRC). 2013 (June). *Tejon Ranch Conservancy Ranch-wide Management Plan*. Frazier Park, CA: TRC. <http://www.tejonconservancy.org/rwmp.htm>.
- Tree Life Concern, Inc. 2008 (July). *(Addendum 1) Oak Tree Report – Centennial Specific Plan* (Prepared for BonTerra Consulting). Simi Valley, CA: Tree Life Concern (Appendix 5.7-B, Plant-10).
- . 2003 (December). *Oak Tree Report: “Centennial”* (Prepared for Impact Sciences). Canoga Park, CA: Tree Life Concern (Appendix 5.7-B, Plant-1).
- Trust for Public Lands (TPL). 2004 (August, posted). Tejon Ranch Preservation Program. San Francisco, CA: TPL (Appendix 5.7-B, WM-4).
- Twedt, D.J. and R.D. Crawford. 1995. Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*). *The Birds of North America, No. 192* (A. Poole and F. Gill, Eds.). Philadelphia, PA: The Academy of Natural Sciences.
- Twisselmann, E.C. and M.L. Moe. 1995. A Flora of Kern County, California (reprinted from *The Wasmann Journal of Biology* [1967] Vol. 25, Nos. 1 and 2) and *A Key to Vascular Plant Species of Kern County, California*. Sacramento, CA: CNPS.
- Unitt, P. 1984. *The Birds of San Diego County* (Memoir 13). San Diego, CA: San Diego Society of Natural History.
- U.S. Army Corps of Engineers (USACE). 2002. Letter from D.J. Castanon, Chief, North Coast Section, Regulatory Branch, to RM Development, c/o Impact Sciences. Dated April 29, 2002 (Appendix 5.7-B, JD-2).
- U.S. Army Corps of Engineers and Environmental Protection Agency (USACE and USEPA). 2015 (June 29). Clean Water Rule: Definition of “Waters of the United States”. *Federal Register* 80(124): 37054–37127. Washington, D.C.: USACE and USEPA.

- U.S. Congress. 2008 (as amended). *United States Code* (Title 33, Navigation and Navigable Waters; Chapter 26, Water Pollution Prevention and Control). Washington, D.C.: U.S. Government Printing Office.
- . 2005 (as amended). *United States Code* (Title 16, Conservation; Chapter 7, Protection of Migratory Game and Insectivorous Birds; Subchapter II, Migratory Bird Treaty). Washington, D.C.: U.S. Government Printing Office.
- . 1994 (as amended). *United States Code* (Title 16, Conservation; Chapter 5A, Protection and Conservation of Wildlife; Subchapter II, Protection of Bald and Golden Eagles). Washington, D.C.: U.S. Government Printing Office.
- . 1973a (as amended). *Code of Federal Regulations* (Title 50, Wildlife and Fisheries; Chapter IV, Joint Regulations [United States Fish and Wildlife Service, Department of the Interior and National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Department of Commerce], Endangered Species Regulations; Part 402, Interagency Cooperation—Endangered Species Act of 1973, as Amended). Washington, D.C.: U.S. Government Printing Office.
- . 1973b (as amended). *Code of Federal Regulations* (Title 50, Wildlife and Fisheries; Chapter I, United States Fish and Wildlife Service, Department of the Interior; Subchapter B, Taking, Possession, Transportation, Sale, Purchase, Barter, Exportation, and Importation of Wildlife and Plants; Subpart B, Definitions; Section 10.13, List of Migratory Birds). Washington, D.C.: U.S. Government Printing Office.
- . 1973c (as amended). *United States Code* (Title 16, Conservation; Chapter 35, Endangered Species; Sections 1531–1544). Washington, D.C.: U.S. Government Printing Office.
- . 1948 (as amended). *United States Code* (Title 33, Navigation and Navigable Waters; Chapter 26, Water Pollution Prevention and Control; Subchapter I, Research and Related Programs; Sections 1251–1275). Washington, D.C.: U.S. Government Printing Office.
- . 1900 (as amended). *United States Code* (Title 16, Conservation; Chapter 7, Protection of Migratory Game and Insectivorous Birds; Section 703, Taking, killing, or possessing migratory birds unlawful). Washington, D.C.: U.S. Government Printing Office.
- U.S. Fish and Wildlife Service (USFWS). 2013 (January 3). Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Southwestern Willow Flycatcher; Final Rule. *Federal Register* 78(2): 343–534. Washington, D.C.: USFWS.
- . 2011a (October 11). Endangered and Threatened Wildlife and Plants; 12-Month Finding on a Petition to List the Tehachapi Slender Salamander (*Batrachoseps stebbinsi*) as Threatened or Endangered. *Federal Register* 74(196): 62900–62926. Washington, D.C.: USFWS.



- . 2011b (February 9). Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for the Arroyo Toad; Final Rule. *Federal Register* 76(27): 7245–7467. Washington, D.C.: USFWS.
- . 2010a (March 7). Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the California Red-legged Frog; Final Rule. *Federal Register* 75(51): 12816–12959. Washington, D.C.: USFWS.
- . 2010b (October 7). Endangered and Threatened Wildlife and Plants; Revised Critical Habitat for *Navarretia fossalis* (Spreading Navarretia); Final Rule. *Federal Register* 75(194): 62192–62255. Washington, D.C.: USFWS.
- . 2009 (April 22). Endangered and Threatened Wildlife and Plants; 90-Day Finding on a Petition to List the Tehachapi Slender Salamander (*Batrachoseps stebbinsi*) as Threatened or Endangered. *Federal Register* 74(76): 18336–18341. Washington, D.C.: USFWS.
- . 2007a (December 19). Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the Coastal California Gnatcatcher (*Polioptila californica californica*); Final Rule. *Federal Register* 72(243): 72009–72213. Washington, D.C.: USFWS.
- . 2007b (July 9). Endangered and Threatened Wildlife and Plants; Removing the Bald Eagle in the Lower 48 States From the List of Endangered and Threatened Wildlife; Final Delisting, Recovered. *Federal Register* 72(130): 37345–37372. Washington, D.C.: USFWS.
- . 2006a (April 13). Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the California Red-legged Frog, and Special Rule Exemption Associated with Final Listing for Existing Routine Ranching Activities; Final Rule. *Federal Register* 71(71): 19243–19346. Washington, D.C.: USFWS.
- . 2006b. Endangered and threatened wildlife and plants; 12-month finding for a petition to list the California spotted owl (*Strix occidentalis occidentalis*) as threatened or endangered. *Federal Register* 71:29886–29908. Washington, D.C.: USFWS.
- . 1999 (February 16). Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for the Mountain Plover. *Federal Register* 64(30): 7587–7601. Washington, D.C.: USFWS.
- . 1998. *Recovery Plan for Upland Species of the San Joaquin Valley, California*. Portland, OR: USFWS. <http://esrp.csustan.edu/publications/recoveryplan.php>.
- . 1995 (February 27). Endangered and Threatened Wildlife and Plants: Final Rule, Determining Endangered Status for the Southwestern Willow Flycatcher. *Federal Register*. 60(38): 10693–10715. Washington, D.C.: USFWS.

- 
- . 1994a (February 2). Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Least Bell's Vireo. *Federal Register* 59(22): 4845–4867. Washington, D.C.: USFWS.
- . 1994b (September 19). Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Conservancy Fairy Shrimp, Longhorn Fairy Shrimp, and the Vernal Pool Tadpole Shrimp; and Threatened Status for the Vernal Pool Fairy Shrimp. *Federal Register* 59(180): 42136–48153. Washington, D.C.: USFWS.
- . 1988. *National List of Plant Species that Occur in Wetlands: California, Region 0* (Biological Report 88[26.10]). Washington, D.C.: USFWS.
- . 1986 (May 2). Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Least Bell's Vireo. *Federal Register* 51(85):16474–16482. Washington, D.C.: USFWS.
- . 1976. Endangered and Threatened Wildlife and Plants; Determination of Critical Habitat for American Crocodile, California Condor, Indiana Bat, and Florida Manatee. *Federal Register* 41(187): 41914–41916. Washington, D.C.: USFWS.
- Vickery, P.D. 1996. Grasshopper Sparrow. *The Birds of North America, No. 239* (A. Poole and F. Gill, Eds.). Philadelphia, PA and Washington, D.C.: The Academy of Natural Sciences and the AOU (respectively).
- Vollmar Consulting. 2004 (December, Revised May 2006). *Centennial Specific Plan Project Site: 2003/2004 Botanical Survey Report; Landscape Setting, Special-Status Plant Surveys, and Perennial Bunchgrass Community Study* (Prepared for Impact Sciences). Berkeley, California: Vollmar Consulting (Appendix 5.7-B, Plant-2).
- Ward, M. 2005 (June 22). Personal Communication. Emails between M. Ward, Rare Plant Botanist (California Native Plant Society) and A. Warniment, Project Biologist (BonTerra Consulting).
- Warrick, G.D., T.T. Kato, B.R. Rose. 1998. Microhabitat Use and Home Range Characteristics of Blunt-nosed Leopard Lizards. *Journal of Herpetology* 32(2): 183–191. Salt Lake City, UT: Society for the Study of Amphibians and Reptiles.
- Williams, D.F. 1986. *Mammalian Species of Special Concern in California* (Administrative Report 86-1). Sacramento, CA: CDFG.
- . 1985. *A Review of the Population Status of the Tipton Kangaroo Rat, Dipodomys Nitratoides Nitratoides m* (Final Report). Sacramento, CA: USFWS, Endangered Species Office.
- Wilson, D. and S. Ruff. 1999. Water shrew (*Sorex palustris*) (pp. 38–39). *The Smithsonian Book of North American Mammals*. Vancouver, Canada: UBC Press.

- Woodbridge, B. 2004. Swainson's Hawk (*Buteo swainsoni*). *The Riparian Bird Conservation Plan: a Strategy for Reversing the Decline of Riparian-Associated Birds in California*. California Partners in Flight. [http://www.prbo.org/calpif/pdfs/riparian\\_v-2.pdf](http://www.prbo.org/calpif/pdfs/riparian_v-2.pdf).
- Zargoza, G., Rose, J.P., Purcell, K., Todd, B.D. 2015. Terrestrial habitat Use by Western Pond Turtles (*Actinemys marmorata*) in the Sierra Foothills. *Journal of Herpetology* 49(3): 437–441. Salt Lake City, UT: Society for the Study of Amphibians and Reptiles.
- Zeiner, D.C., W.F. Laudenslayer Jr., K.E. Mayer, M. White (Eds). 1990a. *California's Wildlife Vol. 3: Mammals*. Sacramento, CA: CDFG, The Resources Agency.
- . 1990b. *California's Wildlife, Vol. 2: Birds*. Sacramento, CA: CDFG, The Resources Agency.
- . 1988. *California's Wildlife, Vol. 1: Amphibians and Reptiles*. Sacramento, CA: CDFG, The Resources Agency.

*This page is intentionally left blank.*

## 5.8 LAND USE, ENTITLEMENTS, AND PLANNING

### 5.8.1 INTRODUCTION

#### Purpose

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which was prepared pursuant to the California Environmental Quality Act (CEQA), requires that land use issues be evaluated as part of the environmental documentation process. The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criteria for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively.

The land use analysis is based on field observations and review of aerial photographs and related planning documents referenced in this section. Environmental impacts associated with issues that affect land use compatibility (e.g., noise, agricultural resources, aesthetics, traffic) are addressed in their respective sections of this EIR. There would be no development within or direct impacts to Significant Ecological Areas (SEAs), or on any lands for which a habitat conservation plan (HCP) or a natural community conservation plans (NCCP) has been adopted as there are no HCPs or NCCPs on the Project site or off-site impact areas. The Project's consistency with the Air Quality Management Plan is discussed in Section 5.11, Air Resources; and consistency with the Regional Housing Needs Assessment is discussed in Section 5.9, Population, Housing, and Employment. These environmental issues are only discussed below to the extent that they would result in an incompatible land use.

As required by Section 65451(b) of the *California Government Code*, "a specific plan shall include a statement of the relationship of the specific plan to the general plan". The Project's consistency with an applicable land use plan, policy, or regulation is addressed throughout this EIR. Consistency with regional plans, the Los Angeles County General Plan (General Plan), and the Antelope Valley Area Plan (AVAP) is discussed below, with the consistency of specific elements of the AVAP also addressed in various sections.

#### Summary

The Project site is largely undeveloped and there are no residential communities on or near the site, except for scattered residences to the east of the site, north of State Route (SR) 138 and east of 290<sup>th</sup> Street West. The Project would not divide an established community.

The AVAP designates the Project site as within the West Economic Opportunity Area (EOA); AVAP also requires approval of a Specific Plan for a new master planned community in this EOA. Further, the Land Use Map includes an SP overlay designation over the site. In compliance with applicable Specific Plan County requirements and state law, the Project Specific Plan includes the location of the project's internal circulation network of roadways. Adding the internal Project site roadways meeting the criteria for inclusion on the Antelope Valley Area Plan Highway Plan (Map 3.1 of the AVAP, which includes major highways, secondary highways, limited secondary highways, parkways, and expressways), as well as

the Highway Plan Policy Map included in the General Plan (Figure 7.3, Highway Plan Policy Map), require AVAP and General Plan amendments to fill in the required roadway details within the Project site. Amending Map 3.1 to add internal project site roadways is also consistent with AVAP's requirement for a Specific Plan for a new master planned community in this West EOA. The Project remains consistent with the AVAP, which is part of the General Plan, and no text amendments to the AVAP or County General Plan are proposed.

The Project site would require a zone change to Specific Plan, in accordance with the County's Zoning Ordinance (Title 22 of the County Code), to conform to the General Plan designation as well as the AVAP requirement that a Specific Plan be completed for development in the West EOA. Since a Specific Plan would be adopted for the site, the Project would be consistent with the County's Hillside Management Areas (HMA) Ordinance, since the Specific Plan includes measures to protect sensitive hillside areas as described in Section 3.3, Conceptual Grading Plan, and Appendix 1-B, Hillside Design Guidelines in the Specific Plan.

The proposed grading on the Project site would exceed 100,000 cubic yards and a Conditional Use Permit (CUP) would be needed pursuant to Section 22.56.217 of the Los Angeles County Code. The Project also requires a CUP for the approval of Project-related infrastructure, including roadway circulation system, gas, telephone, cable and internet and electric lines within road right-of-way, a water system including domestic and recycled water tanks and pipelines and accessory booster pumps and storage ponds, sewage disposal pipelines and waste water reclamation facilities, water banks, water wells, flood control and drainage facilities, water treatment facilities, green waste composting, solid waste and materials recovery facilities and recycling centers and an electrical substation. The proposed zone change and CUPs are consistent with the County Code.

The increase in housing and employment that would occur with Project implementation is consistent with the projections for the Project site included in the traffic analysis zones (TAZs) and corresponding figures in the Southern California Association of Governments' (SCAG) 2012-2035 and 2016-2040 Regional Transportation Plan/Sustainable Communities Plan (RTP/SCS). The resident population of the Project at buildout is 82.46 percent of the projected resident population of traffic analysis zone (TAZ) 20280000 and TAZ 20281000 by 2035, but exceeds the Southern California Association of Governments (SCAG) projections for 2040. The 2016 Regional Transportation Plan/Sustainable Communities Plan (RTP/SCS) states that TAZ level data or any data at a geography smaller than the jurisdictional level is included in the draft growth forecasts for regional modeling purpose only, and is advisory and non-binding. As such, the exceedance of population growth projections at the Project site on a TAZ level is not considered a significant adverse impact, as discussed in Section 5.9, Population, Housing and Employment. Population, housing, and economic growth relative to the SCAG RTP/SCS would be less than significant as it relates to the exceedance of regional population projections and no mitigation is required.

The AVAP has been challenged in court, but no injunction against implementation of the plan has been sought or granted. The County's General Plan was adopted in October 2015, and was not challenged and is in effect. Consistent with land use law and the requirements of the California Environmental Quality Act (CEQA), these land use plans are being implemented

and the environmental impact reports (EIRs) prepared for each plan has been considered as part of this Project EIR and each is incorporated by reference. This EIR does not tier from, nor is it legally reliant upon, the EIRs for either the AVAP or the General Plan. Should the approval and adoption of the AVAP or its accompanying EIR be invalidated pending further environmental and policy review, one of the possible judicial remedies could effectively revive the now-superseded former Antelope Valley Areawide General Plan (AVAGP), the earlier Area Plan for this area of Los Angeles County. In that case, the Project would require an AVAGP amendment in addition to a zone change to Specific Plan and other entitlements, including a Conditional Use Permit for development within an SEA. Appendix 5.8-A to this Draft EIR includes a consistency analysis of the proposed Project and the AVAGP policies and provides graphic illustrations of the required AVAGP map amendment figures. As stated in the consistency analysis in Appendix 5.8-A, the Project would require map but not text amendments to the AVAGP. The Project would have less than significant land use impacts with the accompanying AVAGP plan amendments, zone change and other associated entitlements.

## Section Format

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required to reduce significant impacts; and level of significance after mitigation, if any. This information is presented in the following format (please refer to Section 2.0, Introduction, and Section 5.0, Environmental Setting, Impacts, and Mitigation, for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Relevant Plans, Policies, and Regulations
- Environmental Setting
- Project Design Features
- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- References



## References

All references cited for preparation of this analysis are listed in Section 5.8.8.

### 5.8.2 RELEVANT PLANS, POLICIES, AND REGULATIONS

As previously indicated, one aspect of land use planning considered under CEQA is the consistency of the Project with relevant land use plans and regional growth projections. Relevant planning documents associated with the Project site include the Los Angeles County General Plan 2035, the 2015 AVAP, and the SCAG 2016–2040 RTP/SCS. The focus of the analysis is on consistency with plan elements (e.g., land use designations on the Project site and relevant policies regarding development and use of the Project site) and potential adverse impacts to the physical environment relative to these adopted plans and policies. This section is not intended to discuss other projects that are proposed within the same area or near the site, which would be considered cumulative projects and are discussed in Section 7.0. To provide a comprehensive evaluation of the General Plan documents, the evaluation of goals and policies for each element are consolidated in this section. However, the planning programs specific to a topical issue (e.g., biological resource conservation and air quality attainment) are discussed in the respective technical sections in Section 5.

## State

### *Land Use Planning Laws*

The requirements and authority for local municipalities (i.e., counties and cities) in California to prepare and administer general plans, including area plans, are contained in Sections 65300–65404 of the *California Government Code*. Area plans are not specifically mentioned in the statute; however, they are authorized under Section 65301(b), which allows individual sections of the general plan to be devoted to a particular subject or geographic area. In addition, they are also allowed as optional elements or subjects under Section 65303 (OPR 2001). The requirements for preparation and implementation of specific plans is contained in Sections 65450–65457 of the *California Government Code*. The requirements for the adoption and administration of zoning laws, ordinances, and other regulations by counties and cities is contained in Sections 65800–65912 of the *California Government Code*.

Specific plans, such as prepared for the Project, are a tool for the systematic implementation of the general plan, and establishes a link between implementing policies of the general plan and the individual development proposals in a defined area. Unlike a community or area plan, a specific plan is not a component of the general plan, but a separately adopted general plan implementation document. The provisions of Section 65450 et seq. of the *California Government Code* require that a specific plan be consistent with the adopted general plan of the jurisdiction within which it is located. In turn, all subsequent subdivision and development, all public works projects, and zoning regulations must be consistent with the specific plan (OPR 2001).

### ***Special Purpose District Laws***

The Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000 (Section 56000 et seq. of the *California Government Code*) establishes the procedures for filing, noticing, elections, and approval of any changes in the organization of a city or special district. This law establishes a Local Agency Formation Commission (LAFCO) for each county in California and outlines LAFCO's functions as it relates to annexations, incorporations, consolidations, organizations/reorganizations, spheres of influence, mergers, detachments, disincorporations, and dissolutions.

The LAFCO for the County of Los Angeles would regulate any changes in the organization of public service providers serving or that would serve the Project site. It would be responsible for the following:

- Regulation of city or special district boundary changes;
- Establishment of spheres of influence—the probable physical boundaries and service area of a city or special district;
- Municipal service reviews, fiscal studies and feasibility studies to determine the need for reorganization or expansion of service boundaries;
- Initiation of special district consolidations or dissolutions; and
- Review of service agreements between public agencies and between public agencies and private parties.

## **Regional**

### ***Southern California Association of Governments Plans***

SCAG is the Metropolitan Planning Organization (MPO) for six counties: Los Angeles, Orange, San Bernardino, Riverside, Ventura, and Imperial Counties. The region had a 2015 population exceeding 18 million persons in an area that encompasses more than 38,000 square miles. As the designated MPO, the federal government mandates that SCAG research and draw up plans for transportation, growth management, hazardous waste management, and air quality. Among the leading activities SCAG undertakes are

- Maintaining a continuous, comprehensive, and coordinated planning process resulting in a Regional Transportation Plan (RTP) and a Federal Transportation Improvement Program (FTIP);
- Developing a Sustainable Communities Strategy (SCS) to reduce greenhouse gas emissions as required by applicable State law (Senate Bill [SB] 375) as an element of the RTP;
- Developing demographic projections;
- Developing integrated land use, housing, employment, transportation programs and strategies for South Coast Air Quality Management District (SCAQMD) planning purposes, as discussed further in Section 5.11, Air Resources;

- Serving as co-lead agency for air quality planning in the Central Coast and Southeast Desert air basin districts;
- Developing and ensuring that the RTP and the FTIP conform to the purposes of the State Implementation Plans for specific transportation-related criteria pollutants, per the Clean Air Act;
- Serving as authorized regional agency for intergovernmental review of proposed programs for federal financial assistance and direct development activities;
- Reviewing environmental impact reports for projects having regional significance to ensure they are in line with approved regional plans;
- Developing an area-wide, waste treatment management plan;
- Preparing the Regional Housing Needs Assessment for review and approval by the State, including planning for future population, housing, and employment growth throughout the SCAG region; and
- Preparing the Southern California Hazardous Waste Management Plan with the San Diego Association of Governments and the Santa Barbara County/Cities Area Planning Council.

SCAG plans applicable to the Project are the Regional Comprehensive Plan (RCP), the RTP/SCS, and Regional Housing Needs Assessment (RHNA). These plans are discussed below.

#### Regional Comprehensive Plan

SCAG's RCP provides a policy framework for regional planning in Southern California. The RCP calls for city and county involvement and coordination in addressing regional issues related to growth management and development. The RCP is divided into nine chapters that focus on a regional strategy to address the RCP's vision for future growth and development. Each chapter includes three levels of recommendations for the region: goals, outcomes, and an action plan that contains constrained policies (or near-term, feasible policies) and strategic initiatives (longer-term strategies).

The RCP only serves as a voluntary "toolbox" to assist local jurisdictions in preparing local plans and addressing local issues of regional significance. As identified in Resolution No. 08-502-1 (Resolution of the Southern California Association of Governments Accepting the 2008 Regional Comprehensive Plan for the SCAG Region), given its advisory nature, the 2008 RCP is not used in SCAG's Inter-Governmental Review (IGR) process for purposes of assessing project-level consistency with adopted SCAG plans under CEQA (SCAG 2008).

#### Regional Transportation Plan/Sustainable Communities Strategy

The Regional Transportation Plan (RTP) is a long-range transportation plan that is developed and updated by SCAG every four years to guide transportation investments throughout the region. The Sustainable Communities Strategy (SCS) is a required element of the RTP that integrates land use and transportation strategies to achieve California Air Resources Board (CARB) emissions reduction targets pursuant to Senate Bill (SB) 375.

On April 7, 2016, the SCAG Regional Council adopted the 2016–2040 RTP/SCS. The RTP/SCS combines the need for mobility with a “sustainable future” through a reduction in the amount of emissions produced from transportation sources. This would be made through the operation of low or no emission transportation systems by 2040. The RTP/SCS also focuses on the economy, with expectations of shortening the gap between the regional transportation system and economic vitality. To address the mobility challenge of the region’s continuing roadway congestion, the RTP/SCS proposes transportation investments in transit; passenger and high-speed rail; active transportation; transportation demand management; transportation systems management; highways; arterials; goods movement; aviation and airport ground access; and operations and maintenance projects. These are expected to indirectly create investment opportunities in the region. The 2016–2040 RTP/SCS, like the 2012–2035 RTP/SCS, includes population, household and employment projections in Traffic Analysis Zone (TAZ) maps. TAZ projections for the area that includes the Project site, which were also reflected in corresponding figures included in the 2012 RTP/SCS (SCAG 2012e) and 2016 RTP/SCS (SCAG 2016a), are consistent with the existing population and housing stock in the area and the projected household and employment components of the Project. The 2040 household projections at the TAZ level in the 2016 RTP/SCS are consistent with the proposed Project’s buildout estimates; however, the 2040 population projections by SCAG are less than the Project’s buildout population. The difference may be due to the average household size used in the projections, such that SCAG assumes a smaller household size.

### Regional Housing Needs Assessment

The Regional Housing Needs Assessment (RHNA) identifies the existing and projected housing needs of each jurisdiction (city and county) within the SCAG region. The future housing needs allocations also identifies the need for affordable housing units to meet future housing needs. The RHNA is discussed in greater detail in Section 5.9, Population, Housing and Employment, of this EIR.

## **County of Los Angeles**

### ***Los Angeles County General Plan***

The Los Angeles County General Plan 2035 was adopted in October 2015 and updates the prior General Plan. The General Plan was developed under five guiding principles: employ smart growth; ensure community services and infrastructure are sufficient to accommodate growth; provide the foundation for a strong and diverse economy; promote excellence in environmental resource management; and provide healthy, livable and equitable communities. These principles emphasize the concept of sustainability, so that the needs of the existing population are met without compromising economic, social, and environmental resources that would be available to future generations.

The General Plan serves as the foundational document for community-based plans for 11 planning areas (unincorporated County areas), including the Antelope Valley. The Antelope Valley is described as a predominantly rural area where significant growth has occurred and is expected. A number of rural town centers are located in the Antelope Valley and three Economic Opportunity Areas (EOAs) that are slated for more substantial, urbanized growth,

were designated in the AVAP along with a variety of policies to guide the future planning and development of these EOAs.

The Land Use Element of the General Plan designates the planned land use to direct development within the unincorporated areas of the County. It discusses the land uses in the unincorporated areas, land use tools, special management areas, and disadvantaged communities. It includes a Land Use Policy Map that sets the land use designations for the unincorporated areas and contains goals and policies related to land use and planning.

The Mobility Element discusses the County's transportation system, including freeways, highways and roads, public transit services, bikeways, pedestrian networks, the aviation network, railroads, harbors, parking and terminals. It includes a Highway Plan Policy Map and sets level of service (LOS) D as the desired minimum level of service. It also contains goals and policies related to the transportation needs of all users of a road or street, including pedestrians, bicyclists, users of public transit, motorists, children, seniors, and the disabled. The County's Bicycle Master Plan is a sub-element of the Mobility Element.

The Air Quality Element addresses air quality issues in the County and sets goals and policies to improve air quality and reduce greenhouse gas (GHG) emissions. It includes the Los Angeles County Community Climate Action Plan (CCAP) that establishes actions to reduce GHG emissions from the unincorporated areas of the County to 1990 levels by 2020. The analysis of the Project's consistency with the GHG reduction elements of the CCAP is included in Section 5.21, Climate Change.

The Conservation and Natural Resources Element discusses natural resources and public and private open space areas in the unincorporated County areas. It includes an Open Space Resources Policy Map and goals and policies for the acquisition, planning, and preservation of open space areas. It also addresses biological resources, Significant Ecological Areas (SEAs), National Forests, coastal zones and resources, sensitive habitats, and habitat linkages. Goals and policies call for the preservation of diverse biological resources and ecological systems. The Element addresses local water resources, including groundwater resources, watersheds, areas of special biological significance and marine protected areas. Goals and policies are provided for the protection of local surface and groundwater resources. Goals and policies for the protection of agricultural resources and mineral and energy resources in the County are also outlined in this element. Scenic resources, which include hillsides, scenic viewsheds, and ridgelines in the County are also discussed, along with goals and policies for their protection. In addition, goals and policies for the preservation of historic, cultural, and paleontological resources are provided. The Project's development area is not within an SEA. Additional information and analysis about the County's SEA program is included in Section 5.7, Biological Resources.

The Parks and Recreation Element discusses parks and recreational facilities that are available to residents of unincorporated areas and the region as a whole. These include public parks, trails, multi-benefit parks, school sites, private facilities, and greenways. The Element also discusses natural and historical resources in parks, recreational programs, park service areas, parkland funding, and park development. Goals and policies address the need for park and recreation opportunities for all users.

The Noise Element discusses the effects of noise, noise sources, noise regulations, and the need for noise reduction. It includes goals and policies to reduce excessive noise in the County.

The Safety Element discusses the different public safety hazards in the County. It includes a Seismic and Geotechnical Hazard Zones Policy Map that shows active earthquake fault traces, and areas subject to seismically induced landslides and liquefaction. It also includes a Flood Hazard Zones Policy Map that shows areas within the 100-year and 500-year floodplains. The Fire Hazard Severity Zones Policy Map shows the severity of fire hazards in the County. The Element sets goals and policies to prevent or minimize the loss of life and property damage due to these hazards. Emergency response plans, disaster routes, and service providers are also discussed to meet the goal and policies for effective emergency response management capabilities.

The Public Services and Facilities Element sets goals and policies for the adequate provision of public services, facilities and infrastructure to meet the demand of future growth and development. This Element addresses the need for early care and education, sanitary sewer services, libraries, water services and supplies, solid waste collection and disposal, and utility infrastructure (e.g., power, gas, and telecommunication networks).

The Economic Development Element discusses the County's economic sectors, jobs, employment areas, competitive disadvantages, and existing programs. The Employment Protection Districts Policy Map identifies Employment Protection Districts and also acknowledges the need to foster economic growth through revitalization and education; to attract target industries; and to improve the economy through land use policy and mobility infrastructure. It outlines the County's economic development goals and policies for maintaining a strong economy. Although there are no Employment Protection Districts in the Antelope Valley, the EOAs identified in the AVAP, are envisioned as employment growth areas as they were established based on their potential for economic growth and development while enabling the Antelope Valley to preserve its ecological and rural characteristics, as discussed further below.

The Housing Element addresses the housing needs of the unincorporated areas of the County and sets goals, policies, programs and objectives for the provision of adequate housing for existing and future residents. The County has been assigned a future housing need for 30,145 dwelling units. The 2014–2021 Housing Element identifies vacant and underutilized sites that would accommodate 48,543 dwelling units. Thus, there are adequate sites in the County to accommodate future housing needs. In addition, there are a number of programs to reduce constraints to housing development; to meet the needs of various households; and to match the housing needs of residents with the available housing stock.

The County General Plan also includes maintenance programs, such as annual progress reports, dataset updates, map maintenance, and General Plan updates. It also outlines the implementation programs that correspond to the goals and policies in the General Plan, along with the lead or partner agency responsible for program implementation and the timeframe for implementation.

### ***Antelope Valley Area Plan***

The *Antelope Valley Area Plan* (AVAP) was adopted in June 2015 as a component of the Los Angeles County General Plan. The AVAP applies to the unincorporated area of the Antelope Valley, which covers a geographic area of 1,800 square miles or 44 percent of the total County land area. This area surrounds the cities of Lancaster and Palmdale and is bound by San Bernardino County to the east, Ventura County to the west, Kern County to the north, and the Angeles National Forest and Santa Clarita Valley planning area to the south. Exhibit 4-2, *Antelope Valley Area Plan Land Use Designations*, shows the allowable land uses on the site.

The AVAP serves as the land use policy and guide for future development, and it discusses the conservation of resources in the Antelope Valley. It provides a more detailed set of goals and policies than the County General Plan and addresses specific issues in the Antelope Valley. It sets a specific vision for the area and a Rural Preservation Strategy that designates rural town center areas, rural town areas, rural preserve areas, and EOAs.

The Land Use Element of the AVAP includes goals and policies for the development or preservation of land in the Antelope Valley and includes a Land Use Policy Map that shows the allowable land uses and permitted development densities and intensities in the unincorporated areas. The Element also addresses Special Management Areas, major planned infrastructure projects, utility-scale renewable energy production facilities, Palmdale Regional Airport, and amendments to the Land Use Policy Map.

The land use designations on the site, as shown in Land Use Policy Map for the Antelope Valley West portion, include Open Space Conservation (OS-C), Rural Land 1 (RL1), Rural Land 2 (RL2), Rural Land 20 (RL20), Rural Land 10 (RL10), Residential (H5), Rural Commercial (CR), and Light Industrial (IL). As shown in Exhibit 4-2, the site is also located within the Economic Opportunity Area Overlay and the Specific Plan Overlay.

The Mobility Element outlines the transportation system improvements needed to serve the mobility needs of current and future residents and land uses. The Element includes goals and policies for the efficient movement of people and goods through the Antelope Valley through travel demand management; an efficient network of highways and streets; management of truck traffic; regional transportation options; local transit services; and bikeways and bike routes, trails, and pedestrian access. State Route (SR) 138 is designated as a proposed Expressway while the County Road south of SR-138 is designated as an existing Limited Secondary Highway.

The Conservation and Open Space Element seeks to protect the Antelope Valley's natural resources and open space areas in undisturbed natural and rural lands. Goals and policies for the preservation of water resources, biological resources, scenic resources, agricultural resources, mineral resources, air quality, energy resources, dark night skies and native vegetation conservation, green building practices, and open space are included in the Element. The Project site is identified to have Class 1 and Class 2 constraints, which identify Special Management Areas that require additional development regulations necessary to prevent the loss of life and property, and to protect the natural environment and important resources. Class 1 refers to land with minimal hazard, environmental and resources



constraints. Class 2 refers to land with moderate hazard, environmental and resources constraints. Constraints on the site include Agricultural Resource Areas, Flood Hazard Zones, Significant Ecological Areas, Hillside Management Areas, and Very High Fire Hazard Severity Zones. The Project avoids development in the SEA included in the AVAP and General Plan.

The Public Safety, Services and Facilities Element addresses the provision of fire protection, law enforcement, libraries, schools, and parks in the Antelope Valley. It sets goals and policies to reduce fire hazards, geologic hazards, and flood hazards and provide adequate law enforcement, disaster preparedness and emergency response. This Element also includes goals and policies for the provision of parks and recreational facilities, schools, libraries, and health facilities.

The Economic Development Element contains goals and policies that seek to promote sustainable economic development in the Antelope Valley while preserving the rural character and environmental resources of the area. The need for employment opportunities in the Valley would be met by employment-generating land uses (e.g., high-tech manufacturing, transportation and logistics, agriculture, renewable energy, construction and housing, recreation, tourism and filmmaking) in appropriate areas to increase the jobs-housing ratio of the Antelope Valley to 1.3 jobs per housing unit. The Element also acknowledges the need for regional and long-term economic development strategies and sets policies for future economic opportunities. The AVAP designates three EOAs (including the area encompassing the Project site) as targets for future economic development, to help preserve the character of existing towns and rural areas, and to help preserve open space and habitat areas in most of the Antelope Valley.

The AVAP contains implementation programs that include the Significant Ecological Area program, Agricultural Resource Areas Program, Economic Opportunity Areas, Transfer of Development Rights Program, Scenic Drives Program, and Community Standards Districts. The southern and western portion of the Project site, which is proposed for open space preservation, is designated as an SEA. The remainder of the Project site is in an EOA, and the central and eastern section of the site are located within a Future Rural Town Area. No development is proposed in an AVAP SEA.

The AVAP designates segments of Interstate (I) 5, SR-138, Gorman Ranch Road, and County Road as Scenic Drives.

The Center for Biological Diversity has filed a legal challenge to the approval of the AVAP and accompanying program EIR, contending that the County violated the California Environmental Quality Act (CEQA) during the approval process. In the event of an adverse litigation outcome, examples of potential judicial remedies include allowing the AVAP to remain in effect while correcting any CEQA non-compliance, invalidating the AVAP and effectively reviving the Antelope Valley Areawide General Plan (AVAGP), the earlier Area Plan for this area of Los Angeles County, or a judicial determination that any CEQA error did not rise to the level requiring revisions of the EIR or AVAP.

## ***Los Angeles County Code***

### **Zoning Ordinance**

Title 22, Planning and Zoning, of the Los Angeles County Code is the County's Zoning Ordinance. Allowable land uses, lot size, lot coverage, and building sizes and locations on the Project site are currently regulated through Title 22. The current zoning designations for the Project site are:

- **O-S (Open Space).** The O-S zone allows uses such as campgrounds, crops, animal grazing, and resource management areas used or proposed for the preservation, maintenance, and enhancement of recreational, natural and environmental resources.
- **RPD (Residential Planned Development).** The RPD zone allows uses (e.g., single-family residences and planned unit developments) and provides flexibility in the design of residential developments to encourage well-planned neighborhoods through creative and imaginative planning and to accommodate the unique characteristics or circumstances of the site.
- **CPD-DP (Commercial Planned Development – Development Program).** The CPD-DP zone allows uses such as commercial highway, service, office, parks/playgrounds, and retail uses, with a development program.
- **MPD-DP (Manufacturing Industrial Planned Development – Development Program).** The MPD-DP zone allows uses such as scientific research and development uses, schools, libraries and museums, institutional uses, and crops, with a development program.
- **A-1-2 (Light Agricultural – Two Acre Minimum Lot Size).** The A-1-2 zone allows uses such as crops, animal raising, single-family residences, greenhouses, and other low density residential uses.

The Project site also has a Specific Plan Overlay under the AVAP (discussed above), and the Project is seeking Specific Plan approval with corresponding zoning designation change as discussed further below. Exhibit 4-3, Antelope Valley Area Plan Zoning, shows the current zoning for the site.

### **Hillside Management Areas Ordinance**

In 1982, the County adopted the Hillside Management and Significant Ecological Areas Ordinance, which has been regulated through Section 22.56.215 of the County Code. As part of the General Plan adoption in 2015, discussed above, an updated Hillside Management Areas (HMA) Ordinance was adopted concurrently with the County's General Plan update, discussed above. The HMA Ordinance is found in Section 22.56.217 of the County Code.

Hillside Management Areas are defined as areas with 25 percent or greater natural slopes. A conditional use permit (CUP) is required for any development located wholly or partially in an HMA, with certain exceptions defined in Section 22.56.217(C) of the County Code. The purpose of the HMA Ordinance is to ensure that development preserves and enhances the

physical integrity and scenic value of HMAs, to provide open space, and to be compatible with and enhance community character. The Hillside Design Guidelines (Guidelines) include design measures for sensitive hillside design, and are required to be incorporated for development in HMAs, as specified in the Ordinance. In hillside areas with less than 25 percent natural slope, use of the Guidelines is optional but encouraged. The Guidelines include specific and measurable design techniques that can be applied to residential, commercial, industrial, and other types of projects. Some design techniques may be more appropriate or feasible than others, depending on the type of project, location, size, complexity, site constraints, and other design techniques incorporated into each project. The Guidelines also include measures to protect sensitive hillside areas, as discussed further in Section 3.3, Conceptual Grading Plan, and Appendix 1-B, Hillside Design Guidelines in the Specific Plan and in Section 5.1, Geotechnical, of this EIR.

#### Significant Ecological Areas Ordinance

The Significant Ecological Areas (SEA) Ordinance is one of the components of the County's SEA Program. (The other components are the General Plan policies and the SEA and Coastal Resources Policy Map [Figure 9.3 of the General Plan], both of which were updated in General Plan.)

The SEA Ordinance is the implementation tool of the SEA Program, and establishes the permitting standards and process for development within SEAs. The SEA Ordinance is currently found in Section 22.56.215 of the County Code. The SEAs are designated through the General Plan, and a CUP is required prior to the specified development (e.g., grading permits, adjustment of property lines, or enlargement of structures) that is in, or partly in, a designated SEA, with certain exceptions defined in Section 22.56.215(C) of the County Code. Exhibit 4-7, Centennial Project – Significant Ecological Area Zone, in Section 4.0, Project Description, depicts the Project site in relation to the SEA boundaries. As discussed below, the Project does not propose any development within an SEA.

### **5.8.3 ENVIRONMENTAL SETTING**

The Project site consists of approximately 12,323 acres of unincorporated County land located in the northwestern section of the Antelope Valley (North Los Angeles County) and just south of the Los Angeles County/Kern County line. The Antelope Valley is characterized by suburban and low-density rural communities that are primarily agricultural in character and at scattered locations throughout the Antelope Valley. Suburban communities in the Antelope Valley include the incorporated cities of Lancaster and Palmdale, while unincorporated communities include Acton, Antelope Acres, Gorman, Lake Hughes, Lake Los Angeles, Leona Valley, Littlerock, Pearblossom, Quartz Hill, Roosevelt, and Sun Village.

The Project site is a part of Tejon Ranch, an approximate 270,000-acre landholding that stretches from just south of the Project site in Los Angeles County to just north of SR-58 in Kern County. Approximately 9.0 percent of Tejon Ranch is located within Los Angeles County, and the Project site comprises approximately 4.5 percent of the total area of Tejon Ranch.

The Project site is generally bound by the Tehachapi Mountains to the northwest, the Antelope Valley to the east, the northern border of the San Gabriel Mountains to the south, and the Los Padres National Forest to the west. The site is approximately 35 miles north of the Santa Clarita Valley (Los Angeles County); approximately 50 miles south of the City of Bakersfield (Kern County) via SR-99 and I-5; and 36 miles and 43 miles northwest of the cities of Lancaster and Palmdale (Los Angeles County), respectively, via SR-138. The Project site's westerly border is approximately one mile east of I-5. SR-138 traverses the southern portion of the Project site in a general west-east alignment. The community of Gorman in Los Angeles County is adjacent to the I-5 and approximately four miles northwest of the I-5 and SR-138 junction.

### **On-Site and Bisecting Land Uses**

The Project site is largely undeveloped, with localized improvements related to ongoing livestock grazing and agriculture, as described below.

**Residence.** A residential dwelling unit is located near the center of the northern property line, which is occupied by a Tejon Ranch employee.

**Grazing Operations.** The Tejon Ranch Company currently leases a portion of the ranch, including the site, to an independent company for grazing and agricultural uses. Of the 12,323-acre Project site, approximately 10,950 acres (89 percent) are used for cattle grazing, which has occurred on the site for over 150 years. The maximum amount of cattle on site at one time was historically approximately 365 heads.

**Agricultural Activities.** On-site agricultural activities are discussed in detail in Section 5.5, Land Resources. There are approximately 1,000 acres of cultivated land within the eastern portion of the Project site. These include pivot fields that are managed for the production of alfalfa or a three-way forage mix (e.g., barley, oats, sedan grass). This area has been cultivated by the Tejon Ranch Company since 1998. Prior to 1998, the land was used primarily for grazing.

**California Aqueduct and Related Facilities.** The Project site is immediately south of the divergence of the California Department of Water Resources' (DWR's) California Aqueduct, where it becomes the East and West Branches. The West Branch of the California Aqueduct (Quail Lake Canal) runs south from the divergence, crosses through the Project site, and flows to the adjacent off-site Quail Lake Reservoir. While the West Branch bisects the Project site, it is not included within the Project boundaries. The Oso Pumping Plant, which is part of the aqueduct system, is located in the north-central portion of the Project site immediately east of the aqueduct as shown in Exhibit 4-18, Known Major Utilities in Project Area, but because this is a part of DWR's aqueduct system, it is also not part of the Project site. The East Branch, which turns southeast from the divergence, runs off site just north of the northeastern Project site boundary.

**High Desert Hunt Club.** The High Desert Hunt Club is private hunt club operated by Tejon Ranch on approximately 7,530 acres at the southern end of the ranch. Approximately 1,147 acres of the Hunt Club is located at the southern end of the Project site and 6,383 acres are

located off site, southeast of the Project site. The Hunt Club offers guided game bird hunting to members and guests. Access to this facility is provided by an existing dirt road off SR-138 at Tentrock Canyon. A historic adobe building (Beale Adobe) is located in the Tentrock Canyon area outside the Project site and serves as a staging area for hunters and as offices for the Hunt Club. The Hunt Club operates from 8:00 AM to 4:00 PM Thursday to Monday. It is open on Tuesdays and Wednesdays for guided valley quail hunts during the valley quail season, generally from October 17 to January 31 (CDFW 2016).

The area utilized by the Hunt Club includes a transitional area between the desert, foothill, and mountain environments within SEA No. 17, San Andreas. The northern boundary of the Hunt Club is generally defined by SR-138 (as shown in Exhibit 3-2, Project Vicinity Map, in Section 3.0, Environmental Setting), but Hunt Club activities occur in the more isolated areas south of the first ridge of foothills, which approximately follow the southeastern boundary of the site. No hunting activities currently occur between the area south of SR-138 and the top of the first ridge. The Hunt Club uses dirt roads, hiking trails or cleared areas, and other areas that are conducive for game fowl cover.

**Hunter's Camp.** A hunter's camp is located in the northwestern edge of the Project site, but is no longer in use. The camp consists of six trailers, a shooting range, and two outhouses. These structures are currently in a state of disrepair and are not habitable.

**Infrastructure–Roads.** SR-138 traverses through the southern portion of the Project site. The eastern Project site boundary is defined by 290<sup>th</sup> Street West and the northern extension of Margalo Drive. In addition, 300<sup>th</sup> Street West runs through the eastern portion of the site from SR-138 over the East Branch of the California Aqueduct and to the agricultural fields to the north. Gorman Post Road crosses the southwestern portion of the Project site and runs in a northwesterly direction from SR-138 to the community of Gorman by I-5. Cement Plant Road is a paved roadway that runs northwesterly and northerly from SR-138 through the Project site to provide access to the National Cement Plant that is located northwest of the site in Kern County. Several paved access roads are also present near the California Aqueduct and associated facilities. Other on-site paved roads lead to localized agricultural operations on the site. In addition, many unpaved roads exist as part of farming and grazing activities on the Project site.

**Infrastructure–Utilities.** Existing utilities on the site include overhead and underground utility lines owned by the Southern California Edison (SCE), Southern California Gas Company (SoCalGas), and AT&T. These utilities are discussed in detail in Section 5.20, Dry Utilities.

**Infrastructure–Water.** The site has an aboveground water storage tank at the southwestern portion of the Project site. A water well is present in the central portion in an area formerly used as a homestead and the Hunt Club receives its water from a spring and spring-fed well.

**State Route 138.** SR-138 runs in a general east-west direction through the southern section of the site. This highway is a currently a two-lane highway with paved shoulders, but the California Department of Transportation (Caltrans) is proposing to widen and realign SR-

138 into a four- to six-lane highway through and near the site, as part of its comprehensive Northwest 138 Corridor Improvement Project.

## Surrounding Land Uses

The following is a discussion of existing land uses in the vicinity of the Project site, as shown on Exhibit 3-3, Aerial Photograph and Project Boundary. The Tehachapi Mountains are near the northwestern and western perimeter of the site and rise up to approximately 5,400 feet above mean sea level (msl) west of the site. The elevation of the mountains gradually declines before reaching the Project site's valley floor where elevations are approximately 3,000 feet above msl at the northeastern portion of the site to approximately 4,250 feet above msl in the northwestern portion of the site. The Los Angeles County/Kern County jurisdictional boundary forms part of the Project site's northern border.

### North

- Most of the area immediately north of the Project site is owned by the Tejon Ranch within Kern County and is largely used for grazing.
- The Mountain Communities of Lebec, Frazier Park, Cuddy Valley, Lake of the Woods, and Pine Mountain Club are located northwest of the Project site in Kern County. Main access to these mountain communities is through I-5.
- The privately owned and operated National Cement Plant is northwest of the Project site (in Kern County, adjacent to the Kern County/Los Angeles County line). The cement plant is approximately one mile north of the Project site's northern boundary on property leased from the Tejon Ranch. Access to the cement plant is provided by National Cement Plant Road, which traverses the Project site and is generally located west of the California Aqueduct.
- The Oso Pumping Plant is owned and maintained by the DWR and is located in the northern portion of the Project site, along the West Branch of the Aqueduct. It can be accessed via 300<sup>th</sup> Street West and a road extending northwest to the Aqueduct.
- The East Branch of the California Aqueduct is immediately northeast of the Project site boundaries.
- The Alamo Power Plant, another component of the State Water Project (SWP), is located along the Aqueduct's East Branch immediately adjacent to the northeastern boundary of the site.
- North of the East Branch of the Aqueduct and the Alamo Power Plant is the Tehachapi East Afterbay, which is an operational storage and water reservoir component of the SWP.

### South

- Quail Lake, an unlined water storage facility owned and operated by the DWR, is located along the southwestern border of the Project site. The West Branch of the Aqueduct bisects the Project site in a general north-south direction and empties into Quail Lake.

- The Quail Lake Skypark Airport is a single strip, private airport located immediately southeast of Quail Lake and south of the Project site. This airport consists of a 3,000-foot runway.
- The High Desert Hunt Club, a private hunt club is partially located within the Project boundaries and largely located southeast and outside the Project site.
- There are a number of single-family residences south of the Project site along SR-138 and east of 300<sup>th</sup> Street West. Additionally, several residences are scattered on the hills south of the Project site along Ridge Route Road and Pine Canyon Road/County Road N2.
- The Angeles National Forest is located approximately 1.5 miles south of the Project site at the nearest point, east of I-5 and south of Pine Canyon Road/County Route N2.

### ***East***

- A number of residences are located along 300<sup>th</sup> Street West and east of the site north of SR-138 from 290<sup>th</sup> Street West to 280<sup>th</sup> Street West.
- Vacant land and agricultural land are also located east of the site.
- The residential community of Neenach is located approximately 2.6 miles to the east of the site (north of SR-138) and the Three Points community is located approximately 4.0 miles to the southeast (south of SR-138). Neenach and Three Points are both developed with light agricultural uses and single-family homes on large lots.
- The East Branch of the California Aqueduct runs through the agricultural lands east of the Project site.

### ***West***

- SCE's Bailey Electric substation is on the western portion of the site but is not part of the site.
- Undeveloped land in the Tehachapi Mountains borders the western perimeter of the site.
- The residential community of Gorman is located west of the site, adjacent to the I-5 and approximately four miles northwest of the I-5 and SR-138 junction. This community is developed with commercial uses that serve travelers on the I-5, some single-family homes, and light agricultural uses.
- I-5 runs north-south approximately one mile west of the western boundary of the Project site.
- The Hungry Valley State Vehicular Recreation Area (SVRA) in the Los Padres National Forest is located west of I-5 at the Gorman exit. This SVRA is an Off-Highway Vehicle (OHV) park that is owned and operated by the Off-Highway Motor Vehicle Recreation (OHMVR) Division of California State Parks. Recreation facilities in the SVRA are further discussed in Section 5.14, Parks and Recreation.



## 5.8.4 PROJECT DESIGN FEATURE

**PDF 8-1** The Centennial Project provides for the preservation of approximately 5,624 acres of on-site open space included within the Open Space designation (refer to Exhibit 4-11, Centennial Project – On-Site Open Space/Mitigation Area). The proposed on-site open space areas have been configured to:

- Preserve all SEA-designated land that is located within the Project site boundary;
- Avoid development on slopes greater than 25 percent that occur primarily in the western portion of the Project area; and
- Preserve and enhance oak woodlands, savannahs, and significant riparian areas.

## 5.8.5 THRESHOLD CRITERIA

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant land use impact if it would:

**Threshold 8-1** Physically divide an established community.

**Threshold 8-2** Be inconsistent with the applicable County plans for the subject property including, but not limited to, the General Plan, specific plans, local coastal plans, area plans, and community/neighborhood plans.

**Threshold 8-3** Be inconsistent with the County zoning ordinance as applicable to the subject property.

**Threshold 8-4** Conflict with Hillside Management criteria, Significant Ecological Areas conformance criteria, or other applicable land use criteria.

## 5.8.6 ENVIRONMENTAL IMPACTS

**Threshold 8-1** **Would the project physically divide an established community?**

The Centennial Project involves the development of residential uses, non-residential employment areas, retail uses, public facilities, recreational uses, and associated infrastructure on a site that is predominately undeveloped and used for cattle grazing and agriculture. Proposed land uses and development intensities are discussed in Section 4.0, Project Description, of this EIR. Development standards are provided in the *Centennial Specific Plan* (Appendix 4.0-A).

The Project site is not part of an established community. The site is approximately 35 miles north of the Santa Clarita Valley; approximately 50 miles south of the City of Bakersfield; approximately 36 miles northwest of the City of Lancaster and 43 miles northwest of the City of Palmdale. The community of Gorman is adjacent to the I-5, approximately four miles

northwest of the I-5/SR-138 junction. The community of Neenach is located 2.7 miles to the east. The community of Frazier Park is located approximately 12.5 miles to the northwest.

There is a residential area located immediately east of the site on 290<sup>th</sup> Street West and scattered residences are located along SR-138 and east of 300<sup>th</sup> Street West. As noted above, existing development within and surrounding the Project site is limited to scattered single-family residences south and east of the Project site, and a caretaker/employee residence on the site. However, these residences do not form an established community.

The existing residence on the site would be demolished and/or relocated when development occurs. This displacement would be voluntary and would not divide any established community.

Once developed, the Project would create residential villages and a new community that would be surrounded by areas of open space, agricultural land, and existing rural residential uses. No impact related to the division of established communities would occur.

The Project's potential impacts related to existing land uses, resources, and activities are discussed in other sections of this EIR, as follows:

- Cement Plant Operations – Section 5.3, Hazards and Fire Safety.
- Grazing Operations and Agricultural Activities – Section 5.5, Land Resources.
- Significant Ecological Areas – Section 5.7, Biological Resources.
- National Forests and Recreational Facilities – Section 5.14, Parks and Recreation.
- California Aqueduct and Related Facilities – Section 5.18, Water Resources.
- Dry Utility Relocations – Section 5.20, Dry Utilities.

Potential indirect impacts to adjacent residences, as associated with visual changes, air pollutant emissions, and increased traffic and noise, would not divide a community. These issues are further addressed in other sections of this EIR: Section 5.10, Traffic, Access, and Circulation; Section 5.11, Air Resources; Section 5.12, Noise; and Section 5.13, Visual Resources.

The proposed off-site water bank infrastructure are not contiguous to or in the vicinity of any established communities. The proposed utility infrastructure and roadway improvements would serve the Project and would not divide development on the Project site or existing land uses in the surrounding area. Therefore, no division of an established community would occur. There would be no impact.

***Impact Summary:*** There are no established communities in the Project area that would be divided with implementation of the Project. No impact would occur, and no mitigation is required.

**Threshold 8-2**      **Would the project be inconsistent with the applicable County plans for the subject property including, but not limited to, the**

**General Plan, specific plans, local coastal plans, area plans, and community/neighborhood plans?**

**Los Angeles County General Plan**

The Project is consistent with the five guiding principles of the Los Angeles County General Plan. Specifically, the Centennial Project uses “smart growth” strategies in the planning of residential and non-residential uses on the site that would include a variety of housing densities and types, with some located near commercial areas, places of employment, schools, parks, a library, and public facilities while at the same time providing a comprehensive roadway network, with amenities for walking and biking. Public facilities and utility lines and services would be located on site to “ensure community services and infrastructure are sufficient to accommodate growth”. As part of the Project, commercial and business park areas would be included to accommodate business investments and create employment opportunities for local residents and that would promote a “strong and diverse economy”. In addition, large expanses of open space (approximately 5,624 acres) would be provided at the western and southeastern sections of the site and in areas with sensitive biological resources to preserve the area’s “environmental resources”. Under the Specific Plan, reconfiguring an existing single-family home to accommodate a second dwelling unit is allowed only to the extent specified in a Tentative Tract Map, and only as allowed under applicable State law and local ordinances. . Without regard to whether a State density bonus is ever used on the Project site, the total number of dwelling units, inclusive of all product types, cannot exceed the number of dwelling units identified in the Project Description and considered in this EIR absent further CEQA review.

The Land Use Element of the County General Plan also promotes land use compatibility through complementary land uses that promote a balanced distribution of jobs, housing and services within the overall Project site. The Project implements this important General Plan concept by locating commercial areas, schools, and parks at the village cores to serve the demand for goods and services and meet the educational and recreational needs of the residents of the individual villages and balance the distribution of jobs, housing, and services within each village. Higher density housing would also be located near the village cores, with lower densities farther from the village cores, to provide a mix of housing types that will accommodate the needs and preferences of different households. In addition, the town center will accommodate mixed-use developments with high density residential uses and commercial areas that would serve the entire Centennial community and the surrounding areas. To promote the County’s health outcomes, a network of bikeways, trails and sidewalks would be provided throughout the Project site, along with scattered parks and recreational facilities. Allowable land uses include health clubs, health food stores, health service clinics, health retreats, and community gardens. Additionally, as discussed further in Section 5.5, Land Resources, the Project would accommodate a total of 50 acres of small-scale agriculture and agriculture-related uses, including, but not limited to community gardens, farmers markets/fresh fruit and vegetable stands, growing and sales of nursery stock, and commercial greenhouses. The Project would also allow preschools at the village cores and a medical center and a campus for a community college or other higher education facility in the Institutional/Civic and Business Park areas to meet the County’s early education and higher education policies.

The County General Plan addresses all unincorporated County areas and has broad goals and policies related to land use and planning. A review of the County General Plan shows that the Project site is located in Special Management Areas where safety hazards and/or environmental resources are present. The site is located within the Military Influence Area for Edwards Air Force Base where the floor elevation from the ground level is set at 200 feet. No conflict will occur since the maximum building height for the Project is 160 feet. The Fire Hazard Severity Zones Policy Map shows different areas of the site are subject to very high, high, and moderate fire hazards. The Safety Element also shows I-5 and SR-138 as disaster routes. No conflict with these issues would occur with the Project, as discussed in Section 5.3, Hazards and Fire Safety.

The Mobility Element identifies SR-138 as a proposed Expressway (controlled access highway with six to ten lanes). The Project would accommodate Caltrans' future widening and realignment of SR-138. This is addressed in Section 5.10, Traffic, Access and Circulation.

The Conservation and Natural Resources Element includes a Regional Habitat Linkages Map that identifies a wildlife movement corridor through the Project site that connects the Tehachapi Mountains and the Angeles National Forest. The Significant Ecological Areas and Coastal Resource Areas Policy Map also shows the San Andreas SEA on and near the western and southern edges of the site. Section 5.7, Biological Resources addresses wildlife corridors and Project consistency with the San Andreas SEA.

The Safety Element includes a Seismic and Geotechnical Hazard Zones Policy Map that shows the San Andreas Fault Zone along the northeastern edge of the Angeles National Forest, south and southwest of the site. Section, 5.1, Geotechnical, discusses the San Andreas Fault and seismic hazards on the site. The Flood Hazard Zones Policy Map shows the 100-year floodplain on Quail Lake and the East and West Branches of the California Aqueduct. This issue is addressed in Section 5.2, Hydrology and Flood.

The Economic Development Element states that the Antelope Valley has comparative advantages and unique opportunities for future economic growth and development, and the General Plan also identifies EOAs in the Antelope Valley that are planned for future growth and development. The Project would utilize this comparative advantage with the development of employment-generating uses on the site, consistent with the description of the Project site as part of the West EOA in the AVAP. Thus, the Project would not conflict with the Los Angeles County General Plan and no General Plan Amendment text or policy change is needed to allow the Project. Designated internal project site roadways would need to be added to Figure 7.3, Highway Policy Map, and this internal site roadway mapping would trigger the need for an amendment to this General Plan figure.

### ***Antelope Valley Area Plan***

The AVAP contains goals and policies that are specific to the issues in the Antelope Valley, and is a component of the County General Plan. The Project is consistent with applicable goals and policies of the AVAP. In addition to the goals and policies, a review of the AVAP shows three EOAs have been identified as areas where there are major opportunities for future growth and development. These EOAs have land use designations that would allow

for the development of a mix of residential, commercial, and light industrial uses but would preserve the rural character and ecological resources of the surrounding area.

The West EOA is located at the northwestern section of the Antelope Valley where future development is anticipated due to its location along the planned Northwest 138 Corridor Improvement Project, the I-5, and new commercial and housing developments in Kern County. This EOA covers the Project site and the Project would accommodate future development on the site, as planned in the West EOA in the AVAP.

The AVAP also calls for the development of a specific plan or similar planning activities in EOAs to ensure orderly and sustainable development and the provision of the required infrastructure and public utilities. The *Centennial Specific Plan* has been developed in compliance with this requirement. In compliance with applicable County requirements for Specific Plans and State law, the Centennial Specific Plan includes the location of the Project's internal circulation network of roadways and trails. Some of these internal roadways meet the criteria for being included in the AVAP Highway Plan (Map 3.1 of the AVAP, which includes major highways, secondary highways, limited secondary highways, parkways, and expressways). Amending Map 3.1 of the AVAP is being proposed to fill in the major roadways that are interior to the Project site, consistent with AVAP's requirement for a Specific Plan (inclusive of internal circulation roadways) for a new master planned community in this EOA. With the Map amendment, the Project remains consistent with the AVAP, and no text amendments to the AVAP are required.

The Land Use Policy map in the AVAP shows the land use designations, which would regulate permitted land uses and development densities/intensities. The Land Use Plan in the *Centennial Specific Plan* includes the same land uses as the designations for the site, with the boundaries of the different land uses generally aligning with the land use designations in the AVAP. No change in land use designation, additional growth, or reduction in the amount of open space is proposed by the Project.

The West EOA extends beyond the project site boundaries. While Centennial's infrastructure would not be sized to accommodate growth beyond that which is proposed for the Project, future nearby landowners could propose to connect to or build upon the Project's infrastructure to serve future development in the surrounding area. Any such future proposals would be subject to environmental analysis pursuant to CEQA, and must include the level of detail (e.g., residential and commercial size information, project footprint information, project water quantity and sources, etc.) required for a future project-level review process. Any such approvals of future development in the West EOA would also be a discretionary decision by the County. Since no such projects have been proposed, such details are not available and CEQA does not require speculation. In general, however, buildout of the approved AVAP has informed the cumulative impact analysis in this EIR and includes the additional incremental of development authorized within the West EOA but not included in the Project.

The EOAs also include areas that have the potential to develop as a future Rural Town Area, and are depicted on the AVAP's Rural Preservation Strategy map. Future Rural Town Areas are within EOAs that provide local employment and goods and services for the daily needs

of residents in the surrounding area. These town areas would accommodate local public facilities and commercial uses or a mix of commercial and residential uses served by a range of transportation options. The Project would include commercial and business park uses, public facilities, schools and parks, as well as residential uses, which is consistent with the future Rural Town Area identification of the site.

The Project would not conflict with the transportation system needed to serve the mobility needs of current and future residents and land uses, as discussed in the Mobility Element. The Project would provide an on-site circulation system and would accommodate future widening and realignment of SR-138, as it is developed as an Expressway by Caltrans. This is discussed further in Section 5.10, Traffic, Access and Circulation. As indicated above, the Project's internal circulation network includes internal roadways that meet the criteria for being included in the AVAP Highway Plan. Thus, an amendment to Map 3.1 of the AVAP is needed to show the major roadways that are interior to the Project site and that would serve the circulation needs of development that is consistent with the AVAP. Even with this Map Amendment, the Project remains consistent with the AVAP goals and policies and Land Use Policy Map, and no text amendments to the AVAP are proposed or required.

The Conservation and Open Space Element identifies the site to have Class 1 and Class 2 constraints. The preservation of natural resources is discussed in Section 5.7, Biological Resources. Protection from seismic and geologic hazards is addressed in Section 5.1, Geotechnical. Protection from flood hazards is addressed in Section 5.2, Hydrology and Flood.

The Public Safety, Services and Facilities Element addresses the provision of fire protection, law enforcement, libraries, schools, and parks in the Antelope Valley. The Project would provide on-site fire stations, a Sheriff's station, schools, parks and a library to serve residents of the site and surrounding area. Section 5.14, Parks and Recreation, Section 5.15, Education, Section 5.16, Fire and Law Enforcement Services, and Section 5.17, Other Public Services, discuss existing and proposed public services and facilities.

The Economic Development Element contains goals and policies that seek to promote sustainable economic development in the Antelope Valley, while preserving the rural character and environmental resources of the area. The Project is located in an EOA where business investments and employment centers would be located to spur economic growth and increase the jobs-housing ratio of the Antelope Valley. SCAG estimates the 2012 employment base of the North Los Angeles County Subregion at 181,089 jobs and its housing stock at 200,990 units (SCAG 2016c). This translates to a jobs-housing ratio of 0.90. As discussed in Section 5.9, Population Housing and Employment, the Project would have a jobs-housing ratio of 1.22, which would improve the overall jobs-housing balance in the subregion, consistent with the intent of the Economic Development Element of the AVAP.

Community-Specific Land Use Concepts in the AVAP do not apply to the Project site since the site is not located in an established community. A number of implementation programs are also discussed at the end of the AVAP. The Project would comply with applicable programs, such as the Significant Ecological Area program, Economic Opportunity Areas, Transfer of Development Rights Program, Scenic Drives Program, and Community Standards Districts.

In summary, the Project would implement the AVAP and would not conflict with it. An analysis of the Project’s consistency with the goals and policies of the AVAP is presented in Table 5.8-1 below.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
<b>Chapter 2: Land Use Element</b>	
Goal LU 1: A land use pattern that maintains and enhances the rural character of the unincorporated Antelope Valley.	<b>Consistent.</b> The Project is consistent with the Land Use Policy Map of the <i>Antelope Valley Area Plan</i> (AVAP), as discussed above.
Policy LU 1.1: Direct the majority of the unincorporated Antelope Valley’s future growth to rural town center areas and identified economic opportunity areas, through appropriate land use designations, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.	<b>Consistent.</b> The Project is consistent with the Land Use Policy Map of the AVAP and would focus land use development and associated growth within the West Economic Opportunity Area (EOA) and future Rural Town Area as indicated on the Land Use Policy Map, where future development is planned and anticipated.
Policy LU 1.2: Limit the amount of potential development in rural preserve areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.	<b>Consistent.</b> The Project does not propose development in designated rural preserve areas.
Policy LU 1.3: Maintain the majority of the unincorporated Antelope Valley as Rural Land, allowing for agriculture, equestrian and animal-keeping uses, and single-family homes on large lots.	<b>Consistent.</b> The Project is consistent with the Land Use Policy Map of the AVAP and would focus development within the West EOA, so as to retain the rural character in the rest of the Antelope Valley.
Policy LU 1.4: Ensure that there are appropriate lands for commercial and industrial services throughout the unincorporated Antelope Valley sufficient to serve the daily needs of rural residents and to provide local employment opportunities.	<b>Consistent.</b> The Project proposes commercial, business park, and institutional/civic land uses that will provide services to residents within the Project site and in the surrounding areas, consistent with the AVAP. Over 20,000 permanent jobs are expected to be created from Project employment uses.
Policy LU 1.5: Provide varied lands for residential uses sufficient to meet the needs of all segments of the population, and allow for agriculture, equestrian uses and animal-keeping uses in these areas where appropriate.	<b>Consistent.</b> The Project would provide residential land uses at varied densities to meet the needs of different segments of the population, consistent with the AVAP. The Project would also provide a network of trails for bicycling and hiking, including equestrian activities on the regional trail within the Project site.
Goal LU 2: A land use pattern that protects environmental resources.	<b>Consistent.</b> The Project is consistent with the Land Use Policy Map of the AVAP. The Project development boundary provides protection of environmental resources through the ongoing preservation of Significant Ecological Areas (SEAs), biological resource mitigation lands, and Tejon Ranch lands preserved under the Tejon Ranch Land Use and Conservation Agreement., and the Project’s land plan includes mixed uses and a range of densities at a neighborhood scale to promote pedestrian and bicycle use, and reduce automobile trips.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
<p>Policy LU 2.1: Limit the amount of potential development in Significant Ecological Areas, including Joshua Tree Woodlands, wildlife corridors, and other sensitive habitat areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.</p>	<p><b>Consistent.</b> One of the Project Objectives is to avoid development within, and that would affect, established SEAs to minimize disturbance of high-value biological resources, including native grasslands, oak savannas, and oak woodlands, and preserve contiguous open space areas in order to keep its viability as wildlife habitat. The San Andreas SEA has been designated as Open Space in the Land Use Map for the Project, where development would not occur. The Project also preserves important regional wildlife corridors and the biological connectivity of regional open space lands, as discussed in Section 5.7, Biological Resources, of this EIR.</p>
<p>Policy LU 2.2: Limit the amount of potential development within Scenic Resource Areas, including water features, significant ridgelines, and Hillside Management Areas, through appropriate land use designations, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.</p>	<p><b>Consistent.</b> The Project site is not located in or near a designated Scenic Resource Area. The majority of the site has slopes less than 25% and the areas with the greatest slopes would be preserved as Open Space. Development within the Hillside Management Areas (HMAs) would be required to comply with hillside provisions within the Specific Plan, which have been designed to protect sensitive hillside conditions as discussed further in Section 3.3, Conceptual Grading Plan, and Appendix 1-B, Hillside Design Guidelines, in the Specific Plan.</p>
<p>Policy LU 2.3: Except within economic opportunity areas, limit the amount of potential development in Agricultural Resource Areas, including important farmlands designated by the State of California and historical farmland areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.</p>	<p><b>Consistent.</b> The Project site is located within the West EOA and future Rural Town Area as indicated on the AVAP Land Use Policy Map. While there are Agricultural Resource Areas at the eastern section of the site, the site is located within the West EOA, which would accommodate urban development in the Antelope Valley to preserve agricultural areas outside the EOAs.</p>
<p>Policy LU 2.4: Except within economic opportunity areas, limit the amount of potential development in Mineral Resource Areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.</p>	<p><b>Consistent.</b> The Project site is located within the West EOA and is outside Mineral Resource Areas.</p>
<p>Policy LU 2.5: Except within economic opportunity areas, limit the amount of potential development in riparian areas and groundwater recharge basins, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.</p>	<p><b>Consistent.</b> Project development is located within the West EOA and would avoid or minimally impact riparian areas on the site by designating major drainage channels on the site as Open Space. Section 5.7, Biological Resources, discusses this issue in greater detail.</p>



**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
<p>Policy LU 2.6: Except within economic opportunity areas, limit the amount of potential development near the National Forests and on private lands within the National Forests, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.</p>	<p><b>Consistent.</b> The Project site is located within the West EOA and outside the Angeles National Forest.</p>
<p>Goal LU 3: A land use pattern that minimizes threats from hazards.</p>	<p><b>Consistent.</b> The Project includes a Geologic Safety Zone that requires a 100-foot minimum setback in each direction from faults determined to be active to promote avoidance of fault-related hazards. Also, the proposed Floodplain Safety Zone would preclude habitable residential, commercial, school and institutional structures in the 100-year floodplain (Section 5.2, Hydrology and Water). In addition, the majority of areas with steep slopes south of State Route (SR) 138 and at the western portion of the site are designated as Open Space. Project Design Features (PDFs) and Mitigation Measures (MMs) have been provided for Valley Fever and wildfire hazards (Section 5.3, Hazards and Fire Safety).</p>
<p>Policy LU 3.1: Except within economic opportunity areas, prohibit new development on fault traces and limit the amount of development in Seismic Zones, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.</p>	<p><b>Consistent.</b> The Project site is located within the West EOA and the Project requires a 100-foot minimum setback in each direction from faults determined to be active, as part of the Geologic Safety Zone that is proposed on unnamed faults at the western section and on the San Andreas Fault Zone along the southwestern edge of the site (see Exhibit 5.1-2, Geologic Hazards). Section 5.1, Geotechnical, provides additional discussion of this issue.</p>
<p>Policy LU 3.2: Except within economic opportunity areas, limit the amount of potential development in Very High Fire Hazard Severity Zones, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan</p>	<p><b>Consistent.</b> The Project site is located within the West EOA and future tract maps are required to incorporate fuel modification setbacks in accordance with County standards and applicable Specific Plan requirements.</p>
<p>Policy LU 3.3: Except within economic opportunity areas, limit the amount of potential development in Flood Zones designated by the Federal Emergency Management Agency, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.</p>	<p><b>Consistent.</b> The Project site is located within the West EOA and includes a Floodplain Safety Zone that promotes public safety and protects water quality for development within areas subject to flooding (prior to development) to minimize flood hazards. The 100-year floodplain is shown in Exhibit 5.2-5, Receiving Channels of Concern and 100-Year Floodplain, and Section 5.2, Hydrology and Flood, discusses this issue in detail.</p>

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
<p>Policy LU 3.4: Except within economic opportunity areas, limit the amount of potential development on steep slopes identified as Hillside Management Areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.</p>	<p><b>Consistent.</b> The Project site is located within the West EOA. The majority of the site has slopes less than 25% and the areas with the greatest slopes would be preserved as Open Space. Development within the Hillside Management Areas (HMAs) would be required to comply with hillside provisions within the Specific Plan, which have been designed to protect sensitive hillside conditions as discussed further in Section 3.3, Conceptual Grading Plan, and Appendix 1-B, Hillside Design Guidelines, in the Specific Plan.</p>
<p>Policy LU 3.5: Except within economic opportunity areas, limit the amount of potential development in landslide and liquefaction areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.</p>	<p><b>Consistent.</b> The Project site is located within the West EOA and the Project was designed to avoid both the landslide in the northwestern corner of the site and liquefaction hazards. The majority of proposed development areas are outside anticipated liquefiable zones; these liquefiable areas are proposed to remain as open space or to become greenways, detention/infiltration basins, and/or hydromodification facilities, with 5,624 acres designated as Open Space.</p>
<p>Policy LU 3.6: Except within economic opportunity areas, limit the amount of potential residential development in airport influence areas and near military lands, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.</p>	<p><b>Consistent.</b> The Project site is located within the West EOA and is not located within a designated airport influence area or near military lands.</p>
<p>Policy LU 3.7: All development projects located on parcels that are within an airport influence area shall be consistent with all policies of that airport's land use compatibility plan.</p>	<p><b>Consistent.</b> The Project is consistent with the AVAP. The Project site is located near the Quail Lake Skypark Airport. While this airport is not identified in the County's Airport Land Use Compatibility Plan, this is a private airport with a base of six aircraft and is not open to the general public; does not have a land use compatibility plan; and is not within a designated airport influence area, as discussed further in Section 5.3, Hazards and Fire Safety, of this EIR.</p>
<p>Goal LU 4: A land use pattern that promotes the efficient use of existing and/or planned infrastructure and public facilities.</p>	<p><b>Consistent.</b> The Project is a new development and incorporates several features to promote efficient use of infrastructure and public facilities. Table MV-1 of the Specific Plan outlines the planning and design metrics that are reflected in planned utility infrastructure and public facilities and services that would be provided to serve residents of the Project (Sections 3.10 and 3.11 of the Specific Plan). For example, the Project has an efficient use of land, and includes a balanced mix of uses that result in a jobs/housing balance that would reduce single-occupancy, automobile travel and overall vehicle miles traveled, as addressed in greater detail in</p>

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
	the Specific Plan and Section 5.10, Traffic, Access and Circulation, and Section 5.21, Climate Change, of the EIR. The Project also includes several sustainable design performance metrics, as described in the Mission and Vision and Appendix 2-A, Green Development Program, of the Specific Plan.
Policy LU 4.1: Direct the majority of the unincorporated Antelope Valley’s future growth to the economic opportunity areas and areas that are served by existing or planned infrastructure, public facilities, and public water systems, as indicated in the Land Use designations shown on the Land Use Policy Map (Map 2.1) of this Area Plan.	<b>Consistent.</b> The Project is consistent with the Land Use Policy Map of the AVAP and public facilities and utility infrastructure systems would be provided to serve the Project.
Goal LU 5: A land use pattern that decreases greenhouse gas emissions.	<b>Consistent.</b> The Project includes a Green Development Program that requires the implementation of measures to reduce greenhouse gas emissions, including measures above and beyond regulatory requirements, and a land use pattern that is focused on promoting active transportation modes (e.g., walking and biking) with a network of trails and a village-based land plan to provide proximate schools, parks and neighborhood-serving commercial uses throughout the Centennial community. Also, greenhouse gas emissions are reduced by reducing single-occupancy automobile travel and vehicle miles traveled through efficient land use planning with a jobs/housing balance of 1.22, and with a comprehensive transportation plan, as described in greater detail in Section 5.21, Climate Change.
Policy LU 5.1: Ensure that development is consistent with the Sustainable Communities Strategy adopted in 2012, an element of the Regional Transportation Plan developed by the Southern California Association of Governments.	<b>Consistent.</b> One of the Project Objectives is to ensure consistency with the Southern California Association of Governments’ (SCAG’s) Sustainable Communities Strategy through development of an environmentally and economically sustainable master-planned community. The Project includes such features as a Green Development Program to reduce greenhouse gas (GHG) emissions and a Mobility Plan to further reduce GHG and promote wellness and other community goals with a robust mix of active transportation features.
Policy LU 5.2: Encourage the continued development of rural town centers that provide for the daily needs of surrounding residents, reducing the number of vehicle trips and providing local employment opportunities.	<b>Consistent.</b> The Project includes the development of nine villages that will each contain multiple land uses that enable residents to live closer to schools, shopping, neighborhood businesses and services, civic buildings, medical facilities, and employment centers. The Project includes multiple housing options, ranging from apartment homes close to the town center to single-family homes in lower-density areas. The

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
	Project includes alternatives to automobile travel (e.g., bicycle network, trails and pedestrian system) and more efficient uses of land that would result in reduced single-occupancy automobile travel and vehicle miles traveled, as described in greater detail in Section 5.21, Climate Change.
Policy LU 5.3: Preserve open space areas to provide large contiguous carbon sequestering basins.	<b>Consistent.</b> The Project helps implement the Tejon Ranch Land Use and Conservation Agreement, and thereby preserves over 240,000 acres of contiguous open space areas (in perpetuity) both within the Project site and in the immediately adjacent Tejon Ranch and includes a plan for the ongoing maintenance of conserved open space areas, including mitigation areas, greenways, drainage corridors, and other natural resource features within the Project site. Approximately 5,624 acres of open space areas are located within the Project site.
Policy LU 5.4: Ensure that there is an appropriate balance of residential uses and employment opportunities within close proximity of each other.	<b>Consistent.</b> The Project includes the development of nine villages that will each contain multiple land uses that enable residents to live closer to schools, shopping, neighborhood businesses and services, civic buildings, medical facilities, and employment centers.
Goal LU 6: A land use pattern that makes the Antelope Valley a sustainable and resilient place to live.	<b>Consistent.</b> A key Project Objective is to implement the AVAP land use designation for the Project site and ensure consistency with SCAG’s Sustainable Communities Strategy, as described in greater detail in the Project Description and Section 5.21, Climate Change.
Policy LU 6.1: Periodically review changing conditions to ensure that land use policies are compatible with the Area Plan’s Rural Preservation Strategy, including economic opportunity areas.	<b>Not Applicable.</b> This is a County effort.
Policy LU 6.2: Ensure that the Area Plan is flexible in adapting to new issues and opportunities without compromising the rural character of the unincorporated Antelope Valley.	<b>Not Applicable.</b> This is a County effort.
<b>Chapter 3: Mobility Element</b>	
Goal M 1: Land use patterns that promote alternatives to automobile travel.	<b>Consistent.</b> The Project proposes a more efficient use of land through a jobs/housing balance of 1.22 that would reduce single-occupancy automobile travel and vehicle miles traveled as described further in Section 5.10, Traffic, Access and Circulation, of this EIR. The Project also includes the development of nine villages that will each contain multiple land uses that enable residents to live closer to schools, shopping neighborhood businesses and services, civic buildings, medical facilities, and employment centers,

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
	encouraging less automobile travel. Non-automobile transportation modes are discussed as part of the Mobility Plan in the Specific Plan and Section 5.21, Climate Change.
Policy M 1.1: Direct the majority of the unincorporated Antelope Valley’s future growth to rural town centers and economic opportunity areas, to minimize travel time and reduce the number of vehicle trips, as indicated in the Land Use designations shown on the Land Use Policy Map (Map 2.1) of this Area Plan.	<b>Consistent.</b> The Project is located within the West EOA, and as such is consistent with the Land Use Policy Map of the AVAP.
Policy M 1.2: Encourage the continued development of rural town center areas that provide for the daily needs of local residents, reducing the number of vehicle trips and providing local employment opportunities	<b>Consistent.</b> The Project includes the development of nine villages that will each contain multiple land uses that enable residents to live closer to schools, shopping, neighborhood businesses and services, civic buildings, medical facilities, and employment centers.
Policy M 1.3: Encourage new parks, recreation areas, and public facilities to locate in rural town center areas, rural town areas, and economic opportunity areas.	<b>Consistent.</b> The Project is located within the West EOA, and is consistent with the Land Use Policy Map of the AVAP.
Policy M 1.4: Ensure that new developments have a balanced mix of residential uses and employment opportunities as well as park, recreation areas and public facilities within close proximity of each other.	<b>Consistent.</b> The Project includes the development of nine villages that will each contain multiple land uses that enable residents to live closer to schools, shopping, neighborhood businesses and services, civic buildings, medical facilities, and employment centers, as well as recreation areas.
Policy M 1.5: Promote alternatives to automobile travel in rural town center areas and rural town areas by linking these areas through pedestrian walkways, trails, and bicycle routes.	<b>Consistent.</b> The Project includes an extensive system of sidewalks, greenway trails, and community trails to serve as alternative means of transportation (e.g., bicycling and walking) on the Project site. The Project provides for achieving an 80% average, but no less than 50% of residential units to be located within ½ mile of a village core or the town center that includes commercial and mixed use developments; provides 100 percent of all dwelling units within a ¼ mile of a park no less than 10,000 square feet, a trailhead, a club house or other public amenity and parks 1 acre or more in size within a 5-minute walk of 80% of residential units; locates 90% of residential units within a 10-minute bike ride of retail and service uses; and locates 70% of residential units within a 15-minute bike ride of an employment area.
Goal M 2: Reduction of vehicle trips and emissions through effective management of travel demand, transportation systems, and parking.	<b>Consistent.</b> The Project includes a Mobility Plan that requires formation and ongoing operation of a Transportation Management Association (TMA) to implement ongoing transportation improvements and measures to reduce on-site single-occupancy automobile use by 30% in relation to standard Institute of Transportation Engineers (ITE) generation

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
	rates for the overall Project, to reduce off-site peak hour commutes to and from the Project site in single-occupancy automobiles by 20%, and to manage parking demand and supply to further encourage non-automobile transit modes.
Policy M 2.1: Encourage the reduction of home-to-work trips through the promotion of home-based businesses, live-work units, and telecommuting.	<b>Consistent.</b> The Specific Plan allows live-work units and home-based businesses, and would provide high speed telecommunications infrastructure to allow telecommuting. The Project’s Transportation Management Association would also encourage these and other measures to reduce home-to-work trips on an ongoing basis.
Policy M 2.2: Encourage trip reduction through promotion of carpools, vanpools, shuttles, and public transit.	<b>Consistent.</b> The Project includes a Mobility Plan that requires formation and ongoing operation of a TMA to implement ongoing transportation improvements and measures to reduce on-site single-occupancy automobile use by 30% in relation to standard ITE-generation rates for the overall Project, and to reduce off-site peak hour commutes to and from the Project site in single-occupancy automobiles by 20%.
Policy M 2.3: In evaluating new development proposals, require trip reduction measures to relieve congestion and reduce air pollution from vehicle emissions.	<b>Consistent.</b> The Project includes a Mobility Plan and other GHG reduction measures to reduce air pollution from vehicle emissions, as discussed in the Mobility Plan and Section 5.21, Climate Change.
Policy M 2.4: Develop multi-modal transportation systems that offer alternatives to automobile travel by implementing the policies regarding regional transportation, local transit, bicycle routes, trails, and pedestrian access contained in this Mobility Element.	<b>Consistent.</b> The Project includes facilities for alternatives to automobile travel (e.g., public transit, bicycle network, and pedestrian system - with corresponding easements as described in the Specific Plan). The Project includes a Mobility Plan that requires formation and ongoing operation of a TMA to implement ongoing transportation improvements and measures to reduce on-site single-occupancy automobile use by 30% in relation to standard ITE-generation rates for the overall Project, and to reduce off-site peak hour commutes to and from the Project site in single-occupancy automobiles by 20%.
Policy M 2.5: As residential development occurs in communities, require transportation routes, including alternatives to automotive transit, to link to important local destination points such as shopping, services, employment, and recreation.	<b>Consistent.</b> The Project includes facilities for alternatives to automobile travel (e.g., public transit, bicycle network, and pedestrian system – with corresponding easements as described in the Specific Plan). As part of the Mobility Plan, the Project’s Circulation Plan includes major east-west roadways, to serve the Project’s east-west travel demand, to connect major on-site activity centers, and to lessen the Project’s traffic demand on SR-138. The Circulation Plan sets forth requirements for circulation design, roadway classifications; intersection controls; and traffic calming measures. Centennial traffic-calming design measures include narrower street widths to

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
	<p>slow automotive traffic, roundabouts, speed tables, bulb-outs at intersections to restrict roadway width and narrow the pedestrians' crossing distance, raised intersections or crosswalks, chokers that narrow a roadway at mid-block, chicanes or lateral shifts that narrow street widths and also provide on-street parking or landscaping on alternate sides of the street, and textured pavement. Each component of the Mobility Plan incorporates Transportation Demand Management (TDM) features to reduce dependence on the automobile and a system of complete streets and multi-modal, non-motorized transportation facilities to provide for a more efficient use of transportation resources among Project occupants.</p> <p>The Project includes small- to medium-sized streets and blocks that allow for shorter walking distances to retail areas, parks, schools, and other destinations; pedestrian environments incorporated with public streets; parking behind buildings to encourage walking in retail areas along street frontages; and parks 1 acre or more in size within 0.25 mile of 80% of residences.</p> <p>Features of the Mobility Plan include commuter rideshare and transit; ride networking; car-share services; on-demand ridesharing; electric vehicle charging stations; preferential parking for carpools and vanpools; lunch shuttle service from business park to food establishments; bicycle connectivity through underpasses and overpasses connecting to the business park south of the SR-138; and transit routes and stops, including associated easements.</p>
<p>Policy M 2.6: Within rural town center areas, explore flexible parking regulations such as allowing residential and commercial development to meet parking requirements through a combination of on-site and off-site parking, where appropriate, or encouraging the provision of different types of parking spaces.</p>	<p><b>Consistent.</b> Although the Project does not contain a designated rural town center, the Project is designated as a future rural town area and establishes development standards that include parking requirements for each permitted land use designation. A number of Smart Parking metrics have been established that promotes shared and on-street parking facilities, as listed in Table MV-1 of the Specific Plan.</p>
<p>Goal M 3: An efficient network of major, secondary, and limited secondary highways to serve the Antelope Valley.</p>	<p><b>Consistent.</b> The amendment of the AVAP Highway Plan to show major roadways internal to the site would establish the highway system that would serve the Project and the surrounding area. The Project also includes secondary roads, and a network of localized roadways, as described further in Section 3.2 and Appendix 2-C, Mobility Plan, in the Specific Plan and in Section 5,10, Traffic, Access and Circulation, of this EIR. Roadway widths have been designed to be "right-</p>

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
	sized” taking into account Project features that reduce vehicular volumes below standardized design assumptions used to establish default roadway widths, as described further in the Specific Plan.
Policy M 3.1: Implement the adopted Highway Plan for the Antelope Valley, in cooperation with the cities of Lancaster and Palmdale. Ensure adequate funding on an ongoing basis through financing programs, such as grants, congestion pricing, bonding, fair share cost assignments, etc.	<b>Consistent.</b> The Project has and would contribute its fair share for improvements to the regional transportation system, as discussed in Section 5.10, Traffic, Access and Circulation. Also, the amendment of the Highway Plan to show major roadways internal to the site would establish the highway system that would serve the Project and the surrounding area.
Policy M 3.2: In rural areas, require rural highway standards that minimize the width of paving and placement of curbs, gutters, sidewalks, street lighting, and traffic signals, as adopted by the Department of Public Works.	<b>Consistent.</b> New roads will be “right-sized” and constructed in accordance with the standards in the <i>Centennial Specific Plan</i> , as adopted by the County and which incorporates rural features as well as the Project’s reduced automobile use metrics into its construction standards.
Policy M 3.3: Implement highway improvements only when necessitated by increasing traffic or new development or for safety reasons.	<b>Consistent.</b> New major highways, secondary highways, limited secondary highways, parkways, and expressways will be constructed as part of the Project, in accordance with the standards in the <i>Centennial Specific Plan</i> . The Project would also comply with the Centennial Transportation Improvement Program (CTIP) agreement with the County and Caltrans for roadway, freeway and highway improvements needed to serve the Project, as discussed in Section 5.10, Traffic, Access and Circulation.
Policy M 3.4: Maintain existing highways to ensure safety, and require adequate street and house signage for emergency response vehicles.	<b>Consistent.</b> Development on the Project site would comply with all applicable County of Los Angeles requirements for the condition of roads and signage for emergency response vehicles, including Fire Department code and ordinance requirements, to provide emergency access for the Sheriff’s and Fire Departments, and ambulance services, as discussed further in Section 5.16, Fire and Law Enforcement Services on this EIR. Highway improvements are addressed Section 5.10, Traffic, Access and Circulation.
Policy M 3.5: As future land use changes occur, periodically review traffic counts and traffic projections and revise the Highway Plan accordingly.	<b>Consistent.</b> The amendment of the AVAP Highway Plan to show major roadways internal to the site would establish the highway system that would serve the Project and the surrounding area
Policy M 3.6: Engage local communities and agencies in the planning and implementation of transportation improvements.	<b>Not Applicable.</b> This is a County effort.



**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
<p>Goal M 4: A network of local streets that support the rural character of the unincorporated Antelope Valley without compromising public safety.</p>	<p><b>Consistent.</b> The Project’s Mobility Plan proposes a multi-modal transportation system that will include a roadway system, transit routes, bikeways, and greenway trails and is designed to provide safe and efficient mobility throughout the community. Narrower lanes and street widths, bulb-outs, chokers, and chicanes will be provided as traffic calming measures, subject to approval by the County. Project street lighting is also required to comply with the rural street lighting standards, as described in Section 5.13, Visual Resources.</p>
<p>Policy M 4.1: Require rural local street standards that minimize the width of paving and placement of curbs, gutters, sidewalks, street lighting, and traffic signals, as adopted by the Department of Public Works.</p>	<p><b>Consistent.</b> New roads will be constructed in accordance with the standards in the <i>Centennial Specific Plan</i>, as adopted by the County and which incorporates rural features into its construction standards.</p>
<p>Policy M 4.2: Maintain existing local streets to ensure safety, and require adequate signage for emergency response vehicles.</p>	<p><b>Consistent.</b> Development on the Project site would comply with all applicable County of Los Angeles Fire Department code and ordinance requirements, including visible addresses. Narrower lanes and street widths, bulb-outs, chokers, and chicanes will be provided as traffic calming measures, subject to approval by the County.</p>
<p>Policy M 4.3: Encourage ongoing maintenance of private local streets to ensure public safety.</p>	<p><b>Consistent.</b> Ongoing maintenance of private local streets, drives and lanes will be provided by the homeowner’s association or other management entity.</p>
<p>Goal M 5: Long-haul truck traffic is separated from local traffic, reducing the impacts of truck traffic on local streets and residential areas.</p>	<p><b>Consistent.</b> The Project includes a Mobility Plan that provides for safe and efficient internal and external vehicular traffic flow that minimizes interactions between local traffic and truck traffic from the National Cement Plant and SR-138 by realigning National Cement Plant Road from its intersection with SR-138 to the western side of Quail Lake and tying into Gorman Ranch Road.</p>
<p>Policy M 5.1: Support development of the High Desert Corridor and the Northwest 138 Corridor Improvement Project, to provide a route for truck traffic between Interstate 5, State Route 14, and Interstate 15.</p>	<p><b>Not Applicable.</b> Development of the High Desert Corridor or the Northwest 138 Corridor Improvement Project is outside the scope of the Project. However, the Project would accommodate the realignment and widening of SR-138, as discussed in Section 5.10, Traffic, Access and Circulation.</p>
<p>Policy M 5.2: Direct truck traffic to designated truck routes and prohibit truck traffic on designated scenic routes, to the greatest extent feasible.</p>	<p><b>Consistent.</b> Truck traffic to and from the site during construction and operational site activities would utilize designated truck routes in accordance with existing County regulations. There are no scenic highways or scenic routes near the site. Truck use of roads identified as Scenic Drives in the AVAP would also be in accordance with existing regulations, including the County’s Transportation Permit.</p>

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Policy M 5.3: Require that designated truck routes are designed and paved to accommodate truck traffic, preventing excessive pavement deterioration from truck use	<b>Consistent.</b> While there are no designated truck routes on the site, any future truck routes would be designed and constructed in accordance with County standards.
Policy M 5.4: Add rest stops along designated truck routes to provide stopping locations away from residential uses.	<b>Not Applicable.</b> This is a County effort.
Policy M 5.5: Develop appropriate regulations for truck parking on local streets to avoid impacts to residential areas.	<b>Consistent.</b> The <i>Centennial Specific Plan</i> establishes development standards that include parking requirements for each permitted land use designation. Street parking would be regulated by the County Code.
Goal M 6: A range of transportation options to connect the Antelope Valley to other regions.	<b>Consistent.</b> Through the Transportation Management Association, the Project will facilitate the use of transit and other alternatives to single-occupancy automobile trips off site, and is required to reduce single-occupancy automobile commute trips as set forth in the Mobility Plan, as discussed further in Section 3.2 and Appendix 2-C in the Specific Plan.
Policy M 6.1: Support the development of Palmdale Regional Airport and encourage a range of commercial air travel options.	<b>Not Applicable.</b> This is a County effort.
Policy M 6.2: Support the development of William J. Fox Airfield as a facility for general aviation, air cargo operations, and commuter air travel.	<b>Not Applicable.</b> This is a County effort.
Policy M 6.3: Support the development of the High Desert Corridor and the Northwest 138 Corridor Improvement Project between Interstate 5, State Route 14, and Interstate 15, and encourage the participation of private enterprise and capital.	<b>Not Applicable.</b> Development of the High Desert Corridor or the Northwest 138 Corridor Improvement Project is outside the scope of the Project. However, the Project would accommodate the realignment and widening of SR-138, as discussed in Section 5.10, Traffic, Access and Circulation.
Policy M 6.4: Support increases in Metrolink commuter rail service, and support the expansion of commuter rail service on underutilized rail lines where appropriate.	<b>Not Applicable.</b> This is a County effort.
Policy M 6.5: Support the development of the California High Speed Rail System, with a station in Palmdale to provide links to Northern California and other portions of Southern California, and encourage the participation of private enterprise and capital.	<b>Not Applicable.</b> This is a County effort.
Policy M 6.6: Support the development of a high-speed rail system linking Palmdale to Victorville and Las Vegas, and encourage the participation of private enterprise and capital.	<b>Not Applicable.</b> This is a County effort.
Policy M 6.7: Establish a regional transportation hub in Palmdale with feeder transit service to the rural areas of the unincorporated Antelope Valley.	<b>Not Applicable.</b> This is a County effort.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

<b>Goal/Policy</b>	<b>Project Consistency</b>
Policy M 6.8: In planning for all regional transportation systems, consider and mitigate potential impacts to existing communities, and minimize land use conflicts.	<b>Consistent.</b> The Project would accommodate the realignment and widening of SR-138, as discussed in Section 5.10, Traffic, Access and Circulation.
Policy M 6.9: Engage regional agencies, such as Caltrans, SCAG, Metro, and the California High Speed Rail Authority in the implementation of an effective and efficient integrated multi-modal regional transportation network. Ensure adequate funding on an ongoing basis through financing programs, such as grants, congestion pricing, bonding, fair share cost assignments, etc.	<b>Not Applicable.</b> This is a County effort.
Goal M 7: Bus service is maintained and enhanced throughout the Antelope Valley.	<b>Consistent.</b> While the Project would not include bus service throughout the Antelope Valley, the Project’s Mobility Plan includes commuter rideshare and transit; ride networking; car-share services; on-demand ridesharing; electric vehicle charging stations; preferential parking for carpools and vanpools; lunch shuttle service from business park to food establishments; bicycle connectivity through underpasses and overpasses connecting to the business park south of the SR-138. Through the Transportation Management Association, a partnering arrangement will be established with the Antelope Valley Transit Authority to provide bus service to the Project site.
Policy M 7.1: Maintain and increase funding to the Antelope Valley Transit Authority for bus service.	<b>Not Applicable.</b> This is a County effort.
Policy M 7.2: Support increases in bus service to heavily traveled areas and public facilities, such as parks and libraries.	<b>Consistent.</b> While the Project would not include bus service throughout the Antelope Valley, the Project’s Mobility Plan includes higher density development areas that will facilitate future bus service on the Project site, as well as other alternative transportation modes, such as commuter rideshare and transit; ride networking; car-share services; on-demand ridesharing; electric vehicle charging stations; preferential parking for carpools and vanpools; lunch shuttle service from business park to food establishments; bicycle connectivity through underpasses and overpasses connecting to the business park south of the SR-138. Through the Transportation Management Association, a partnering arrangement will be established with the Antelope Valley Transit Authority to provide bus service to the Project site.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
<p>Policy M 7.3: Support increases in bus service to rural communities, linking them to a regional transportation hub in Palmdale and shopping and employment centers in Lancaster and Palmdale.</p>	<p><b>Consistent.</b> While the Project would not include bus service throughout the Antelope Valley, the Project’s Mobility Plan includes commuter rideshare and transit; ride networking; car-share services; on-demand ridesharing; electric vehicle charging stations; preferential parking for carpools and vanpools; lunch shuttle service from business park to food establishments; bicycle connectivity through underpasses and overpasses connecting to the business park south of the SR-138. Through the Transportation Management Association, a partnering arrangement will be established with the Antelope Valley Transit Authority to provide bus service to the Project site.</p>
<p>Policy M 7.4: Improve access for all people, including seniors, youth, and the disabled, by maintaining off-peak service and equipping transit services for wheelchairs and bicycles.</p>	<p><b>Consistent.</b> The Project, through the Specific Plan and the TMA, would provide convenient access to public bus transportation, carpooling, park and ride, special charter operations, on-demand car services, and similar types of activities related to local or off-site transit and transportation. Off-peak service hours and equipping transit services for wheelchairs and bicycles would be the responsibility of the transit operator and not the Developer/Applicant.</p>
<p>Policy M 7.5: Encourage the use of advanced technologies in the planning and operation of the transit system.</p>	<p><b>Consistent.</b> The Project will contribute fair-share funds to implement operational improvements (e.g., restriping and/or Intelligent Transportation Systems) to increase efficiency based on the projected traffic volumes, as discussed further in Section 5.10, Traffic, Access and Circulation of this EIR. The TMA will facilitate innovative transportation services such as on-demand car service and car-sharing.</p>
<p>Goal M 8: Alternative transit options in areas not reached by bus service.</p>	<p><b>Consistent.</b> The Project’s Mobility Plan includes Mobility Performance Standards, a Circulation Plan, programs for Complete Streets, Non-Motorized Transportation, Transit, and TDM. The Mobility Plan includes a comprehensive system of roadways and would accommodate a public transit system and other forms of transportation to promote alternatives to the use of the automobile through a coordinated network of public roadways, sidewalks, bikeways, and pedestrian trails.</p>
<p>Policy M 8.1: Support the expansion of dial-a-ride services to rural communities, linking them to a regional transportation hub in Palmdale and shopping and employment centers in Lancaster and Palmdale.</p>	<p><b>Not Applicable.</b> This is a County effort. The responsibility for the expansion or linking of dial-a-ride services to Lancaster and Palmdale is outside the scope of individual projects.</p>

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Policy M 8.2: Evaluate the feasibility of alternative transit options, such as community shuttle services and privately operated transit, to increase accessibility.	<b>Consistent.</b> The Project would develop a local backbone bus route along the major north/south collectors that would be provided connecting from SR-138 to the north end of the Project, which would be supplemented by feeder lines that loop through the Project (local transit routes). As with other unincorporated areas of Los Angeles County, funding for the local transit system would come from a combination of Proposition A funds and property taxes. The Transportation Management Association would also partner with the Antelope Valley Transit Agency and other stakeholders in providing cost-effective transportation options for the Project.
Goal M 9: A unified and well-maintained bicycle transportation system throughout the Antelope Valley with safe and convenient routes for commuting, recreation, and daily travel.	<b>Consistent.</b> The Project would include a system of Class I-IV bike lanes, community trails, and greenway trails that link residential, school, shopping, and employment areas.
Policy M 9.1: Implement the adopted Bikeway Plan for the Antelope Valley in cooperation with the cities of Lancaster and Palmdale. Ensure adequate funding on an ongoing basis	<b>Not Applicable.</b> While this is a County effort, the Project supports the Bikeway Plan by providing on-site links to regional trails.
Policy M 9.2: Along streets and highways in rural areas, add safe bicycle routes that link to public facilities, a regional transportation hub in Palmdale, and shopping and employment centers in Lancaster and Palmdale.	<b>Consistent.</b> The Project would include a variety of Class I-IV bike lanes, community trails, and greenway trails that link residential, school, shopping, employment areas, and transit centers within the Project.
Policy M 9.3: Ensure that bikeways and bicycle routes connect communities and offer alternative travel modes within communities.	<b>Consistent.</b> The Project would include Class I-IV bike lanes, community trails, and greenway trails that link residential, school, shopping, employment areas, and transit centers within the Project.
Policy M 9.4: Encourage provision of bicycle racks and other equipment and facilities to support the use of bicycles as an alternative means of travel.	<b>Consistent.</b> The Project would include bikeways, as well as other facilities, to support bicycle use, including bicycle facilities throughout the Project site, bicycle parking facilities with lockers and racks and showers for bicycling employee use; and bicycle connectivity through underpasses and overpasses connecting to the business park south of the SR-138.
Goal M 10: A unified and well-maintained multi-use (equestrian, hiking, and mountain bicycling) trail system that links destinations such as rural town centers and recreation areas throughout the Antelope Valley.	<b>Consistent.</b> The Project would include Class I-IV bike lanes, community trails, and greenway trails that link residential, school, shopping, and employment areas and that connect to the regional trail system (e.g., proposed alignment of the Pacific Crest Trail) while also accommodating equestrians.
Policy M 10.1: Implement the adopted Trails Plan for the Antelope Valley in cooperation with the cities of Lancaster and Palmdale. Ensure adequate funding on an ongoing basis.	<b>Not Applicable.</b> This is a County effort. While responsibility for the implementation of the Trails Plan for the Antelope Valley is outside the scope of individual projects, the Project supports the Trails Plan by providing on-site links to regional trails.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Policy M 10.2: Connect new development to existing population centers with trails, requiring trail dedication and construction through the development review and permitting process.	<b>Consistent.</b> One of the Project Objectives is to allow for recreational trail connections from the Project site to the Pacific Crest Trail to promote regional connectivity. The Project's trails will connect to the realigned Pacific Crest Trail and accommodate the Pacific Crest Trail through the site.
Policy M 10.3: Maximize fair and reasonable opportunities to secure additional trail routes (dedicated multi-use trail easements) from willing property owners.	<b>Consistent.</b> The Project includes a network of trails for bicycling and hiking throughout the site, with access to regional trails and that provide equestrian activities on the regional trail.
Policy M 10.4: Ensure trail access by establishing trailheads with adequate parking and access to public transit, where appropriate and feasible.	<b>Consistent.</b> The <i>Centennial Specific Plan</i> establishes development standards that include parking requirements for each permitted land use designation, with parking requirements for trailheads to be provided in accordance with County regulations, and the Mobility Plan requires ongoing coordination and facilitation of multi-modal transportation options.
Policy M 10.5: Locate and design trail routes to minimize impacts to sensitive environmental resources and ecosystems.	<b>Consistent.</b> Trails will be located along roads and in greenways and have been designed to minimize impacts to sensitive environmental resources and ecosystems. In addition to signs posted along trails cautioning against disturbance, trails will be designed to discourage people and pets entering any sensitive drainages.
Policy M 10.6: Where trail connections are not fully implemented, collaboratively work to establish safe interim connections.	<b>Consistent.</b> The Project incorporates a County regional hiking trail that would connect with the proposed realignment of the Pacific Crest Trail along 300th Street West.
Policy M 10.7: Ensure that existing trails and trailheads are properly maintained by the relevant agencies.	<b>Consistent.</b> On-site trails would be maintained by the Homeowner's Association, Landscape and Lighting Maintenance District (LLMD), or other similar entity. However, the proposed regional trail would be part of the County system under Department of Parks and Recreation and as such, maintained by the County.
Policy M 10.8: Solicit community input to ensure that trails are compatible with local needs and character.	<b>Consistent.</b> Input from various organizations and agencies was solicited during the planning phase of the Project.
Goal M 11: A continuous, integrated system of safe and attractive pedestrian routes linking residents to rural town center areas, schools, services, transit, parks, and open space areas.	<b>Consistent.</b> The Project locates school sites at central locations at various villages to reduce the need for busing and driving, with connecting trails and bikeways to encourage walking to schools. The Project design includes villages that link residents within walking distance to neighborhood schools, parks, and open space areas. Transit options are available throughout the Project site as administered by the Transportation Management Association.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
<p>Policy M 11.1: Improve existing pedestrian routes and create new pedestrian routes, where appropriate and feasible. If paving is deemed necessary, require permeable paving consistent with rural community character instead of concrete sidewalks.</p>	<p><b>Consistent.</b> New sidewalks, greenway trails, Class I–IV bike lanes, and community trails would be provided as part of the Project. Paving may include poly-pavement, decomposed granite, soilcrete, asphalt, concrete, or other suitable surface, subject to County review and approval.</p>
<p>Policy M 11.2: Within rural town center areas, require that highways and streets provide pleasant pedestrian environments and implement traffic calming methods to increase public safety for pedestrians, bicyclists, and equestrian riders.</p>	<p><b>Consistent.</b> The Project includes facilities for alternatives to automobile travel (e.g., public transit, bicycle network, and pedestrian system). The Circulation Plan sets forth requirements for roadway classifications, intersection controls, and traffic calming measures. The Project includes small- to medium-sized streets and blocks that allow for shorter walking distances to retail, parks, schools, and other destinations; pedestrian environments incorporated with public streets; parking behind buildings to encourage walking in retail areas along street frontages; and parks 1 acre or more in size within 0.25 mile of 80% of residences. Features of the Mobility Plan include bicycle connectivity through underpasses and overpasses connecting to the business park south of the SR-138. Equestrian trails, including safe passage across SR-138, are also provided.</p>
<p>Policy M 11.3: Within rural town center areas, promote pedestrian-oriented scale and design features, including public plazas, directional signage, and community bulletin boards.</p>	<p><b>Consistent.</b> The Project will provide pedestrian-oriented scale and design features through individual villages, each with a village core, and a town center for the Project. The village cores and town center have a Mixed Use (MU) overlay to allow for the development of a combination of commercial, office and residential uses in either vertically or horizontally (uses side by side) integrated projects. The MU overlay will create a live/work environment; add diversity and walkability to the town center; and reduce reliance on the automobile. The MU areas may include a "main street" atmosphere with on-street parking, wider sidewalks, safe and convenient pedestrian and vehicular access into and around the area, quality streetscape features, attractive storefronts, integrated sign programs, public plazas, courtyards, and architecture that creates a strong indoor/outdoor relationship.</p>
<p>Policy M 11.4: Within rural town center areas, encourage parking to be located behind or beside structures, with primary building entries facing the street. Encourage also the provision of direct and clearly delineated pedestrian walkways from transit stops and parking areas to building entries.</p>	<p><b>Consistent.</b> The <i>Centennial Specific Plan</i> includes requirements related to the amount and location of on-site parking, including front parking. Parking is required to be rear or alley loaded in the town center and village cores. The configuration of villages and the system of sidewalks, Class I–IV bike lanes, greenway trails, community trails will encourage walking in commercial areas along street frontages.</p>

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Policy M 11.5: Implement traffic calming methods in areas with high pedestrian usage, such as school zones.	<b>Consistent.</b> The <i>Centennial Specific Plan</i> includes standards for the use of various traffic calming methods, as described further in the Specific Plan and Mobility Plan.
<b>Chapter 4: Conservation and Open Space Element</b>	
Water Resources Goal COS 1: Growth and development are guided by water supply constraints.	<b>Consistent.</b> The Project includes an integrated water resources management approach to optimize the use of currently available water resources and those generated by the Project's operations, so as to minimize its impact on potable and non-potable water resources, as described in greater detail in Section 4.0, Project Description. For example, the Project includes two wastewater reclamation facilities (WRFs) for the tertiary treatment of all wastewater generated by Project uses. This recycled water will be delivered throughout the Project site for non-potable uses (e.g., irrigation), thereby reducing the Project's demand for imported water and groundwater resources. The Project will bank imported water supplies and include flood control/drainage facilities to increase groundwater recharge.
Policy COS 1.1: Require that all new development proposals demonstrate a sufficient and sustainable water supply prior to approval.	<b>Consistent.</b> The Project includes an integrated water resources management approach to optimize the use of currently available water resources and those generated by the Project's operations, so as to minimize its impact on potable and non-potable water resources, as described in greater detail in Section 5.18, Water Resources.
Policy COS 1.2: Limit the amount of potential development in areas that are not or not expected to be served by existing and/or planned public water infrastructure through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.	<b>Consistent.</b> The Project will be served by identified water supplies and proposed public infrastructure, as described in greater detail in Section 5.18, Water Resources.
Policy COS 1.3: Limit the amount of potential development in groundwater recharge areas through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.	<b>Consistent.</b> The Project is consistent with the Land Use Policy Map of the AVAP, and includes an on- and off-site water bank to ensure efficient management of groundwater recharge. Groundwater recharge is also facilitated by preservation of open space lands within Tejon Ranch to the north and east of the Project site.



**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Policy COS 1.4: Promote the use of recycled water, where available, for agricultural and industrial uses and support efforts to expand recycled water infrastructure.	<b>Consistent.</b> The Project's Green Development Program includes measures for reduced potable water consumption in part through recycled water use for landscape irrigation of public areas, including industrial uses in the Business Park, as described in greater detail in Section 5.18, Water Resources.
Goal COS 2: Effective conservation measures provide an adequate supply of clean water to meet the present and future needs of humans and natural ecosystems.	<b>Consistent.</b> One of the Project's Objectives is to provide a reliable water supply through use of an integrated water resources management approach that incorporates water conservation measures, among other measures, as described in greater detail in Section 5.18, Water Resources.
Policy COS 2.1: Require new landscaping to comply with applicable water efficiency requirements in the County Code.	<b>Consistent.</b> The Project's Green Development Program requires reduced potable water consumption through the use of drought-tolerant or native plants in greenways, transition areas, and rights-of-way; intelligent irrigation devices; and recycled water use primarily for landscape irrigation in residential common areas.
Policy COS 2.2: Require low-flow plumbing fixtures in all new developments.	<b>Consistent.</b> The Project's Green Development Program includes water conservation measures, such as the use of low-flow showerheads, faucets and toilets.
Policy COS 2.3: Require onsite stormwater infiltration in all new developments through the use of appropriate measures, such as permeable surface coverage, permeable paving of parking and pedestrian areas, catch basins, and other low impact development strategies.	<b>Consistent.</b> The Project's integrated water resources management approach includes low impact development (LID) drainage concepts to infiltrate storm water on site, as described in greater detail in Section 5.2, Hydrology and Flood.
Policy COS 2.4: Discourage water intensive recreational uses, such as golf courses, unless recycled water is used to sustain these uses.	<b>Consistent.</b> The Project includes a recycled water system to meet the water demand for non-potable uses (e.g., irrigation) and reduce the need for potable water, as described in greater detail in Section 5.18, Water Resources.
Policy COS 2.5: Discourage the use of potable water for washing outdoor surfaces.	<b>Consistent.</b> The Project's Green Development Program includes a variety of water conservation measures, as described in greater detail in Section 5.18, Water Resources.
Policy COS 2.6: Support experiments in alternate forms of water provision and re-use, such as "air to water technology" and gray water systems.	<b>Consistent.</b> The Project would collect, treat, and recycle wastewater and grey water, as described further in Section 5.18, Water Resources.
Policy COS 2.7: Limit use of groundwater sources to their safe yield limits.	<b>Consistent.</b> The Project would utilize a mix of groundwater, imported water, and recycled water with use of an on-site water bank. Groundwater depths would also be monitored, and groundwater extraction quantities are allowed only to the extent permitted in the Antelope Valley Adjudication

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
	Settlement Agreement (including ongoing Water Master management of extraction quantities to protect groundwater aquifer consistent with Agreement), as discussed further in Section 5.18, Water Resources.
Policy COS 2.8: Coordinate with federal, state, regional and local agencies to develop and implement new technologies in water management.	<b>Consistent.</b> During Project development, multiple agencies were consulted to develop and implement technologies in water management, which include for example recycled water treatment systems, automated irrigation systems, and efficient appliances, as described further in Section 5.18, Water Resources.
Goal COS 3: A clean water supply untainted by natural and man-made pollutants and contaminants.	<b>Consistent.</b> The Project would protect water quality through the implementation of PDFs and MMs, as discussed in Section 5.4, Water Quality.
Policy COS 3.1: Discourage the use of chemical fertilizers, herbicides and pesticides in landscaping to reduce water pollution.	<b>Consistent.</b> The Project would implement a Landscape Management Plan for common area landscaping that includes Integrated Pest Management (IPM), which focuses on long-term prevention or suppression of pest problems (i.e., insects and diseases) through a combination of techniques including the use of pest-resistant plants; biological controls; cultural practices; habitat modification; and the judicious use of pesticides according to treatment thresholds, when monitoring indicates pesticides are needed because pest populations exceed established thresholds, as addressed in Section 5.4, Water Quality.
Policy COS 3.2: Restrict the use of septic systems in areas adjacent to aqueducts and waterways to prevent wastewater intrusion into the water supply.	<b>Consistent.</b> The Project includes construction of a wastewater conveyance and reclamation system designed to accommodate all wastewater generated by development on the Project site, as well as a recycled water system. Septic systems will not be used to serve the Project.
Policy COS 3.3: Require a public or private sewerage system for land use densities that would threaten nitrate pollution of groundwater if unsewered, or when otherwise required by County regulations.	<b>Consistent.</b> The Project includes construction of a public sewerage system.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Policy COS 3.4: Support preservation, restoration and strategic acquisition of open space to preserve natural streams, drainage channels, wetlands, and rivers, which are necessary for the healthy functioning of ecosystems.	<b>Consistent.</b> The Project includes a Green Development Program and a Drainage Plan that would provide a combination of infiltration basins, bioretention areas, swales, and LID techniques to mimic undeveloped storm water runoff rates and volumes and prevent water quality and hydromodification impacts to natural drainage systems. These systems would provide a storm water management system that is highly sustainable because of its use of natural systems to control runoff rates and promote groundwater recharge. Additionally, the Project includes the preservation of open space areas including streams, drainages, and watersheds within Tejon Ranch.
Policy COS 3.5: Protect underground water supplies by enforcing controls on sources of pollutants.	<b>Consistent.</b> The Project would be designed and developed to achieve benchmark water quality objectives and criteria regarding underground water supplies in accordance with Sections 401 and 404 of the Clean Water Act, and with storm water management programs to protect surface and ground waters, as described further in Section 5.4, Water Quality.
Policy COS 3.6: Support and encourage water banking facilities throughout the Antelope Valley, including within Significant Ecological Areas.	<b>Consistent.</b> An on-site water bank/infiltration basin area is proposed as part of the Project.
Biological Resources Goal COS 4: Sensitive habitats and species are protected to promote biodiversity.	<b>Consistent.</b> The Project will protect sensitive habitats and species through the designation of areas with sensitive habitats and species as Open Space. Authorized Open Space uses are described further in the Specific Plan, and measures to protect biological resources in Open Space areas are included in Section 5.7, Biological Resources.
Policy COS 4.1: Direct the majority of the unincorporated Antelope Valley's future growth to rural town centers and economic opportunity areas, minimizing the potential for habitat loss and negative impacts in Significant Ecological Areas.	<b>Consistent.</b> The Project will be located in a Future Town Center and the West EOA. No Project development is proposed to occur within an SEA.
Policy COS 4.2: Limit the amount of potential development in Significant Ecological Areas including the Joshua Tree Woodlands, wildlife corridors, and other sensitive habitat areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.	<b>Consistent.</b> The Project is consistent with the Land Use Policy Map of the AVAP, and specifically avoids development in SEAs and Joshua Tree Woodlands. As described in Section 5.7, Biological Resources, the Project protects open space that provides for wildlife corridors and other sensitive habitat areas, including SEAs.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
<p>Policy COS 4.3: Require new development in Significant Ecological Areas to comply with applicable Zoning Code requirements, ensuring that development occurs on the most environmentally suitable portions of the land.</p>	<p><b>Consistent.</b> The Project would preserve areas within the San Andreas SEA as Open Space.</p>
<p>Policy COS 4.4: Require new development in Significant Ecological Areas, to consider the following in design of the project, to the greatest extent feasible:</p> <ul style="list-style-type: none"> <li>• Preservation of biologically valuable habitats, species, wildlife corridors and linkages;</li> <li>• Protection of sensitive resources on the site within open space;</li> <li>• Protection of water sources from hydromodification in order to maintain the ecological function of riparian habitats;</li> <li>• Placement of development in the least biologically sensitive areas on the site, prioritizing the preservation or avoidance of the most sensitive biological resources onsite;</li> <li>• Design of required open spaces to retain contiguous undisturbed open space that preserves the most sensitive biological resources onsite and/or serves to maintain connectivity;</li> <li>• Maintenance of watershed connectivity by capturing, treating, retaining and/or infiltrating storm water flows on site; and</li> <li>• Consideration of the continuity of onsite open space with adjacent open space in project design.</li> </ul>	<p><b>Consistent.</b> The Project would preserve areas within the San Andreas SEA as Open Space.</p>
<p>Policy COS 4.5: Subject to local, state or federal laws, require new development to provide adequate buffers from preserves, sanctuaries, habitat areas, wildlife corridors, State Parks, and National Forest lands, except within Economic Opportunity Areas.</p>	<p><b>Consistent.</b> The Project site is located within the West EOA and would provide transition zones between Open Space areas and development areas as described further in the Specific Plan Open Space discussion and in Section 5.7, Biological Resources.</p>
<p>Policy COS 4.6: Encourage connections between natural open space areas to allow for wildlife movement.</p>	<p><b>Consistent.</b> The Project would allow for wildlife movement between natural open space areas through the implementation of PDFs and MMs, as discussed in Section 5.7, Biological Resources.</p>
<p>Policy COS 4.7: Restrict fencing in wildlife corridors. Where fencing is necessary for privacy or safety, require appropriate development standards that maximize opportunities for wildlife movement.</p>	<p><b>Consistent.</b> No fencing that would restrict wildlife movement is proposed in Open Space areas, which serve as wildlife corridors.</p>

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Policy COS 4.8: Ensure ongoing habitat preservation by coordinating with the California Department of Fish and Game to obtain the latest information regarding threatened and endangered species.	<b>Consistent.</b> The Project provides for ongoing habitat preservation within designated Open Space; the latest information regarding sensitive plant and wildlife species is incorporated in Section 5.7, Biological Resources.
Policy COS 4.9: Ensure water bodies are well-maintained to protect habitat areas and provide water to local species.	<b>Not Applicable.</b> There are no water bodies on site and the maintenance of off-site water bodies is outside the scope of individual projects.
Policy COS 4.10: Restrict development that would reduce the size of water bodies, minimizing the potential for loss of habitat and water supply.	<b>Not Applicable.</b> There are no water bodies on site.
Scenic Resources Goal COS 5: The Antelope Valley’s scenic resources, including scenic drives, water features, significant ridgelines, buttes, and Hillside Management Areas, are enjoyed by future generations.	<b>Consistent.</b> The Project will preserve the majority of HMAs as Open Space and impacts on Scenic Drives would be less than significant, as discussed in Section 5.13, Visual Resources.
Policy COS 5.1: Identify and protect natural landforms and vistas with significant visual value, such as the California Poppy Preserve, by designating them as Scenic Resource Areas.	<b>Consistent.</b> The Project site is not located in or near a designated Scenic Resource Area and the Project would preserve natural landforms on the western and southeastern portions of the site, as well as retain natural drainages throughout the site.
Policy COS 5.2: Except within economic opportunity areas, limit the amount of potential development in Scenic Resource Areas through appropriate land use designations with very low densities in order to minimize negative impacts from future development.	<b>Consistent.</b> The Project site is located in the West EOA, and the Project site is not located in or near a designated Scenic Resource Area.
Policy COS 5.3: Require new development in Hillside Management Areas to comply with applicable Zoning Code requirements, ensuring that development occurs on the most environmentally suitable portions of the land.	<b>Consistent.</b> The majority of the site has slopes less than 25% and the areas with the greatest slopes would be preserved as Open Space. Development within HMAs would be required to comply with hillside provisions within the Specific Plan.
Policy COS 5.4: Require appropriate development standards in Hillside Management Areas that minimize grading and alteration of the land’s natural contours, ensure that development pads mimic natural contours, and ensure that individual structures are appropriately designed to minimize visual impacts.	<b>Consistent.</b> The majority of the site has slopes less than 25% and the areas with the greatest slopes would be preserved as Open Space. The Project would protect natural landforms on the western and southeastern portions of the site and on-site grading would mimic the existing topography, wherever feasible. Development within HMAs would be required to comply with hillside provisions within the Specific Plan
Policy COS 5.5: Require adequate erosion control measures for all development in Hillside Management Areas, both during and after construction.	<b>Consistent.</b> One of the Project objectives is to develop the site in a manner that minimizes grading, avoids steep slopes, and incorporates key natural topographical features of the site, while ensuring slope stability and erosion control. Development within HMAs would be required to comply with hillside provisions within the Specific Plan

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Policy COS 5.6: Restrict development on buttes and designated significant ridgelines by requiring appropriate buffer zones.	<b>Not Applicable.</b> There are no buttes or ridgelines on the site.
Policy COS 5.7: Ensure that incompatible development is discouraged in designated Scenic Drives by developing and implementing development standards and guidelines for development within identified viewsheds of these routes (Map 4.2: Antelope Valley Scenic Drives).	<b>Consistent.</b> The Project is consistent with the Land Use Policy Map of the AVAP and impacts on Scenic Drives would be less than significant with implementation of PDFs and MMs, as discussed in Section 5.13, Visual Resources.
Agricultural Resources Goal COS 6: Farming is a viable profession for Antelope Valley residents, contributing to the Valley's rural character and economic strength.	<b>Consistent.</b> The Project would require the conversion of 642 acres of on-site Prime Farmland to urban uses. However, the Project is located in an EOA, where urban development is planned including Farmland-designated areas. Farming continues to be a viable profession for Antelope Valley residents on lands not planned for urbanized development, such as the EOAs and rural town centers.
Policy COS 6.1: Limit the amount of potential residential development in Agricultural Resource Areas (Map 4.3: Agricultural Resource Areas) through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan, minimizing the potential for future land use conflicts.	<b>Consistent.</b> The Project would require the conversion of 642 acres of on-site Prime Farmland to urban uses, as discussed in Section 5.5, Land Resources. However, the Project is located in an EOA, where urban development is planned by the AVAP. The Project has also been designed with higher densities, and a mix of school, park and retail uses at the neighborhood scale, to increase the efficient utilization of land for the urbanized development planned in AVAP for the portion of the Project site (approximately 627 acres) that is also mapped as an ARA.
Policy COS 6.2: Limit incompatible non-agricultural uses in Agricultural Resource Areas. Where non-agricultural uses are necessary to meet regional or community needs, require buffering and appropriate development standards to minimize potential conflicts with adjacent agricultural uses.	<b>Consistent.</b> The Project does not propose incompatible non-agricultural uses within the Agricultural Resource Areas designated on the Project site. Although non-agricultural uses are proposed within the Agricultural Resource Areas designated on the Project site, those uses have sufficient buffering from adjacent agricultural uses. The Project would allow for continued grazing operations on portions of the Open Space preserve areas as a management tool for grassland conservation and would accommodate a total of 50 acres of small-scale agriculture and agriculture-related uses (e.g., community gardens, farmer's markets/fresh fruit and vegetable stands, growing and sales of nursery stock, commercial greenhouses).
Policy COS 6.3: Ensure that agricultural activities are included within the Antelope Valley's economic development strategies and pursue funding to support rural economic development and agriculture.	<b>Not Applicable.</b> Responsibility for Antelope Valley economic development strategies is outside the scope of individual projects.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
<p>Policy COS 6.4: Encourage the establishment of community farms, community gardens, and similar agricultural operations to produce local food and demonstrate the history, importance, and value of agriculture in the Antelope Valley.</p>	<p><b>Consistent.</b> The Project would reserve no less than 50 acres for small-scale agriculture and agriculture-related uses, including, but not limited to community gardens, farmers markets/fresh fruit and vegetable stands, growing and sales of nursery stock, commercial greenhouses, or other appropriate edible landscaping as discussed in Section 5.5, Land Resources.</p>
<p>Policy COS 6.5: Encourage the establishment of local farmer markets, roadside stands, wineries and tasting rooms, and other forms of “agricultural tourism” throughout the Antelope Valley to expand potential sources of farm income.</p>	<p><b>Consistent.</b> The Project’s Recreation/ Entertainment Overlay would accommodate a variety of uses, including a winery/tasting room, community gardens, and space for a farmers market or fresh fruit and vegetable stand. A total of 50 acres or more would be reserved on-site for small-scale agriculture and agriculture-related uses, including, but not limited to community gardens, farmers markets/fresh fruit and vegetable stands, growing and sales of nursery stock, commercial greenhouses, or other appropriate edible landscaping, as discussed in Section 5.5, Land Resources.</p>
<p>Policy COS 6.6: Provide educational resources to farmers.</p>	<p><b>Not Applicable.</b> The Project would not include farming activities, but the Specific Plan would reserve 50 acres or more on site for agricultural use, such as community gardens, orchards, vineyards, groves, greenhouses, or other appropriate edible landscaping, as discussed in Section 5.5, Land Resources.</p>
<p>Policy COS 6.7: Investigate the feasibility of financial and/or zoning incentive programs for farmers, such as Williamson Act contracts, conservation easements and flexible zoning provisions.</p>	<p><b>Not Applicable.</b> The Project would not include farming activities, but the Specific Plan would reserve 50 acres or more on site for agricultural use, such as community gardens, orchards, vineyards, groves, greenhouses, or other appropriate edible landscaping, as discussed in Section 5.5, Land Resources.</p>
<p>Policy COS 6.8: Support innovative agricultural business practices, such as agricultural tourism and farmers’ cooperatives, necessary for adapting to changing economic and environmental conditions by streamlining regulations.</p>	<p><b>Consistent.</b> The Project’s Recreation/ Entertainment Overlay would accommodate a variety of uses, including a winery/tasting room, community gardens, and space for a farmers market or fresh fruit and vegetable stand. A total of 50 acres or more would be reserved on-site for small-scale agriculture and agriculture-related uses, including, but not limited to community gardens, farmers markets/fresh fruit and vegetable stands, growing and sales of nursery stock, commercial greenhouses, or other appropriate edible landscaping, as discussed in Section 5.5, Land Resources.</p>

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
<p>Goal COS 7: Farming practices are sustainable, balancing economic benefits with water and biological resource management priorities, and minimize greenhouse gas emissions and water pollution.</p>	<p><b>Not Applicable.</b> The Project would not include farming activities, but the Specific Plan would reserve 50 acres or more on site for agricultural use, such as community gardens, orchards, vineyards, groves, greenhouses, or other appropriate edible landscaping, as discussed in Section 5.5, Land Resources.</p>
<p>Policy COS 7.1: Promote agricultural uses which sequester carbon and fix nitrogen.</p>	<p><b>Not Applicable. Consistent.</b> The Project would not include farming activities, but the Specific Plan would reserve 50 acres or more on site for agricultural use, such as community gardens, orchards, vineyards, groves, greenhouses, or other appropriate edible landscaping, as discussed in Section 5.5, Land Resources. Project open space areas outside the development boundary would also include grazing, which is an ongoing agricultural use.</p>
<p>Policy COS 7.2: Support the use of alternative and renewable energy systems in conjunction with agricultural activities.</p>	<p><b>Not Applicable. Consistent.</b> The Project would not include farming activities, but the Specific Plan would reserve 50 acres or more on site for agricultural use, such as community gardens, orchards, vineyards, groves, greenhouses, or other appropriate edible landscaping, as discussed in Section 5.5, Land Resources. Project open space areas outside the development boundary would also include grazing, which is an ongoing agricultural use.</p>
<p>Policy COS 7.3: Encourage sustainable agricultural and water quality best management practices such as runoff detention basins, use of vegetation filter strips, and organic farming.</p>	<p><b>Not Applicable. Consistent.</b> The Project would not include farming activities, but the Specific Plan would reserve 50 acres or more on site for agricultural use, such as community gardens, orchards, vineyards, groves, greenhouses, or other appropriate edible landscaping, as discussed in Section 5.5, Land Resources. Project open space areas outside the development boundary would also include grazing, which is an ongoing agricultural use.</p>
<p>Policy COS 7.4: Ensure that agricultural activity is managed to minimize soil erosion and the release of contaminants into surface and groundwater resources.</p>	<p><b>Not Applicable. Consistent.</b> The Project would not include farming activities, but the Specific Plan would reserve 50 acres or more on site for agricultural use, such as community gardens, orchards, vineyards, groves, greenhouses, or other appropriate edible landscaping, as discussed in Section 5.5, Land Resources. Project open space areas outside the development boundary would also include grazing, which is an ongoing agricultural use.</p>
<p>Mineral Resources Goal COS 8: Mineral resources are responsibly extracted.</p>	<p><b>Not Applicable.</b> While the National Cement Plant is located northwest of the site in Kern County, the Project site does not contain mineral deposits of any economic importance or any otherwise “classified” mineral deposits.</p>



**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Policy COS 8.1: Allow new mineral resource extraction activities only in designated Mineral Resource Areas.	<b>Not Applicable.</b> While the National Cement Plant is located northwest of the site in Kern County, the Project site does not contain mineral deposits of any economic importance or any otherwise “classified” mineral deposits. Also, the Project does not propose mineral extraction activities.
Policy COS 8.2: Where new mineral resource extraction activities are allowed, ensure that applications undergo full environmental review and public noticing. Require site remediation after completion of mineral resource extraction activities.	<b>Not Applicable.</b> While the National Cement Plant is located northwest of the site in Kern County, the Project site does not contain mineral deposits of any economic importance or any otherwise “classified” mineral deposits. Also, the Project does not propose mineral extraction activities.
Policy COS 8.3: Provide strict enforcement of illegal or unpermitted mineral extraction activities.	<b>Not Applicable.</b> While the National Cement Plant is located northwest of the site in Kern County, the Project site does not contain mineral deposits of any economic importance or any otherwise “classified” mineral deposits. Also, the Project does not propose mineral extraction activities.
Policy COS 8.4: Protect MRZ-2’s and access to MRZ-2’s in the Antelope Valley from incompatible development and discourage incompatible adjacent land uses.	<b>Not Applicable.</b> According to the California Geological Survey (CGS), the Project site is within an “unclassified” area of both the Saugus-Newhall and Palmdale Production-Consumption Regions (CGS 2015). The County General Plan and the AVAP do not identify “Mineral Resource Zones 2” within or near the Project site. Moreover, these documents do not identify mineral resources of interest anywhere in the northwestern quadrant of Los Angeles County.
Policy COS 8.5: Work collaboratively with agencies to identify Mineral Resource Zones in the Antelope Valley and to prioritize mineral land use classifications in regional efforts.	<b>Not Applicable.</b> This is a County effort.
Policy COS 8.6: Manage mineral resources in the Antelope Valley in a manner that effectively plans for the access to, and the development and conservation of mineral resources for existing and future generations.	<b>Not Applicable.</b> While the National Cement Plant is located northwest of the site in Kern County, the Project site does not contain mineral deposits of any economic importance or any otherwise “classified” mineral deposits.
Air QualityCOS 9: Improved air quality in the Antelope Valley.	<b>Consistent.</b> The Project has several design features intended to reduce or limit both stationary and mobile air pollutant emissions, as discussed in Section 5.11, Air Resources.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
<p>Policy COS 9.1: Implement land use patterns that reduce the number of vehicle trips, reducing potential air pollution, as directed in the policies of the Land Use Element.</p>	<p><b>Consistent.</b> The Project includes Specific Plan features to accommodate alternatives to automobile travel (e.g., public transit, bicycle network and pedestrian system), and a TMA to implement a range of mobility, transportation and parking demand management programs that would minimize traffic, pollution, and greenhouse gases. Efficient use of land and a balance of uses that result in a jobs/housing balance would also reduce single-occupancy automobile travel and vehicle miles traveled. Please see the Mobility Plan in Section 3.2 and Appendix 2-C of the Specific Plan and Section 5.10, Traffic, Access and Circulation for further details on these project features.</p>
<p>Policy COS 9.2: Develop multi-modal transportation systems that offer alternatives to automobile travel to reduce the number of vehicle trips, including regional transportation, local transit, bicycle routes, trails, and pedestrian networks, as directed in the policies of the Mobility Element.</p>	<p><b>Consistent.</b> The Project includes alternatives to automobile travel (e.g., public transit, bicycle network, and pedestrian system), as discussed in Section 3.2 and Appendix 2-C, Mobility Plan, of the Specific Plan and in Section 5,10, Traffic, Access and Circulation, of this EIR.</p>
<p>Policy COS 9.3: In evaluating new development proposals, consider requiring trip reduction measures to relieve congestion and reduce air pollution from vehicle emissions.</p>	<p><b>Consistent.</b> The Project includes alternatives to automobile travel (e.g., public transit, bicycle network and pedestrian system) that would minimize traffic, pollution, and greenhouse gases. Efficient use of land and a balance of uses that result in a jobs/housing balance would reduce single-occupancy automobile travel and vehicle miles traveled.</p>
<p>Policy COS 9.4: Promote recycling and composting throughout the Antelope Valley to reduce air quality impacts from waste disposal activities and landfill operations.</p>	<p><b>Consistent.</b> The Project would comply with waste diversion regulations and programs, as well as implement a Solid Waste Management Plan. With implementation of the Solid Waste Management Plan, 75% of solid waste generated from Project operation would be diverted from landfills through recycling, composting, and other methods, as described in greater detail in Section 5.17.3, Solid Waste Services.</p>
<p>Policy COS 9.5: Encourage the use of alternative fuel vehicles throughout the Antelope Valley.</p>	<p><b>Not Applicable.</b> Although use of alternative fuel vehicles throughout the Antelope Valley is outside the scope of individual projects, the Project will provide a refueling facility for alternative fuels if more than 5% of vehicles use such fuels, as described further in the Green Development Program.</p>
<p>Policy COS 9.6: Educate Antelope Valley industries about new, less polluting equipment, and promote incentives for industries to use such equipment.</p>	<p><b>Not Applicable.</b> Education of Antelope Valley industries about pollution and incentives is outside the scope of individual projects. Prospective industrial occupants of Centennial are required to comply with all applicable health and safety laws, including pollution reduction and pollution control laws. In general, new facilities seeking new permits from</p>

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
	environmental agencies are subject to more stringent requirements than existing facilities, and California’s environmental compliance laws and regulations are among the most stringent in the country. Additionally, regional pollution control agencies, such as the South Coast Air Quality Management District, implement more stringent air pollution reduction regulations than those of other regions even within California.
Policy COS 9.7: Encourage reforestation and the planting of trees to sequester greenhouse gas emissions.	<b>Consistent.</b> The Project includes planting of trees as part of the streetscape, greenways, and within the development site.
Policy COS 9.8: Coordinate with the Antelope Valley Air Quality Management District and other local, regional, state, and federal agencies to develop and implement regional air quality policies and programs.	<b>Not Applicable.</b> Development of regional air quality policies and programs is outside the scope of individual projects.
Energy Goal COS 10: Diverse energy systems that utilize existing renewable or waste resources to meet future energy demands.	<b>Consistent.</b> A minimum of 50% of the Project’s anticipated electrical energy demand at buildout shall be met by onsite renewable energy. Also, the Project shall equip 100% of all single-family detached homes to be “solar-ready” or equivalent, based on the latest technology. The Project’s two WRFs will include equipment to capture and reuse biogas for energy production. Further information on energy system and waste management features of the project are included in the Specific Plan’s Green Development Program (Appendix 2-A).
Policy COS 10.1: Encourage the use of non-hazardous materials in all individual renewable energy systems and all utility-scale renewable energy production facilities to prevent the leaching of potentially dangerous run-off materials into the soil and watershed.	<b>Consistent.</b> The Project allows solar and renewable energy generation facilities and energy conversion systems consistent with the County’s Renewable Energy Ordinance and related sections of Title 22 of the County Code. Compliance with the review procedures prescribed by said sections of Title 22 and the measures prescribed by the Water Quality and Hazardous Materials Sections of this EIR will ensure that potentially dangerous run-off materials will not leach into the soil and watershed.
Policy COS 10.2: Ensure that all individual renewable energy systems and all utility-scale renewable energy production facilities do not interfere with commercial and military flight operations or communication facilities. Consult with Edwards Air Force Base and U. S. Air Force Plant 42 on all proposed renewable energy projects that require discretionary approval.	<b>Consistent.</b> The Project allows solar and renewable energy generation facilities and energy conversion systems consistent with the County’s Renewable Energy Ordinance and related sections of Title 22 of the County Code.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Policy COS 10.3: Encourage the safe and orderly development of biomass conversion facilities as an alternative to burning agricultural wastes.	<b>Not Applicable.</b> The Project does not propose the development of biomass conversion facilities that use agricultural wastes, but does include a municipal recycling/diversion facility that would create segregated types of solid waste to facilitate reuse at authorized off-site facilities.
Policy COS 10.4: Promote methane recapture at landfills for purpose of generating energy and reducing fugitive greenhouse gas emissions.	<b>Not Applicable.</b> The site is not a landfill, and the Project does not allow landfills.
Policy COS 10.5: Encourage the development of emerging energy technologies, such as “solar roads.”	<b>Not Applicable.</b> Development of emerging energy technologies is outside the scope of individual projects, but the Project’s Green Development Program allows for the deployment of innovative and emerging green technologies over time.
Policy COS 10.6: Encourage the development of Conversion Technologies such as anaerobic digestion and gasification for converting post recycled residual waste into renewable fuels and energy.	<b>Consistent.</b> The Project’s two WRFs will include equipment to capture and reuse biogas for energy production and the Project allows for a Materials Recovery Facility/Solid Waste Transfer Facility (MRF/SWTF) and green waste mulching and composting facility within the Utility land use designation.
Goal COS 11: Energy systems for use in public facilities that reduce consumption of non-renewable resources while maintaining public safety.	<b>Consistent.</b> A minimum of 50% of the Project’s anticipated electrical energy demand at buildout shall be met by onsite renewable energy. Also, the Project shall equip 100% of all single-family detached homes to be “solar-ready” or equivalent, based on the latest technology. Public buildings constructed as part of the Project will comply with federal, State, and local performance standards and green building laws and regulations that are applicable to that building.
Policy COS 11.1: Promote energy retrofits of existing public facilities throughout the County to complement and reduce dependence upon utility-scale renewable energy production facilities.	<b>Not Applicable.</b> Energy retrofits of existing public facilities are outside the scope of individual projects. Also, there are no public facilities on the site.
Policy COS 11.2: Promote the use of solar-powered lighting for highways, streets, and public facilities, including parks and trails.	<b>Consistent.</b> A minimum of 50% of the Project’s anticipated electrical energy demand at buildout shall be met by onsite renewable energy. Also, the Project shall equip 100% of all single-family detached homes to be “solar-ready” or equivalent, based on the latest technology.
Policy COS 11.3: Promote the use of renewable energy systems in public facilities, such as hospitals, libraries, and schools, to ensure access to power in the case of major disasters.	<b>Consistent.</b> While control on the use of renewable energy systems in public facilities (e.g., hospitals, libraries, and schools) is outside the scope of individual projects, a minimum of 50% of the Project’s anticipated electrical energy demand at buildout shall be met by onsite renewable energy, including public buildings constructed as part of the Project. These public buildings will also comply with federal, State,

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
	and local performance standards and green building laws and regulations that are applicable to that building. Also, the Project's Green Development Program requires the Project to equip 100% of all single-family detached homes to be "solar-ready" or equivalent, based on the latest technology.
Goal COS 12: Individual energy systems for onsite use that reduce consumption of non-renewable resources and dependence on utility-scale energy production facilities.	<b>Consistent.</b> A minimum of 50% of the Project's anticipated energy demand at buildout shall be met by onsite renewable energy.
Policy COS 12.1: Promote the use of individual renewable energy systems throughout the County to complement and reduce dependence upon utility-scale renewable energy facilities.	<b>Consistent.</b> A minimum of 50% of the Project's anticipated energy demand at buildout shall be met by onsite renewable energy.
Policy COS 12.2: Require appropriate development standards for individual renewable energy systems to minimize potential impacts to surrounding properties. Simplify the permitting process for individual renewable energy systems that meet these development standards.	<b>Not Applicable.</b> Establishment of development standards is outside the scope of individual projects.
Goal COS 13: Utility-scale energy production facilities for offsite use that reduce consumption of nonrenewable resources while minimizing potential impacts on natural resources and existing communities.	<b>Not Applicable.</b> The Project does not propose utility-scale renewable energy production facilities on site.
Policy COS 13.1: Direct utility-scale renewable energy production facilities, such as solar facilities, to locations where environmental, noise, and visual impacts will be minimized.	<b>Not Applicable.</b> The Project does not propose utility-scale renewable energy production facilities on site.
Policy COS 13.2: Restrict development of utility-scale wind energy production facilities within the vicinity of Edwards Air Force Base to limit interference with military operations.	<b>Not Applicable.</b> The Project does not propose utility-scale renewable energy production facilities on site.
Policy COS 13.3: Require all utility-scale renewable energy production facilities to develop and implement a decommissioning plan, with full and appropriate financial guarantee instruments that will restore the full site to its natural state upon complete discontinuance of operations and will restore non-operational portions of the site while the remainder continues operating.	<b>Not Applicable.</b> The Project does not propose utility-scale renewable energy production facilities on site.
Policy COS 13.4: Promote the use of recycled water in utility-scale renewable energy production facilities to limit impacts on the available fresh water supply.	<b>Not Applicable.</b> The Project does not propose utility-scale renewable energy production facilities on site.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Policy COS 13.5: Where development of utility-scale renewable energy production facilities cannot avoid sensitive biotic communities, require open space dedication within Significant Ecological Areas as a mitigation measure.	<b>Not Applicable.</b> The Project does not propose utility-scale renewable energy production facilities on site.
Policy COS 13.6: Ensure that all utility-scale renewable energy production facilities, such as solar facilities, do not create land use conflicts with adjacent agricultural lands or existing residential areas in the vicinity. Require buffering and appropriate development standards to minimize potential conflicts.	<b>Not Applicable.</b> The Project does not propose utility-scale renewable energy production facilities on site.
Policy COS 13.7: Limit the aesthetic impacts of utility-scale renewable energy production facilities to preserve rural character.	<b>Not Applicable.</b> The Project does not propose utility-scale renewable energy production facilities on site.
Policy COS 13.8: Coordinate with other jurisdictions to plan for utility-scale renewable energy production facilities in order to minimize impacts to sensitive biotic communities and existing residential areas.	<b>Not Applicable.</b> The Project does not propose utility-scale renewable energy production facilities on site.
Policy COS 13.9: Prohibit ground-mounted utility-scale renewable energy production facilities within Significant Ecological Areas and Economic Opportunity Areas.	<b>Not Applicable.</b> The Project does not propose utility-scale renewable energy production facilities on site.
Goal COS 14: Energy infrastructure that is sensitive to the scenic qualities of the Antelope Valley and minimizes potential environmental impacts.	<b>Consistent.</b> A new on-site dry utility backbone system consisting of joint and sole electric, natural gas, telephone, and cable television facilities would be installed underground within the roadway rights-of-way. The existing off-site 66-kilovolt (kV) electric lines that extend along SR-138, which passes adjacent to Quail Lake, would be relocated south of the Business Park area and may be placed underground, if feasible.
Policy COS 14.1: Require that new transmission lines be placed underground whenever physically feasible.	<b>Consistent.</b> A new on-site dry utility backbone system consisting of joint and sole electric, natural gas, telephone, and cable television facilities would be installed underground within the roadway rights-of-way. The existing off-site 66-kV electric lines that extend along SR-138, which passes adjacent to Quail Lake, would be relocated south of the Business Park area and placed underground, if feasible.
Policy COS 14.2: If new transmission lines cannot feasibly be placed underground due to physical constraints, require that they be collocated with existing transmission lines, or along existing transmission corridors, whenever physically feasible.	<b>Consistent.</b> A new on-site dry utility backbone system consisting of joint and sole electric, natural gas, telephone, and cable television facilities would be installed underground within the roadway rights-of-way. The existing off-site 66-kV electric lines that extend along SR-138, which passes adjacent to Quail Lake, would be relocated south of the Business Park area and may be placed underground, if feasible.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
<p>Policy COS 14.3: If new transmission lines cannot be feasibly be placed underground or feasibly collocated with existing transmission lines or along existing transmission corridors due to physical constraints, direct new transmission lines to locations where environmental and visual impacts will be minimized.</p>	<p><b>Consistent.</b> A new on-site dry utility backbone system consisting of joint and sole electric, natural gas, telephone, and cable television facilities would be installed underground within the roadway rights-of-way. The existing off-site 66-kV electric lines that extend along SR-138, which passes adjacent to Quail Lake, would be relocated south of the Business Park area and may be placed underground, if feasible.</p>
<p>Policy COS 14.4: Discourage the placement of new transmission lines on undisturbed lands containing sensitive biotic communities.</p>	<p><b>Consistent.</b> Transmission lines that cannot be relocated underground as physically feasible will be relocated into existing transmission corridors or within existing rights-of-way. No new transmission lines would be placed above ground on undisturbed areas and designated open space.</p>
<p>Policy COS 14.5: Discourage the placement of new transmission lines through existing communities or through properties with existing residential uses.</p>	<p><b>Consistent.</b> The Project would place new utility lines underground. A new on-site dry utility backbone system consisting of joint and sole electric, natural gas, telephone, and cable television facilities would be installed underground within the roadway rights-of-way. The existing off-site 66-kV electric lines that extend along SR-138, which passes adjacent to Quail Lake, would be relocated south of the Business Park area and may be placed underground, if feasible.</p>
<p>Policy COS 14.6: Review all proposed transmission line projects for conformity with the Goals and Policies of the Area Plan, including those listed above. When the California Public Utilities Commission is the decision-making authority for these projects, provide comments regarding conformity with the Goals and Policies of the Area Plan.</p>	<p><b>Not Applicable.</b> This is a County effort.</p>
<p>Policy COS 14.7: Require that electrical power lines in new residential developments be placed underground.</p>	<p><b>Consistent.</b> A new on-site dry utility backbone system consisting of joint and sole electric, natural gas, telephone, and cable television facilities would be installed underground within the roadway rights-of-way. The existing off-site 66-kV electric lines that extend along SR-138, which passes adjacent to Quail Lake, would be relocated south of the Business Park area and may be placed underground, if feasible.</p>

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Dark Night Skies Goal COS 15: Humans and wildlife enjoy beautiful dark Antelope Valley skies unimpeded by light pollution.	<b>Consistent.</b> The Specific Plan includes outdoor lighting standards that require downward direction and shielding to prevent spillover. Final lighting orientation and design shall be approved by the County of Los Angeles, Department of Public Works Building and Safety during the plan check process for individual developments.
Policy COS 15.1: Ensure that outdoor lighting, including street lighting, is provided at the lowest possible level while maintaining safety.	<b>Consistent.</b> The Specific Plan includes outdoor lighting standards that require downward direction and shielding to prevent spillover. Final lighting orientation and design shall be approved by the County of Los Angeles, Department of Building and Safety during the plan check process for individual developments.
Policy COS 15.2: Prohibit continuous all-night outdoor lighting in rural areas, unless required for land uses with unique security concerns, such as fire stations, hospitals, and prisons.	<b>Consistent.</b> The Project would be consistent with the County's Rural Outdoor Lighting District Ordinance.
Policy COS 15.3: Replace outdated, obtrusive, and inefficient light fixtures with fixtures that meet dark sky and energy efficiency objectives.	<b>Consistent.</b> The Specific Plan includes outdoor lighting standards that require downward direction and shielding to prevent spillover. Final lighting orientation and design shall be approved by the County of Los Angeles, Department of Building and Safety during the plan check process for individual developments.
Policy 15.4: Require compliance with the provisions of the Rural Outdoor Lighting District throughout the unincorporated Antelope Valley.	<b>Consistent.</b> The Project would be consistent with the County's Rural Outdoor Lighting District Ordinance.
Vegetation Conservation Goal COS 16: Native vegetation thrives throughout the Antelope Valley, reducing erosion, flooding, and wind-borne dust and sand.	<b>Consistent.</b> The Project includes the planting of native and/or drought-tolerant plant species consistent with the County's Drought-Tolerant Landscaping standards.
Policy COS 16.1: Except within Economic Opportunity Areas, require new development to minimize removal of native vegetation. Discourage the clear-scraping of land and ensure that a large percentage of land is left in its natural state.	<b>Not Applicable.</b> The Project site is located within the West EOA, and thus this policy does not apply. Approximately 7,200 acres within the Project site's total 12,323 acres would be graded. Native vegetation on the Project site and impacts are described in Section 5.7, Biological Resources.
Policy COS 16.2: Maximize the use of native vegetation in landscaped areas, provided that vegetation meets all applicable requirements of the Fire Department and the Department of Public Works.	<b>Consistent.</b> The Project includes the planting of native and/or drought-tolerant plant species consistent with the County's Drought-Tolerant Landscaping standards.
Green Building Goal COS 17: Buildings are sustainable, conserving energy, water, and other resources, and limiting greenhouse gas emissions.	<b>Consistent.</b> The Project includes a Green Development Program that requires all development to incorporate environmentally sustainable development practices in the design and construction of the Project.



**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Policy COS 17.1: Promote green building techniques for the construction and operation of public and private buildings in the unincorporated Antelope Valley.	<b>Consistent.</b> The Project includes a Green Development Program that requires all development to incorporate environmentally sustainable development practices in the design and construction of the Project.
Policy COS 17.2: Require that new buildings be sited and designed in a manner that maximizes efficient use of natural resources, such as air and light, to reduce energy consumption, heat profiles, and greenhouse gas emissions.	<b>Consistent.</b> The Project includes a Green Development Program that requires all development within the Project site to incorporate environmentally sustainable development practices in the design and construction of the Project.
Policy COS 17.3: Promote energy retrofits of existing buildings.	<b>Not Applicable.</b> There are no existing buildings to be reused, and the promotion of energy retrofits is outside the scope of individual projects.
Policy COS 17.4: Promote the use of individual renewable energy systems and require appropriate development standards for such systems to minimize potential impacts to surrounding properties. Simplify the permitting process for individual renewable energy systems that meet these development standards.	<b>Consistent.</b> A minimum of 50% of the Project's anticipated electrical energy demand at buildout shall be met by on-site renewable energy.
Policy COS 17.5: Protect active and passive solar design elements and systems from shading by neighboring structures and trees through appropriate development standards.	<b>Consistent.</b> The Project's Green Development Program incorporates both active and passive solar design elements
Policy COS 17.6: Require new landscaping to comply with applicable water efficiency requirements in the County Code.	<b>Consistent.</b> The Project's Green Development Program incorporates the use of water-wise irrigation and drought-tolerant landscaping.
Policy COS 17.7: Require low-flow plumbing fixtures in all new developments.	<b>Consistent.</b> The Project's Green Development Program includes water conservation measures, such as the use of low-flow showerheads, faucets and toilets.
Policy COS 17.8: Require onsite stormwater infiltration in all new developments through use of appropriate measures, such as permeable surface coverage, permeable paving of parking and pedestrian areas, catch basins, and other low impact development strategies.	<b>Consistent.</b> The Project's integrated water resources management approach includes LID drainage concepts to infiltrate storm water on site.
Policy COS 17.9: Require reduction, reuse, and recycling of construction and demolition debris.	<b>Consistent.</b> The Project's Green Development Program directs the preparation of a plan that will ensure the recycling or reuse of a minimum of 75% by weight of construction and demolition debris, which exceeds the 50% requirement of the County's Construction and Demolition Debris Recycling and Reuse Ordinance and Green Building Standards Code requirements.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Open Space Goal COS 18: Permanently preserved open space areas throughout the Antelope Valley.	<b>Consistent.</b> The Project would preserve 5,624 acres of on-site open space within the Open Space designation. Additional contiguous off-site open space would be preserved under the Tejon Ranch Conservation and Land Use Agreement.
<p>Policy COS 18.1: Encourage government agencies and conservancies to acquire mitigation lands in the following areas and preserve them as permanent open space:</p> <ul style="list-style-type: none"> <li>• Significant Ecological Areas, including Joshua Tree Woodlands, wildlife corridors, and other sensitive habitat areas;</li> <li>• Hillside Management Areas;</li> <li>• Scenic Resource Areas, including water features such as the privately owned portion of Elizabeth Lake, significant ridgelines, buttes, and other natural landforms;</li> <li>• Land adjoining preserves, sanctuaries, State Parks, and National Forests; and</li> <li>• Privately owned lands within the National Forest.</li> </ul>	<b>Consistent.</b> The Project site is not located in or near a designated Scenic Resource Area and does not include lands within the National Forest. The Project would preserve areas within the San Andreas SEA as Open Space. The majority of the site has slopes less than 25% and the areas with the greatest slopes would be preserved as Open Space. Development within HMAs would be required to comply with hillside provisions within the Specific Plan. The Project also includes off-site mitigation areas, as described in greater detail in Section 5.7, Biological Resources.
Policy COS 18.2: Ensure that open space acquisition is conducted in a fair and equitable manner.	<b>Not Applicable.</b> The Project does not involve open space acquisition. All open space to be dedicated is already owned by the Applicant.
Policy COS 18.3: Maintain permanently preserved open space areas to ensure attractiveness and safety.	<b>Consistent.</b> The Project would permanently preserve 5,624 acres of on-site open space within the Open Space designation.
Policy COS 18.4: Pursue funding for open space acquisition and maintenance on an ongoing basis.	<b>Consistent.</b> Pursuit of funding for acquisition and maintenance of open space beyond the Project boundaries and mitigation lands is outside the scope of individual projects.; however, the Project does include significant preservation of open space, and the Tejon Ranch Land Use and Conservation Agreement provides an ongoing funding source for maintenance of open space lands.
Policy COS 18.5: Provide parks and recreational facilities, as directed in the policies of the Public Safety, Services, and Facilities Element.	<b>Consistent.</b> The Project would provide various parks and recreational facilities, consistent with County policies as discussed in Section 5.14, Parks and Recreation.
Goal COS 19: New development meets open space objectives while maintaining rural character.	<b>Consistent.</b> The Project is located within the West EOA, and is consistent with the Land Use Policy Map of the AVAP and meets open space objectives of the AVAP.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Policy COS 19.1: When new development is required to preserve open space, require designs with large contiguous open space areas that maximize protection of environmental and scenic resources.	<b>Consistent.</b> The Project would preserve 5,624 acres of on-site open space within the Open Space designation, which would include large contiguous areas at the western and southern portions of the site and connected areas within other portions of the site.
Policy COS 19.2: Allow large contiguous open space areas to be distributed across individual lots so that new development preserves open space while maintaining large lot sizes that are consistent with a rural environment, provided that such open space areas are permanently restricted through deed restrictions.	<b>Consistent.</b> The Project will preserve contiguous open space areas (in perpetuity) and includes a plan for the ongoing maintenance of conserved open space areas, including mitigation areas, greenways, drainage corridors, and other natural resource features within the Project site. These large open space areas would be located at the western and southern portions of the site and would include connected areas within other portions of the site where no development will occur.
Policy COS 19.3: Pursue innovative strategies for open space acquisition and preservation through the land development process, such as Transfers of Development Rights, Land Banking, and Mitigation Banking, provided that such strategies preserve rural character.	<b>Consistent.</b> The Project would preserve 5,624 acres of on-site open space within the Open Space designation, which would include large contiguous areas at the western and southern portions of the site and connected areas within other portions of the site where no development will occur. This open space preservation approach includes more intensive development at and near the village cores and town center, and permanently preserves open space lands north and east of the Project site to help preserve the rural character of the region.
<b>Chapter 5: Public Safety, Services, and Facilities Element</b>	
Fire Hazards Goal PS 1: Protection of the public through fire hazard planning and mitigation.	<b>Consistent.</b> The Project has incorporated fuel modification setbacks and would involve development of up to four fire stations within the site.
Policy PS 1.1: Limit the amount of potential master-planned development in Very High Fire Hazard Severity Zones through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.	<b>Consistent.</b> The Project is consistent with the Land Use Policy Map of the AVAP, and has incorporated fuel modification setbacks, as described further in Section 5.3, Hazards and Fire Safety.
Policy PS 1.2: Require that all new developments provide sufficient access for emergency vehicles and sufficient evacuation routes for residents and animals.	<b>Consistent.</b> Development on the Project site would comply with all applicable County of Los Angeles Fire Department code and ordinance requirements, including emergency access and evacuation routes.
Policy PS 1.3: Promote fire prevention measures, such as brush clearance and the creation of defensible space, to reduce fire protection costs.	<b>Consistent.</b> The Project has incorporated fuel modification setbacks to reduce wildfire protection costs.
Policy PS 1.4: Provide strict enforcement of the Fire Code and all Fire Department policies and regulations.	<b>Consistent.</b> Development on the Project site would comply with all applicable County of Los Angeles Fire Department code and ordinance requirements.
Geological Hazards Goal PS 2: Protection of the public through geological hazard planning and mitigation.	<b>Consistent.</b> The Project is consistent with the AVAP by incorporating a Geologic Safety Zone into the Project and by following Project-specific plans, County

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
	building code requirements, and other recommendations.
Policy PS 2.1: Limit the amount of potential development in Seismic Zones and along the San Andreas Fault and other fault traces, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.	<b>Consistent.</b> A Geologic Safety Zone has been incorporated into the Project that establishes review procedures and setbacks for areas subject to potential geologic and seismic constraints (e.g., surface fault rupture). This zone is applied to areas designated as Alquist-Priolo Earthquake Fault Zones and unnamed faults identified on the site as part of the Project's site-specific geotechnical investigations. Also, Section 2690 of the <i>California Public Resources Code</i> specifies that no human-occupied structures can be located within an Alquist-Priolo Earthquake Fault Zone unless specific investigations prove these areas to be free of active faulting.
Policy PS 2.2: Limit the amount of development on steep slopes (Hillside Management Areas) and within landslide and liquefaction areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.	<b>Consistent.</b> The Project is consistent with the Land Use Policy Map of the AVAP. The majority of the site has slopes less than 25% (outside HMAs) and the areas with the greatest slopes would be preserved as Open Space, including the areas with potential landslide and liquefaction hazards in the northwestern corner of the site as depicted in Exhibit 4-1, Conceptual Land Use Plan.
Policy PS 2.3: Prohibit the construction of new structures on or across a fault trace.	<b>Consistent.</b> A Geologic Safety Zone has been incorporated into the Project that establishes review procedures and setbacks for areas subject to potential geologic and seismic constraints (e.g., surface fault rupture). This zone is applied to areas designated as Alquist-Priolo Earthquake Fault Zones and unnamed faults identified on the site as part of the Project's site-specific geotechnical investigations. Also, Section 2690 of the <i>California Public Resources Code</i> specifies that no human-occupied structures can be located within an Alquist-Priolo Earthquake Fault Zone unless specific investigations prove these areas to be free of active faulting.
Policy PS 2.4: Ensure that new development does not cause or contribute to slope instability.	<b>Consistent.</b> Project development would require grading of sloped areas, as well as cutting and filling of some slope areas. Slopes would not be graded at angles steeper than a 2:1 ratio (horizontal to vertical), in accordance with the Project's Conceptual Grading Plan, County building code requirements, and other grading-related recommendations of the geotechnical reports to be prepared for each tract map.
Flood Hazards Goal PS 3: Protection of the public through flood hazard planning and mitigation.	<b>Consistent.</b> The Project includes a Floodplain Safety Zone that promotes public safety and protects water quality for development within areas subject to flooding (prior to development) to minimize flood hazards.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Policy PS 3.1: Limit the amount of potential development in Flood Zones designated by the Federal Emergency Management Agency through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.	<b>Consistent.</b> The Project includes a Floodplain Safety Zone that promotes public safety and protects water quality for development within areas subject to flooding (prior to development) to minimize flood hazards.
Policy PS 3.2: Require onsite stormwater filtration in all new developments through use of appropriate measures, such as permeable surface coverage, permeable paving of parking and pedestrian areas, catch basins, and other low impact development strategies.	<b>Consistent.</b> The Project's integrated water resources management approach includes LID drainage concepts to infiltrate storm water on site.
Policy PS 3.3: Review the potential local and regional drainage impacts of all development proposals to minimize the need for new drainage structures.	<b>Consistent.</b> This Draft EIR assesses the local and regional drainage impacts of the Project. Each future tract map for the Project shall provide Drainage Concept Plans to the County that incorporate the drainage facilities, storm water retention/detention basins, debris basins, hydromodification structures, flood control, and Best Management Practices (BMPs) that implement the flood control and storm water management performance standards specified in MMs.
Policy PS 3.4: Ensure that new drainage structures are compatible with the surrounding environment by requiring materials and colors that are consistent with the natural landscape. Discourage concrete drainage structures.	<b>Consistent.</b> One of the Project objectives is to promote water quality through effective watershed BMPs that preserve and integrate primary drainage corridors and greenways for storm water retention and filtration. This will include site-design, source-control, LID, hydromodification, flow-control and runoff water quality BMPs and treatment requirements to minimize the need for new large-scale drainage facilities. New drainage infrastructure would be designed, consistent with <i>Centennial Specific Plan</i> development standards, including landscaping and screening for Utility land uses.
Law Enforcement Goal PS 4: Protection of public safety through law enforcement and crime prevention strategies.	<b>Consistent.</b> The Project includes the provision of a Sheriff's Station on the site to provide law enforcement services and to deter crime.
Policy PS 4.1: Support an increased law enforcement presence in every Antelope Valley community and explore new funding mechanisms to expand law enforcement services.	<b>Consistent.</b> The Project includes the provision of a Sheriff's Station on the site to provide law enforcement services and to deter crime.
Policy PS 4.2: Support a strong law enforcement presence on highways and streets to strictly enforce speed limits and other vehicle safety laws.	<b>Consistent.</b> The Project would pay development fee for law enforcement services and provide a permanent on-site Sheriff's Station, with a store-front Sheriff's Station prior to the permanent Sheriff's Station.
Policy PS 4.3: Promote and support neighborhood watches to create more eyes and ears in the community.	<b>Consistent.</b> The Project proposes the development of villages that would have central cores surrounded by residential areas and open space. Neighborhood

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
	Watch may be a program for the Homeowners Association.
Policy PS 4.4: Educate the public on crime prevention programs and resources offered by the Sheriff's Department.	<b>Consistent.</b> The County Sheriff's Department is expected to implement existing public education and crime prevention programs at the proposed on-site Sheriff's station.
Goal PS 5: Protection of public health, safety, and welfare through code enforcement.	<b>Not Applicable.</b> This is a County effort. Code enforcement is outside the scope of individual projects.
Policy PS 5.1: Support neighborhood preservation programs, such as graffiti abatement, removal of abandoned or inoperable vehicles, and removal of trash and debris.	<b>Consistent.</b> The Project would be subject to applicable County regulations and Homeowners Association guidelines for property maintenance. The Project would also implement a comprehensive residential and commercial curbside recycling program as part of the Green Development Program.
Policy PS 5.2: Strictly enforce laws against illegal dumping and support the Antelope Valley Illegal Dumping Task Force.	<b>Consistent.</b> Implementation of the Project would reduce the incidence of illegal dumping on the site. The Project would also be subject to applicable County regulations on illegal dumping.
Policy PS 5.3: Educate the public on existing codes and the value of maintaining their property, encouraging voluntary compliance.	<b>Consistent.</b> The Project would have Homeowners Association guidelines for property maintenance, which would be consistent with County code requirements.
Policy PS 5.4: Administer code enforcement activities in a fair, equitable, respectful, and cooperative manner.	<b>Not Applicable.</b> This is a County effort. Code enforcement is outside the scope of individual projects.
Policy PS 5.5: Create proactive code enforcement programs where desired by community residents.	<b>Not Applicable.</b> This is a County effort. Code enforcement is outside the scope of individual projects.
Disaster Preparedness and Emergency Response Goal PS 6: Government officials work with community members to promote community safety.	<b>Not Applicable.</b> This is a County effort. Government officials located in on-site facilities (e.g., fire and law enforcement) would be able to work with the Centennial community.
Policy PS 6.1: Ensure safety information is available at local public areas.	<b>Not Applicable.</b> This is a County effort, but may be a function of the Homeowners Association.
Policy PS 6.2: Encourage residents and business owners to create an evacuation plan and maintain emergency supplies.	<b>Not Applicable.</b> This is a County effort, but may be a function of the Homeowners Association.
Policy PS 6.3: Promote the formation and coordination of Certified Emergency Response Teams.	<b>Not Applicable.</b> This is a County effort, but may be a function of the Homeowners Association.
Policy PS 6.4: Provide assistance to local communities that wish to create a local emergency evacuation plan.	<b>Not Applicable.</b> This is a County effort, but may be a function of the Homeowners Association.
Policy PS 6.5: Strengthen coordination and collaboration between citizens, public agencies,	<b>Not Applicable.</b> This is a County effort, but may be a function of the Homeowners Association.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
and non-profit groups to plan for disaster response.	
Policy PS 6.6: Develop an inclusive master emergency plan that designates evacuation routes, emergency relief centers, emergency animal keeping shelters, and information centers in every Antelope Valley community.	<b>Not Applicable.</b> This is a County effort. Development of an emergency plan for the Antelope Valley is outside the scope of individual projects.
Goal PS 7: Emergency services that respond in a timely manner.	<b>Consistent.</b> The Project would construct and equip up to four on-site fire stations.
Policy PS 7.1: Require visible addresses on buildings and at entrances to properties as required by the Fire Code.	<b>Consistent.</b> Development on the Project site would comply with all applicable County of Los Angeles Fire Department code and ordinance requirements, including visible addresses.
Policy PS 7.2: Ensure that Fire Stations are adequately staffed.	<b>Consistent.</b> The Project would construct and equip up to four on-site fire stations, with the County Fire Department providing the appropriate staffing.
Policy PS 7.3: Strive for a timely response to every call for service.	<b>Consistent.</b> The Project shall maintain the County of Los Angeles Fire Department’s goal of a five-minute or less average response time at buildout of the Project.
Parks and Recreation Goal PS 8: Antelope Valley residents enjoy access to parks and recreational facilities.	<b>Consistent.</b> In addition to preserved open space areas, the Project would provide a variety of park types and a network of community trails, greenway trail, and Class I–IV bike lanes to facilitate access to these parks.
Policy PS 8.1: Maintain existing parks to ensure attractiveness and safety and make improvements as necessary. Ensure adequate funding on an ongoing basis.	<b>Consistent.</b> The Project would include parks and recreation amenities that would either be maintained by the Homeowners Association or deeded to the County for maintenance.
Policy PS 8.2: Provide recreational activities at parks that serve all segments of the population.	<b>Consistent.</b> The Project would provide various recreational facilities within public and private parks, a network of community trails, greenway trails, and Class I–IV bike lanes; private recreational facilities; and connections to regional trails and the Angeles National Forest to serve the recreational needs of all segments of the population.
Policy PS 8.3: Provide new parks as additional development occurs or as the population grows, with a goal of four acres of parkland for every 1,000 residents.	<b>Consistent.</b> The Project would provide public and private recreation amenities that meets or exceeds the acreage requirements of the County of Los Angeles General Plan local parkland standard.
Policy PS 8.4: Prioritize new parks for existing park deficient communities.	<b>Consistent.</b> The Project would provide public and private parkland and other recreation amenities, to serve future residents.
Policy PS 8.5: Encourage the use of school playgrounds and sporting fields for community recreation (“joint use”) when school is not in session.	<b>Consistent.</b> The proposed school sites are centrally located within the Villages and are generally adjacent to parks and minor and major greenway systems that offer pedestrian trail linkage. These school sites are conceptually located adjacent to parks to encourage joint use. Final school site locations would be

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
	determined at when future tract maps are processed and in coordination with the respective school districts.
Policy PS 8.6: Within rural town center areas, promote the inclusion of parks, recreational facilities, and other gathering places that allow neighbors to meet and socialize.	<b>Consistent.</b> The Project would provide private and public parks and recreational facilities that would serve as gathering places for residents.
Policy PS 8.7: Provide trails, bikeways, and bicycle routes for recreational purposes, as directed in the policies of the Mobility Element.	<b>Consistent.</b> The Project would provide a network of trails for bicycling and hiking, including equestrian activities on the regional trail within the Project site.
Policy PS 8.8: Maintain existing facilities for public water recreation to ensure attractiveness and safety and make improvements as necessary. Ensure adequate funding on an ongoing basis.	<b>Not Applicable.</b> There are no existing public water recreation facilities on or near the site.
Policy PS 8.9: Provide new facilities for public water recreation in appropriate areas.	<b>Not Applicable.</b> The Project will not provide new facilities for public water recreation due to limited access to a large body of water.
Goal PS 9: Safe spaces for the recreational use of off-road vehicles and other motorized sporting.	<b>Not Applicable.</b> This is a County effort.
Policy PS 9.1: Reduce illegal off-road vehicle use by providing off-road vehicle trails and parks in appropriate areas.	<b>Not Applicable.</b> This is a County effort.
Policy PS 9.2: Reduce illegal drag racing by providing appropriate locations for safe and properly monitored drag racing.	<b>Not Applicable.</b> This is a County effort.
Policy PS 9.3: Provide strict enforcement of illegal off-road vehicle use and illegal drag racing.	<b>Not Applicable.</b> This is a County effort.
Schools Goal PS 10: A wide range of educational opportunities for Antelope Valley residents.	<b>Consistent.</b> The Project reserves sites through a “Schools” land use designation for five Kindergarten (K) through 8 <sup>th</sup> grade schools, one K-5 school, and one high school.
Policy PS 10.1: Coordinate with all Antelope Valley school districts to ensure that new schools are provided as additional development occurs or as the population grows.	<b>Consistent.</b> The reservation of school sites through a land use designation would allow the Gorman District, Westside Union School District (WUSD), and Antelope Valley Union High School District (AVUHSD) to acquire the sites and provide school facilities. The Project Applicant would either pay required Senate Bill 50 ( <i>California Government Code</i> , Section 65995) developer fees to the respective school districts, or enter into an agreement with the school districts to facilitate the financing, construction, and operation of new school facilities in the Project site to ensure the timely provision of schools corresponding to the phased development of the Project.
Policy PS 10.2: Encourage new schools to locate in rural town center areas, rural town areas, and economic opportunity areas, where they will be	<b>Consistent.</b> The proposed school sites are centrally located within the Villages and are generally adjacent



**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
accessible by pedestrian walkways, trails, bikeways, and bicycle routes.	to parks and minor and major greenway systems that offer pedestrian trail linkage.
Policy PS 10.3: Encourage new schools to locate near parks and recreational facilities.	<b>Consistent.</b> The proposed school sites are centrally located within the Villages and are generally adjacent to parks and minor and major greenway systems that offer pedestrian trail linkage.
Policy PS 10.4: Encourage the use of school playgrounds and sporting fields for community recreation (“joint use”) when school is not in session.	<b>Consistent.</b> Although the applicant cannot compel a school district to allow “joint use” of their facilities, the proposed school sites are centrally located within the Villages and are generally adjacent to parks and minor and major greenway systems that offer pedestrian trail linkage.
Policy PS 10.5: Promote the creation of a four-year public university in the Antelope Valley to provide opportunities for continuing education and workforce development.	<b>Consistent.</b> The Project would accommodate a college campus as a permitted use in areas designated as Business Park, School, and Institutional/Civic and allowed subject to a Conditional Use Permit (CUP) in areas designated as Mixed Use, Commercial, and Recreation/Entertainment. Also, the Project would increase the local population of the Antelope Valley and would make a four-year public university in the Antelope Valley more viable.
Libraries Goal PS 11: Antelope Valley residents enjoy easy access to public library services.	<b>Consistent.</b> The Project proposes a library in the town center, which would be located within easy access to the rest of the Project site.
Policy PS 11.1: Maintain existing public libraries and make improvements as necessary. Ensure adequate funding on an ongoing basis.	<b>Consistent.</b> The Project would include a library in the town center. The Project Applicant would provide the land; construct the library; and would provide all furniture, fixtures, equipment, and materials for this library.
Policy PS 11.2: Expand public library collections and services to meet community needs.	<b>Consistent.</b> The Project would include a library in the town center.
Policy PS 11.3: Provide new public libraries as additional development occurs or as the population grows.	<b>Consistent.</b> The Project would include a library in the town center.
Policy PS 11.4: Encourage new public libraries to locate in rural town center areas, rural town areas, and economic opportunity areas, where they will be accessible by pedestrian walkways, trails, bikeways, and bicycle routes.	<b>Consistent.</b> The Project would include a library in the town center.
Policy PS 11.5: Provide bookmobile services in areas that are not served by permanent public libraries.	<b>Consistent.</b> The Antelope Valley is currently served by a bookmobile that provides library services to outlying areas. A library would be built on site to serve residents of the Project and the surrounding areas. The library is planned to be built and operational upon the occupancy of the 3,500 <sup>th</sup> residential unit. The Project anticipates utilizing the bookmobile for local residents until a permanent facility is built, as

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
	described in greater detail in Section 5.17.2, Library Services.
Policy PS 11.6: Encourage the use of technology in library operations to increase efficiency and accessibility.	<b>Consistent.</b> The proposed on-site library will offer online services, as provided by the County Library.
Health Facilities Goal PS 12: A range of facilities and service that maintain the health and well-being of Antelope Valley residents at all ages and income levels.	<b>Consistent.</b> The Project includes 110 acres of Institutional/Civic (I/C) land uses, which allows hospitals.
Policy PS 12.1: Provide preventative health services to reduce the need for emergency medical care.	<b>Consistent.</b> The Project includes 110 acres of I/C land uses, which allows hospitals.
Policy PS 12.2: Support the development of regional health care facilities in Lancaster and Palmdale.	<b>Not Applicable.</b> The Project is not located in the Cities of Lancaster or Palmdale.
Policy PS 12.3: Support existing community health care clinics in rural areas by preventing the encroachment of incompatible land uses. Allow expansion when required to meet community needs.	<b>Consistent.</b> While the Project is within an EOA, not a rural area, the 110 acres of I/C land uses includes hospitals as an allowed use.
Policy PS 12.4: Encourage the development of new community health care clinics where required to meet community needs. Encourage these clinics to locate in rural town center areas and economic opportunity areas, where they will be accessible by pedestrian walkways, trails, bikeways, and bicycle routes.	<b>Consistent.</b> The Project is a new development project which will allow new health care facilities within selected land use designations. The Project will support alternatives to automobile travel (e.g., public transit, bicycle network, and pedestrian system) throughout the proposed Villages.
Policy PS 12.5: Pursue funding to support daily operations at community health care clinics.	<b>Not Applicable.</b> Pursuit of funding to support daily operations at community health care clinics is outside the scope of individual projects.
<b>Chapter 6: Economic Development Element</b>	
Goal ED1: A healthy and balanced economic base in the Antelope Valley that attracts a wide range of industries and businesses and provides high-paying jobs for local residents.	<b>Consistent.</b> The Project would provide areas for non-residential development that would accommodate commercial and business park uses and improve the economic base of the Antelope Valley.
High-tech Manufacturing Policy ED 1.1: Promote the continued development of regional commercial and industrial employment centers in economic opportunity areas in the Antelope Valley.	<b>Consistent.</b> The Project allows commercial and business park uses that would accommodate employment centers.
Policy ED 1.2: Allow the development of commercial and industrial uses at the Palmdale Regional Airport site, provided that those uses are compatible with airport operations and do not restrict or prohibit future expansion of the airport.	<b>Not Applicable.</b> The Palmdale Regional Airport site is not part of, or near, the Project site.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
Policy ED 1.3: Support the growth of “high-tech” industries to employ the Antelope Valley population’s highly educated workforce.	<b>Consistent.</b> The business park uses that would be allowed on the site would support “high-tech” industries.
Transportation and Logistics Policy ED 1.4: Support the development of the High Desert Corridor and the Northwest 138 Corridor Improvement projects to improve the east-west movement of goods, particularly between the Antelope Valley and the industrial areas of Kern and San Bernardino counties and beyond.	<b>Not Applicable.</b> The development of the High Desert Corridor and the Northwest 138 Corridor Improvement Projects are outside the scope of individual projects. However, the Project would accommodate the realignment and widening of SR-138, as discussed in Section 5.10, Traffic, Access and Circulation.
Policy ED 1.5: Promote the development of an “Inland Port” in the Antelope Valley, providing additional employment in the trade and logistics sectors.	<b>Not Applicable.</b> The development of an “Inland Port” in the Antelope Valley is outside the scope of individual projects.
Policy ED 1.6: Support the development of a range of travel options that better connect the Antelope Valley to existing regional trade and employment in other regions, including the High Desert Corridor and the Northwest 138 Corridor Improvement Projects.	<b>Not Applicable.</b> The Project does not include the development of transportation routes. However, the Project would accommodate the realignment and widening of SR-138, as discussed in Section 5.10, Traffic, Access and Circulation.
Agriculture Policy ED 1.7: Promote farming and other agricultural activities that contribute to the Antelope Valley economy.	<b>Consistent.</b> The Specific Plan would reserve 50 acres or more on site for agricultural use, such as community gardens, orchards, vineyards, groves, greenhouses, or other appropriate edible landscaping, as discussed in Section 5.5, Land Resources. The Project would also allow for continued grazing operations on portions of the Open Space preserve areas as a management tool for grassland conservation.
Policy ED 1.8: Promote alternative sources of income for farmers, including commercial and industrial activities, to supplement their income during low production years and encourage them to continue farming in the Antelope Valley.	<b>Consistent.</b> The Project would include preserved open space outside the development envelope that would continue to be used for grazing, and reservation of 50 acres or more on site for agricultural use, such as community gardens, orchards, vineyards, groves, greenhouses, or other appropriate edible landscaping, as discussed in Section 5.5, Land Resources.
Policy ED 1.9: Support water management projects, including the use of modern technology to increase available water supply in the area, in conjunction with the Integrated Regional Water Management Plan.	<b>Consistent.</b> The Project includes an integrated water resources management approach to optimize the use of currently available water resources and those generated by the Project’s operations, so as to minimize its impact on potable and non-potable water resources, and would be consistent with the Antelope Valley Integrated Regional Water Management Plan.

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

<b>Goal/Policy</b>	<b>Project Consistency</b>
<p>Renewable Energy Policy ED 1.10: Promote small-scale, household based renewable energy systems to enable Antelope Valley residents to become energy independent.</p>	<p><b>Consistent.</b> A minimum of 50% of the Project's anticipated electrical energy demand at buildout shall be met by onsite renewable energy. Also, the Project shall equip 100% of all single-family detached homes to be "solar-ready" or equivalent, based on the latest technology.</p>
<p>Policy ED 1.11: Encourage the development of utility-scale renewable energy projects at appropriate locations and with appropriate standards to ensure that any negative impacts to local residents are sufficiently mitigated.</p>	<p><b>Not Applicable.</b> The Project does not propose utility-scale renewable energy production facilities.</p>
<p>Policy ED 1.12: Adopt regulations that ensure that local residents receive a fair share of the benefits of utility-scale renewable energy projects that are commensurate to their impacts.</p>	<p><b>Not Applicable.</b> This is a County effort. The Project does not propose utility-scale renewable energy production facilities.</p>
<p>Policy ED 1.13: Ensure early discussions with Edwards Air Force Base and U. S. Air Force Plant 42 regarding new industries, such as utility-scale renewable energy production facilities, to limit potential impacts on mission capabilities.</p>	<p><b>Not Applicable.</b> This is a County effort, and the Project does not include military lands.</p>
<p>Construction and Housing Policy ED 1.14: Promote appropriate types of residential development in the vicinity of existing communities and town centers that are in reach of existing infrastructure and utilities.</p>	<p><b>Consistent.</b> The Project includes the development of nine Villages that will each contain a mix of land uses that enable residents to live near schools, shopping, neighborhood businesses and services, civic buildings, medical facilities, and employment centers. The Project includes a mix of housing options within each Village, ranging from apartment homes close to the town center to single-family homes in lower-density areas.</p>
<p>Policy ED 1.15: Where appropriate, promote residential development as part of a wider mixed-use strategy in communities that desire such uses in their areas and where plans for major infrastructure and facilities are currently underway. These areas have been identified as economic opportunity areas as shown in the Land Use Policy Map (Map 2.1) of this Area Plan.</p>	<p><b>Consistent.</b> The Project is consistent with the Land Use Policy Map of the AVAP, would include mixed use neighborhoods to promote walkability as described in the Specific Plan, and would focus land use development and associated growth within the West EOA and Future Rural Town Area where future development is planned and anticipated.</p>
<p>Recreation, Tourism and Filmmaking Policy ED 1.16: Preserve the scenic resources of the Antelope Valley, including Scenic Drives, Significant Ridgelines and Significant Ecological Areas, in such a way that can contribute to the economic activities in the area.</p>	<p><b>Consistent.</b> The Project is consistent with the Land Use Policy Map of the AVAP, avoids development in Significant Ecological Areas (SEAs), and impacts on Scenic Drives would be less than significant, as discussed in Section 5.7, Biological Resources and Section 5.13, Visual Resources.</p>
<p>Policy ED 1.17: Promote uses and activities that rely on the natural state of the environment to take advantage of the vast areas of relatively undisturbed natural areas in the Antelope Valley.</p>	<p><b>Not Applicable.</b> This is a County effort.</p>

**TABLE 5.8-1  
ANTELOPE VALLEY AREA PLAN CONSISTENCY ANALYSIS**

Goal/Policy	Project Consistency
These include recreational, tourism and film-making uses.	
Policy ED 1.18: Coordinate with the Los Angeles County Economic Development Corporation, the Greater Antelope Valley Economic Alliance, and other organizations to create and implement regional economic development strategies.	<b>Not Applicable.</b> This is a County effort.
Policy ED 1.19: Promote the creation of a four-year public university in the Antelope Valley to provide opportunities for continuing education and workforce development.	<b>Consistent.</b> The Project would accommodate a college campus as a permitted use in areas designated as Business Park, School, and Institutional/Civic and allowed subject to a CUP in areas designated as Mixed Use, Commercial, and Recreation/Entertainment. Also, the increase in population brought by the Project would make a university in the Antelope Valley more viable.
Policy ED 1.20: Support the development of a range of travel options that better connect the Antelope Valley to existing regional trade and employment centers in other regions, including the High Desert Corridor and the Northwest 138 Corridor Improvement Project, as directed in the policies of the Mobility Element.	<b>Consistent.</b> The Project includes facilities for alternatives to automobile travel (e.g., public transit, bicycle network, and pedestrian system). As part of the Mobility Plan, the Project's Circulation Plan includes major east-west roadways, to serve the Project's east-west travel demand, to connect major on-site activity centers, and to lessen the Project's traffic demand on SR-138. The Circulation Plan sets forth requirements for roadway classifications; intersection controls; and traffic calming measures. Each component of the Mobility Plan incorporates TDM features to reduce dependence on the automobile, provide for a more efficient use of transportation resources among Project occupants.
Policy ED 1.21: Ensure early discussions with Edwards Air Force Base and U. S. Air Force Plant 42 regarding new industries, such as utility-scale renewable energy production facilities, to limit potential impacts on mission capabilities.	<b>Not Applicable.</b> This is a County effort, and the Project does not involve military lands.
<p>AVAP: Antelope Valley Area Plan; EOA: Economic Opportunity Area; SEA: Significant Ecological Area; HMA: Hillside Management Area; SR: State Route; PDFs: Project Design Features; MMs: Mitigation Measures; SCAG: Southern California Association of Governments; GHG: greenhouse gasses; TMA: Transportation Management Association; ITE: Institute of Traffic Engineers; TDM: Transportation Demand Management; LLMD: Landscape and Lighting Maintenance District; MU: Mixed Use; WRF: wastewater reclamation facility; LID: low impact development; IPM: Integrated Pest Management; CGS: California Geological Survey; MRF/SWTF: materials recovery facility/solid waste transfer facility; kV: kilovolt; EIR: environmental impact report; BMP: Best Management Practice; WUSD: Westside Union School District; AVUHSD: Antelope Valley Union High School District; CUP: Conditional Use Permit, I/C: Institutional/Civic.</p>	
Source (goals and policies): LACDRP 2015a	

As discussed above, the Project is consistent with the goals and policies of the AVAP. Adding the internal Project site roadways meeting the criteria for inclusion on the Antelope Valley Area Plan Highway Plan (Map 3.1 of the AVAP, which includes major highways, secondary highways, limited secondary highways, parkways, and expressways), as well as the Highway Plan Policy Map included in the General Plan (Figure 7.3, Highway Plan Policy Map), require AVAP and General Plan amendments to fill in the required roadway details within the Project site. Amending Map 3.1 to add internal project site roadways is also consistent with AVAP's requirement for a Specific Plan for a new master planned community in this West EOA. The Project remains consistent with the AVAP, which is part of the General Plan, and no text amendments to the AVAP or County General Plan are proposed. With approval of the General Plan and AVAP amendments, zone change and other associated entitlements, the Project would have less than significant land use impacts.

Because the Project is consistent with the land use designations and applicable policies of the Los Angeles General Plan and Antelope Valley Area Plan, no mitigation is required.

The Project would require rezoning to Specific Plan (SP), consistent with the General Plan and AVAP; however, re-zoning to conform to applicable plan designations would not result in any significant environmental impacts and no mitigation is warranted. The Project would not require a Hillside Management CUP, but would comply with the HMA requirements by (1) locating development outside HMAs to the extent feasible; (2) locating development in the portions of HMAs with the fewest hillside constraints; and (3) using sensitive hillside design techniques tailored to the unique site characteristics. The primary hillside features are the western portion of Oso Canyon and the mountainous areas along the western and southern edges of the site generally within the designated Significant Ecological Area (SEA) 17. The Project would avoid all impacts within the SEA, and therefore avoid the majority of the steeply sloped areas of the site, as shown on Exhibit 4-19a, Centennial Project – Slope Analysis, in Section 4.0, Project Description. As shown the majority of the areas with steep slopes are avoided and will be preserved through the on-site mitigation lands, which include approximately 3,861 acres.

### ***Antelope Valley Areawide General Plan***

If the AVAP and the accompanying EIR is overturned as a result of the pending lawsuit filed by the Center for Biological Diversity (discussed above), one of the possible judicial remedies could be the reinstatement of the prior Antelope Valley Area General Plan (AVAGP) pending further environmental review and/or processing of the AVAP. The following discusses the entitlements that would be necessary to allow the Project if the outcome of the pending AVAP lawsuit is reinstatement of the AVAGP. Specifically, implementation of the Project would require the following amendments to the AVAGP, which are each discussed further below:

- Redesignate the AVAGP Land Use Policy Map land use designations on the Project site from “Non-Urban” and “Significant Ecological Areas” to “Specific Plan”. Changes to the “Significant Ecological Areas” designation would be for consistency with the adopted General Plan.
- Redesignate the AVAGP Hazards and Resources Map to reflect areas identified as hazards and resources within the *Centennial Specific Plan*.

- Modify the AVAGP Highway Plan Map to include arterial highways on the Project site that would be designated “Major Highway”, “Secondary Highway”, and “Limited Secondary Highway”.
- Modify the AVAGP Trails Map to include the trails on the Project Site.

The Land Use Policy Map in the AVAGP would have to be amended to change the Non-Urban designation to “Specific Plan”. Alternatively, the Project would require an amendment to the AVAGP land use designations to those that reflect the Conceptual Land Use Plan for the Project. This would include the Low, Low/Medium, Medium and High Density Residential, Major Commercial, Major Industrial, Public and Semi-Public Facilities, and Open Space land use designations. Appendix 5.8-A to this Draft EIR includes a consistency analysis of the proposed Project and the AVAGP policies and provides graphic illustrations of the required AVAGP map amendment figures itemized above. As stated in the consistency analysis in Appendix 5.8-A, the Project would require map, but not text, amendments to the AVAGP. This amendment would not be considered a significant impact, since the Project is otherwise consistent with the policies in the AVAGP as described above.

The Hazards and Resources Map identifies the following on portions of the Project site: Seismic Safety Management Area (through the southwestern corner of the Project site along the San Andres Fault); portions of Significant Ecological Areas along the western and southern boundaries (SEAs No. 58 and No. 59); Floodplain Management Area; Agricultural Opportunity Area; Bikeway (along Gorman Post Road); and Noise Management Area (along SR-138 and Gorman Post Road). The Project would comply with regulations for Alquist-Priolo Earthquake Fault Zones through the Geologic Safety Zone that is proposed on the portions of the site that are included in this fault zone. Development is not proposed in canyons and areas with slopes greater than 25 percent and grading activities would comply with County regulations. The proposed Floodplain Safety Zone would also regulate development within areas subject to flooding. The Project would continue to provide the Bikeway on Gorman Post Road. As discussed in greater detail in Section 5.5, Land Resources, the site is not currently a significant agricultural resource; rather, grazing has occurred on the majority of the site, with pivot fields limited to 1,000 acres at the eastern portion of the site. These pivot fields have only been used for growing a three-way forage mix for approximately ten years and are not planned to be in production long term.

With the Project, Agricultural Opportunity Areas on the site would be largely eliminated but grazing would be incorporated into and continued to be allowed in open space areas. The Project would preserve as Open Space the majority of the land within the site that is designated as SEA Nos. 58 and 59, and would have to provide off-site or on-site mitigation for areas that would be developed. Residential areas have been located away from SR-138 to reduce noise exposure to vehicle traffic. In addition, mitigation measures have been provided to reduce noise from construction, stationary and mobile sources. Modifications to the boundaries of these Special Management Areas may be needed with the Project, consistent with the County General Plan.

The Highway Plan Map shows SR-138 as a Freeway; Gorman Post Road as a Secondary Highway; and Old Ridge Road as a Limited Secondary Highway. The Project does not propose changes to these designations but would involve the designation of proposed arterial

highways on the site as Major Highway, Secondary Highway, or Limited Secondary Highway, as applicable. The Project would also continue to require an amendment of the General Plan Highway Map for the addition of interior Project roadways.

The Trails Plan in the AVAGP shows the alignment of the Pacific Crest Trail (PCT) crossing the site along the California Aqueduct or Cement Plant Road.<sup>1</sup> The PCT has since been realigned and the Project would accommodate the PCT, as discussed in Section 5.13, Visual Resources, and Section 5.14, Parks and Recreation. If the PCT is to remain along the Aqueduct or Cement Plant Road, this trail can be accommodated within the existing and proposed rights-of-way for these facilities. A modification of the AVAGP Trails Map may also be needed to include the trails on the site as County trails. The Project would continue to preclude development within an SEA, since the SEA boundaries were approved by independent County approval of General Plan 2035.

In summary, if approval of the AVAP is invalidated, then a possible judicial remedy would be reinstatement of the AVAGP, in which case the Project would require amendments to the AVAGP, as listed above, but the amendments would not be considered a significant impact, since the Project is otherwise consistent with the policies in the overriding 2035 General Plan. The Project would continue to require an amendment to the General Plan Highway Map as described above. The Project would have less than significant land use impacts with the AVAGP plan amendments, zone change and other associated entitlements.

## Regional Land Use Plans

The Project is consistent with regional and local plans and policies. The Project would also implement a number of strategies and actions in the RTP/SCS. Project consistency with the RHNA is addressed in Section 5.9, Population, Housing, and Employment. No conflict with SCAG's regional growth projections would occur since SCAG's growth projections anticipates increases in population, households, and employment in the North Los Angeles Subregion and future household and employment projections for the area that includes the Project site are consistent with the housing and employment estimates for the Project.

The increase in housing and employment that would occur with Project implementation is consistent with the projections for the Project site included in the traffic analysis zones (TAZs) and corresponding figures in the Southern California Association of Governments' (SCAG) 2012-2035 and 2016-2040 Regional Transportation Plan/Sustainable Communities Plan (RTP/SCS). The resident population of the Project at buildout is 82.46 percent of the projected resident population of traffic analysis zone (TAZ) 20280000 and TAZ 20281000 by 2035, but exceeds the Southern California Association of Governments (SCAG) projections for 2040. The 2016 Regional Transportation Plan/Sustainable Communities Plan (RTP/SCS) states that TAZ level data or any data at a geography smaller than the jurisdictional level is included in the draft growth forecasts for regional modeling purpose only, and is advisory and non-binding. As such, the exceedance of population growth projections at the Project site on a TAZ level is not considered a significant adverse impact, as discussed in Section 5.9, Population, Housing and Employment. Population, housing, and economic growth relative to

---

<sup>1</sup> The scale and accuracy of exhibit does not allow for identification of an accurate location.



the SCAG RTP/SCS would be less than significant as it relates to the exceedance of regional population projections and no mitigation is required.

***Impact Summary:*** The Project would require amendments to the General Plan Master Plan of Highways and the AVAP Highway Plan to show the internal circulation network proposed onsite. These amendments would establish the highway system that would serve the Project and would be consistent with goals and policies of the *Los Angeles County General Plan* and *Antelope Valley Area Plan (AVAP)*. The Project would not conflict with the applicable plans and policies of SCAG. If approval of the AVAP is invalidated, the Project would require amendments to the AVAGP, as listed above. However, the amendments would not be considered a significant impact since the Project is otherwise consistent with the policies in the overriding General Plan.

**Threshold 8-3**      **Would the project be inconsistent with the County zoning ordinance as applicable to the subject property?**

### **County of Los Angeles Code**

Implementation of the Project would require a zone change of the Project site to Specific Plan, as discussed further below, consistent with the Specific Plan requirement included in the AVAP. Once adopted, the *Centennial Specific Plan* would serve as zoning regulation for the Project.

The required zone change must comply with Chapter 22.16 of County Code, as it relates to the purpose, need, and procedures for a zone change, including findings that the zone change will be in the interest of public health, safety and general welfare; in conformity with good zoning practice; and is consistent with the adopted general plan for the area.

The Project is consistent with the principal considerations set forth in Chapter 22.16 of the County Code for the issuance of a zone change. The Project is consistent with the General Plan and implements the requirements of the AVAP by including a balance of land uses consistent with the intent and the land use designations set forth within the West EOA. The Project includes a mix of housing options within each Village, ranging from apartment homes close to the town center to single-family homes in lower-density areas. A full range of light industrial, business, and other commercial uses are planned that are intended to yield a broad range of employment opportunities, from retail services to large corporate employers. The opportunities for employment diversity increases the overall economic sustainability of the Project and the West EOA.

In support of the AVAP's prioritization for the preservation of natural open space resources, development within areas of significant biological value would be minimized and there would be no disturbance or development within the designated Significant Ecological Area (SEA) on the Project site. In support of the AVAP's goal of reducing single-occupancy vehicle use, the Project includes alternatives to automobile travel (e.g., public transit, bicycle network and pedestrian system) that would minimize traffic, pollution, and greenhouse

gases. Efficient use of land and a balance of uses that result in a jobs/housing balance would reduce single-occupancy automobile travel and vehicle miles traveled.

The Project would not require a CUP for development in HMAs, as discussed below; compliance with the hillside grading requirements in the Specific Plan would ensure the Project would not conflict with the County's Grading Ordinance and comply with the intent of the HMA Ordinance to preserve and enhance the physical integrity and scenic value of HMAs, to provide open space, and to be compatible with and enhance community character. However, proposed grading on the site is estimated at more than 100 million cubic yards; thus, a CUP would be needed pursuant to Section 22.56.217 of the Los Angeles County Code. As required under Section 22.56.090 of the County Code, preliminary findings have been prepared to show that Project grading would not adversely affect public health, peace, comfort and general welfare or be materially detrimental to adjacent users through compliance with the regulations in the Specific Plan, the mitigation measures in the EIR, and applicable County regulations. The size of the Project site (i.e., 12,323 acres) is reflective of the proposed grading under the Conceptual Grading Plan and complies with the Hillside Design Guidelines in the Specific Plan. The Conceptual Grading Plan has been designed to enhance community character and preserve significant open space, as well as allow the Project to be compatible with land uses in the surrounding area. The Project would also be adequately served by roads, sidewalks, trails, and future transit services (see Section 5.10, Traffic, Access, and Circulation) and other public facilities (e.g., fire stations, Sheriff station, schools, library, etc.) and infrastructure (i.e., water, wastewater, drainage, dry utilities) that would be provided/constructed as part of the Project (see Sections 5.14 through 5.20 of the EIR).

The Project also requires a CUP for approval of Project-related infrastructure, including the roadway circulation system, gas, telephone (traditional and wireless services), cable and internet and electric lines within roadway rights-of-way, a water system including domestic and recycled water tanks and pipelines and accessory booster pumps and storage ponds, sewage disposal pipelines and waste water reclamation facilities, water banks, water wells, flood control and drainage facilities, water treatment facilities, green waste composting, solid waste and materials recovery facilities and recycling centers, and an electrical substation. The Project would also include the realignment of National Cement Plant Road, the construction of bridges over the Aqueduct, and improvements to the SR-138 intersections. This CUP is intended to provide a master or programmatic approval of the proposed infrastructure that would be needed to serve the Project. As required under Section 22.56.090 of the County Code, preliminary findings have been prepared to show that the proposed infrastructure would not adversely affect public health, peace, comfort and general welfare or be materially detrimental to adjacent users; that there are adequate areas for these infrastructure and they would be compatible with uses in the surrounding area; and that they would be adequately served by roads and other public facilities and infrastructure.

As discussed under Threshold 8-2, as described above, the Project is consistent with the AVAP with the amendment of the AVAP Highway Plan to add internal project site roadways into Map 3.1 of the AVAP and with the applicable plans and policies of SCAG, and implementation of the Project's development in the West EOA is consistent with the goals

and policies of the AVAP. Because the AVAP has already designated the Project site as an EOA slated for future development, and requires a rezone to Specific Plan, rezoning in conformance with the AVAP would not result in any significant environmental impacts. The proposed zone change and CUPs would be consistent with the County Code and no mitigation is required.

### ***Centennial Specific Plan***

Upon approval of the zone change to Specific Plan and adoption of the *Centennial Specific Plan* (Appendix 4.0-A), the Specific Plan would serve as the regulatory framework for all development on the Project site. The *Centennial Specific Plan* details the permitted land uses, allowable development densities, infrastructure requirements, and public services to be provided on site. Additionally, the *Centennial Specific Plan* establishes the regulatory structure for all future actions on the Project site. Chapter 4 of the *Centennial Specific Plan* states how the Plan will be administered and implemented.

The Specific Plan's Administration and Implementation section describes actions that the Applicant can request. The process for each is explained. In particular, the *Centennial Specific Plan* details the procedures required for such actions as (1) making adjustments to maps, infrastructure, lot lines, street alignments, and trails; (2) making changes to the grading footprint; (3) switching designations from an attached housing product to a detached and vice versa; (4) approving subdivision maps; and (5) modifying building footprints and relocating appurtenant structures. Transfers within and between developments are allowed subject to the regulations stated in the *Centennial Specific Plan*. Future changes and what these might entail are not known as this time; however, for any change of the magnitude that would require an amendment to the *Centennial Specific Plan*, appropriate CEQA documentation would also be required. This would involve addressing any environmental issue that would be affected by the proposed change and mitigation measures would be included as appropriate.

Should there be a conflict between the *Centennial Specific Plan* and existing County ordinances, the provisions of the *Centennial Specific Plan* would prevail, rather than the regulations of Title 21, Subdivisions (Subdivision Ordinance), or the zoning standards established by Title 22 of the Los Angeles County Code. Topics not addressed by the *Centennial Specific Plan* shall be governed by the rules and regulations in Titles 21 and 22 of the Los Angeles County Code. The Project would be developed consistent with the *Centennial Specific Plan*. Therefore, impacts related to the initial inconsistency with the County zoning ordinance would be less than significant and no mitigation would be required.

### **Local Agency Formation Commission Policies**

The Project site is not located within a designated sphere of influence and would not require annexation to a city. There are a number of special districts that serve the Antelope Valley area, some of which include the Project site (such as the Antelope Valley – East Kern Water Agency, Consolidated Fire Protection District, and Antelope Valley Resource Conservation District). However, other special districts do not include or include only a portion of the site, such as the Antelope Valley Health Care District (includes eastern end of the site only),

Antelope Valley Mosquito and Vector Control District, and Lancaster Cemetery District (includes eastern end of the site only). Annexation of the Project site into the service areas of these special districts would require approval by the Local Agency Formation Commission (LAFCO) for the County of Los Angeles. Since the services provided by these special districts are not considered “backbone municipal services”, annexation of the site is not required. Should annexation be proposed, an increase in property taxes could occur, which would be used to fund the operations of the special districts. The Project would not conflict with LAFCO policies related to the annexation of the site in to these special districts. Impacts would be less than significant and no mitigation would be required.

***Impact Summary:*** The Project would require a zone change for the site to Specific Plan, a CUP for grading, and a CUP for Project-related infrastructure, in accordance with the County Code. Once adopted, as described above, the *Centennial Specific Plan* would provide the regulatory framework for future land uses and development on the site. The Project would not conflict with LAFCO policies related to the Project.

**Threshold 8-4      Would the project conflict with Hillside Management criteria, Significant Ecological Areas conformance criteria, or other applicable land use criteria?**

As discussed previously, Sections 22.56.217 and 22.56.215 of the County Code require a CUP for lot line adjustments, subdivisions, new construction, or building expansion in HMA- or SEA-designated areas, respectively. Small portions at the western and southeastern sections of the Project site are designated as HMAs and the majority of these areas are also proposed by the Project to be preserved as Open Space (PDF 8-1).

In accordance with Section 22.56.217, Hillside Management Areas – Additional Regulations, Subsection C.7., a conditional use permit is required for any development located wholly or partly in a Hillside Management Area, except for development within any adopted Specific Plan, provided that such development complies with the provisions of that Specific Plan. Therefore, a CUP would not be required for development in Hillside Management Areas, since the Project includes approval of a Specific Plan. However, the Project would comply with the Hillside Design Guidelines by (1) locating development outside HMAs to the extent feasible; (2) locating development in the portions of HMAs with the fewest hillside constraints; and (3) using sensitive hillside design techniques tailored to the unique site characteristics. Exhibit 4-19a, Centennial Project – Slope Analysis, in Section 4.0, Project Description, shows the existing slopes on the Project site. Most of the on-site areas with slopes over 25 percent are proposed as Open Space. The primary hillside features are the western portion of Oso Canyon and the mountainous areas along the western and southern edges of the site generally within the designated SEA 17. The Project would avoid all impacts within the SEA, and therefore avoid the majority of the steeply sloped areas of the site. Exhibit 4-19b, Centennial Project – Conceptual Grading Plan, in Section 4.0, Project Description, shows the confinement of development to relatively flat areas and shows a general grading approach that would eliminate the potential safety threat of steep slopes. However, some areas with slopes over 25 percent would be graded. Based upon the preliminary slope analysis, approximately 26 percent of slopes greater than 25 percent will

be affected by grading and many of these slope areas are small and isolated. The Conceptual Grading Plan depicts the general grading approach for the topography of the Project Site and has been designed to eliminate the potential safety threat posed by development in areas with steep slopes. As shown the majority of the areas with steep slopes are avoided and will be preserved through the on-site mitigation lands, which include approximately 3,861 acres.

Implementation of the Conceptual Grading Plan and compliance with the Hillside Design Guidelines in Appendix 1-B of the Specific Plan, as described above, would make the Project consistent with the County's goals and policies related to hillside management. Thus, no conflict with Hillside Management criteria would occur with Project development. As discussed above, proposed grading on the site would require a CUP pursuant to Section 22.56.217 of the Los Angeles County Code. This impact is considered less than significant and no mitigation is required.

The San Andreas SEA includes the western section of the site, which is proposed as Open Space. There would be no land use development within the SEA; therefore, no conflict with the San Andreas SEA would occur with the Project, as discussed in Section 5.7, Biological Resources, and no permits or mitigation would be required.

Portions of the eastern section of the site are within designated Agricultural Resource Areas (ARA) and Goal COS 6 addresses the protection of ARAs; however, limits on development in ARAs are not applicable within the EOAs (AVAP Policy LU 2.3). Since the Project site is located within the West EOA where future development is planned, in order to preserve agricultural areas outside the EOAs, there would be no conflict with this land use designation and no permits or land use mitigation is required; agricultural mitigation measures are included in Section 5.5, Land Resources.

***Impact Summary:*** The Project would comply with the Hillside Design Guidelines, which would be incorporated into the hillside provisions within the Specific Plan. The CUP for the proposed grading is needed to allow the estimated volume of grading but would be consistent with the County Code. Therefore, impacts would be less than significant. The Project would not involve development with the San Andreas SEA; and while there are Agricultural Resource Areas on the site, the site is located in an EOA, where future development is planned to preserve agricultural areas outside the EOAs. No conflict to County policies for Hillside Management areas, Significant Ecological Areas, and Agricultural Resource Areas would occur; impacts would be less than significant.

### 5.8.7 MITIGATION MEASURES

With approval of the required entitlements, including the General Plan Amendment, zone change, and CUPs as discussed above and LAFCO annexation into existing special districts, no significant impacts related to land use, entitlements and planning would occur; therefore, no mitigation measures are necessary. The Project would also have less than significant land use impacts with the AVAGP plan amendments, zone change and other associated entitlements.

## 5.8.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

A General Plan Amendment to the General Plan Master Plan of Highways and the AVAP Highway Plan, a zone change for the Project site to Specific Plan, and the CUPs for grading over 100,000 cubic yards and for Project-related infrastructure would be consistent with the requirements of the County General Plan, Antelope Valley Area Plan, and County Zoning Ordinance. Impacts are considered less than significant since the Project would not conflict with applicable regional or County land use plan, policy, or criteria.

## 5.8.9 REFERENCES

California Geological Survey (CGS). 2015 (May 7). Personal communication. Email correspondence between R. Miller, Senior Geologist (California Geological Survey) and J. Neary, Assistant Project Manager (BonTerra Psomas).

California Department of Fish and Wildlife (CDFW). 2016 (April 25, access date). Upland Game Bird Hunting. Sacramento, CA: CDFW. <https://www.wildlife.ca.gov/Hunting/Upland-Game-Birds>.

California, State of. 2016a (access date). *California Government Code* (Title 7, Planning and Land Use; Division 1, Planning and Zoning; Chapter 3, Local Planning; Sections 65100–65763). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=GOV&division=1.&title=7.&part=&chapter=3.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=GOV&division=1.&title=7.&part=&chapter=3.&article=).

———. 2016b (access date). *California Government Code* (Title 7, Planning and Land Use; Division 1, Planning and Zoning; Chapter 4, Zoning Regulations; Sections 65800–65912). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=GOV&division=1.&title=7.&part=&chapter=4.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=GOV&division=1.&title=7.&part=&chapter=4.&article=).

———. 2015a (as amended). *California Code of Regulations* (Title 14, Natural Resources; Division 6, Resources Agency; Chapter 3, Guidelines for the Implementation of the California Environmental Quality Act). Sacramento, CA: the State.

———. 2007 (last amended). *California Public Resources Code* (Division 2, Geology, Mines and Mining; Chapter 7.8, Seismic Hazards Mapping; Sections 2690–2699.6). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=2.&title=&part=&chapter=7.8.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=2.&title=&part=&chapter=7.8.&article=).

———. 2001. *California Government Code* (Section 56000–56001, the Cortese-Knox-Hertzberg Local Government Reorganization Act of 2000). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=3.&title=5.&part=1.&chapter=1.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=3.&title=5.&part=1.&chapter=1.&article=).

California, State of, Governor’s Office of Planning and Research (OPR). 2001 (January). *The Planner’s Guide to Specific Plans*. Sacramento, CA: OPR. [http://opr.ca.gov/docs/specific\\_plans.pdf](http://opr.ca.gov/docs/specific_plans.pdf).

- Los Angeles, County of. 2015 (October 5, updated through). *Los Angeles County, California – Code of Ordinances*. Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles. [https://www.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances](https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances).
- . 1986. *Antelope Valley Areawide General Plan: A Component of the Los Angeles County General Plan*. Los Angeles, CA: the County of Los Angeles.
- Los Angeles County Department of Regional Planning (LACDRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: LACDRP. <http://planning.lacounty.gov/tnc>.
- . 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: LACDRP. <http://planning.lacounty.gov/generalplan>.
- . 2014 (February 4). Los Angeles County Housing Element, 2014-2021. Los Angeles, CA: LACDRP.
- Placeworks. 2017. *Centennial Specific Plan*. Santa Ana, CA: Placeworks (Appendix 4.0-A).
- Southern California Association of Governments (SCAG). 2016a (April 7). The 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy. Los Angeles, CA: SCAG. <http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf>.
- . 2016b (April 25). Personal communication. Email from Y. Zhou (SCAG) to J. Alido (BonTerra Psomas) with an attachment entitled “RTP12\_subregion\_021612v2.csv”.
- . 2016c (December 13). Personal communication. Email from Y. Zhou (SCAG) to J. Cho (BonTerra Psomas) titled RE: 2016-2040 RTP/SCS.
- . 2012a (April). 2012 Regional Transportation Plan/Sustainable Communities Strategy. Los Angeles, CA: SCAG. <http://scagrtpscs.net/Pages/2012RTPSCS.aspx>.
- . 2012b (August 29). 5<sup>th</sup> Cycle *Regional Housing Needs Assessment Final Allocation Plan, 1/1/2014-10/1/2021*. Los Angeles, CA: SCAG. <http://www.scag.ca.gov/Documents/5thCyclePFinalRHNAplan.pdf>.
- . 2008 (October). *Regional Comprehensive Plan*. Los Angeles, CA: SCAG. <http://scag.ca.gov/NewsAndMedia/Pages/RegionalComprehensivePlan.aspx>.

## 5.9 POPULATION, HOUSING, AND EMPLOYMENT

### 5.9.1 INTRODUCTION

#### **Purpose**

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that population, housing, and employment issues be evaluated as part of the environmental documentation process. The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criteria for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively.

The analysis in this section addresses the impacts on population, housing, and employment that would result from implementing the proposed Project. The analysis focuses on the northern part of the County as described in the County's Antelope Valley Area Plan (AVAP), and the generally overlapping North Subregion of Los Angeles County (as designated by the Southern California Association of Governments (SCAG), which is where the Project site is located). The North Los Angeles County Subregion includes all land within Los Angeles County north of the northern border of the City of Los Angeles. It extends from the eastern border of Los Angeles County west to the Ventura County border; includes the Santa Clarita and Antelope Valleys and the incorporated Cities of Lancaster, Palmdale, and Santa Clarita.

There is no wholly reliable population, housing, or employment data after 2010, as the U.S. Census is conducted every ten years. All data provided for non-Census years, or years after 2010, should be viewed as demographic projections or estimates.

#### **Summary**

Implementation of the Project would result in (1) the introduction of a maximum of 19,333 housing units; (2) the creation of an estimated 23,675 permanent jobs; and (3) a maximum resident population of approximately 57,150 persons at Project buildout, which is estimated to occur in 2035. As detailed below, the estimate of a buildout population of approximately 57,150 persons serves as a conservative estimate used for impact analysis, since the number of dwelling units constructed in each planning area are not likely to be at maximum densities but would vary within the density range. Similarly, household sizes may differ from the averages used and the resulting resident population would likely be less than 57,150 persons.

Under the Specific Plan, reconfiguring an existing single family home to accommodate a Living Suite is permissible and does not create a new dwelling unit. Without regard to whether a state density bonus is ever used on the Project site, the total number of dwelling units, inclusive of all product types, cannot exceed the number of dwelling units identified in Section 4.0, Project Description and considered in this EIR absent further CEQA review.



While the Project would increase the resident population in the Antelope Valley, it would be located in an area designated for future development as an Economic Opportunity Area (EOA) in the 2015 AVAP. The site is part of the West EOA, which is located along State Route (SR) 138, near Interstate (I) 5, east and west of the California Aqueduct. Most of the land in the vicinity of the Project site is designated as Open Space in the AVAP and is expected to remain undeveloped. Development on approximately 4,109 acres in the immediate Project area designated for potential development (e.g., areas with Rural Land, Rural Commercial, and Rural Mixed Use designations) within this EOA may also occur, although no applications are pending. The land immediately to the west (Gorman Post Ranch) currently has a development application pending with the County of Los Angeles for future residential development, although it is not consistent with the 2015 AVAP.

As stated in Policies LU 1.1 and LU 1.2 of the AVAP, future development in the Antelope Valley shall be directed into rural town center areas and EOAs, while limiting development in rural preserve areas. Consistent with the AVAP and the intent of EOAs, the Project would accommodate growth in the Antelope Valley through new residential, commercial and light industrial developments, while preserving the rural character and ecological resources of the surrounding areas. The site is also identified as a Future Rural Town Area which would serve as a transition between rural town centers and rural preserve areas, and where future development is anticipated. Thus, population growth associated with the Project is consistent with anticipated population increases under the AVAP.

SCAG projects that Los Angeles County will experience substantial growth between 2012 and 2040 (SCAG 2016c). The Project site is also located in traffic analysis zones (TAZs)<sup>1</sup> where future growth is expected (SCAG 2012e). Future growth in the County is expected to occur as infill development in urban centers, as well as new development on vacant lands. The Project would lead to growth in employment, housing, and population on largely vacant land. The proposed Project is consistent with the household and employment projections for the area that includes the Project site in the SCAG's 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (SCAG 2012e) and 2016 RTP/SCS (SCAG 2016a), and the proposed Project is consistent with the demographic projections in the AVAP.

As discussed in Section 5.8, Land Use, Entitlement and Planning, the Project would implement the guiding principles, goals and policies of SCAG's Regional Comprehensive Plan (RCP) and RTP/SCS as they relate to livability, economic prosperity, and sustainability through the development of walkable, mixed use communities at emerging centers and along major transportation corridors. At the same time, the Project would conserve natural resources and open space. The development of housing and job opportunities at the site, schools, parks and public facilities, and a circulation system (including roads, greenways, bikeways and trails) would reduce vehicle trips and their associated emissions. These Project features would promote sustainability consistent with regional goals.

The Project would also contribute to meeting the State-mandated Regional Housing Needs Assessment (RHNA) housing production goals for the unincorporated areas of the County

---

<sup>1</sup> SCAG divides the entire region into traffic analysis zones (TAZs) as a basic geographic unit for its growth projections.

and would be consistent with the regional effort to boost housing production to meet regional housing needs. Much of the land near the Project site is not suitable for further development beyond that which would be implemented as part of the proposed Project.

The AVAP intends to provide a jobs/housing ratio of 1.3 jobs per dwelling unit in the unincorporated area of the Antelope Valley, within designated EOAs. The Economic Development Element of the AVAP sets a strategy of designating areas for light and heavy industrial uses near major transportation corridors and/or a concentration of skilled labor force in EOAs. The Project would implement this strategy, and would provide an estimated jobs/housing ratio of 1.22, through the development of commercial and business park uses on the site, for use by high-tech manufacturing, transportation, and logistics companies. The Project would also include residential development to create a mixed use community within the West EOA, consistent with the Land Use Policy Map in the AVAP.

In summary, implementation of the Project is considered growth accommodating rather than growth inducing at a regional level based on SCAG projections. Therefore, would be less than significant in relation to planned growth in the region. However, because the Project would substantially increase population and housing relative to the existing Project site conditions, this increase in population and housing on the Project site is considered significant and unavoidable. However, no mitigation would be appropriate since the Project is consistent with approved growth plans in the region.

There would be less than significant impacts related to the potential displacement of people or housing units as a result of the Project since the majority of the Project site is undeveloped. An existing residence of a Tejon employee is located near the northern boundary of the Project site. This residence would be left in place until development occurs near this area, at which time a notice would be provided and displacement would be voluntary. The residence would then be demolished or relocated.

## Section Format

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce significant impacts; and level of significance after mitigation, if any. This information is presented in the following format (please refer to Section 2.0, Introduction, and Section 5.0, Environmental Setting, Impacts, and Mitigation, for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Relevant Plans, Policies, and Regulations

- Environmental Setting
- Project Design Features
- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
    - Population
    - Housing
    - Employment
  - Off-site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- References

## References

The main references used in this section include the AVAP, which designates areas for development in the unincorporated areas of the Antelope Valley, and the EIR for the AVAP, which provides buildout projections for population, households, and employment. SCAG's latest growth forecasts were adopted in 2016 and included forecasts at the regional, county, city, subregional, and TAZ levels. Population estimates for the proposed Project assume an average household size of 3.17 persons per household for single-family detached units and 2.38 persons per household for attached and multi-family units (based on data provided by the County Department of Regional Planning) as derived from the Mission Village EIR (SCH No. 2005051143) and the Landmark Village EIR (SCH No. 2004021002).

The analyses in this EIR relied on the 2012 and 2016 Growth Forecasts used by SCAG in the RTP/SCS for the region. Where applicable, California Department of Finance (DOF) population and housing estimates for intervening years are also provided. Additional information was provided by various references listed in Section 5.9.9, below. Affordable housing information for the Project was derived from the Centennial Affordable Housing Implementation Plan (please see Appendix 3-C of the *Centennial Specific Plan*, which is EIR Appendix 4.0-A).

## 5.9.2 RELEVANT PLANS, POLICIES, AND REGULATIONS

### Plans and Policies

#### *Federal*

No federal plans or policies have been identified that relate to population, housing, and employment.

## ***State***

### Housing Element Law

State law requires each City and County to adopt a general plan, with a mandatory Housing Element. Housing Elements are required to be updated every five to eight years and must address the availability of an adequate supply of housing affordable to workers, families, and seniors. Local governments must plan to meet their existing and projected housing needs of all economic segments of the community, including their share of the regional housing need. The State Department of Housing and Community Development (HCD) assigned a target range of 409,060 to 438,030 units to the 6-county SCAG region, including Los Angeles County, for the period 2014–2021 (HCD 2011).

## ***Regional***

SCAG functions as the Metropolitan Planning Organization (MPO) for six Southern California counties: Imperial, Orange, Riverside, San Bernardino, Ventura, and Los Angeles. Regional plans are prepared and adopted by SCAG, which is the Council of Governments for the County of Los Angeles, the CEQA Lead Agency for this project. As stated in Section 5.8, Land Use, Entitlements and Planning, the federal government mandates that SCAG research and draw up plans for transportation, growth management, hazardous waste management, and air quality for its region. SCAG has developed a number of plans to achieve these regional objectives. The most applicable to population, housing, and employment are the RCP (SCAG 2008) and RHNA (SCAG 2012d).

### Regional Comprehensive Plan (RCP)

The 2008 RCP calls for City and County involvement and coordination in addressing regional issues related to growth management and development. It serves as an advisory document for preparing local plans and handling issues of regional significance, such as land use and housing, open space and biological habitats, water, energy, air quality, solid waste, transportation, security and emergency preparedness, economy, and education.

There are three levels of recommendations for the region: goals, outcomes, and an action plan that contains constrained policies (or near-term, feasible policies) and strategic initiatives (longer-term strategies) for each regional issue. However, the RCP only functions as a voluntary “toolbox” to assist local jurisdictions in making General Plans, Specific Plans, and individual projects more sustainable. As identified in Resolution No. 08-502-1 (Resolution of the Southern California Association of Governments Accepting the 2008 Regional Comprehensive Plan for the SCAG Region), given its advisory nature, the 2008 RCP is not used in SCAG’s Inter-Governmental Review (IGR) process (SCAG 2008).

### Regional Housing Needs Allocation (RHNA)

The RHNA provides an allocation of the existing and future housing needs by jurisdiction that represents the jurisdiction’s fair share allocation of the projected regional population growth. The future housing needs allocations are broken down by income level so that each jurisdiction is responsible for the development of affordable housing units to meet future housing needs.

SCAG defines “existing needs” as the number of low-income households overpaying for housing (defined as paying more than 30 percent of their income), as well as those in severe overcrowded conditions, farm worker needs for housing, and affordable housing units at risk of conversion to market rate housing. It defines “future needs” as the number of additional housing units by income level that will have to be created in each City and unincorporated County area as a fair share of the region’s projected housing needs based on the estimated population growth in the city and region. The breakdown of future housing needs by income level allows each jurisdiction to be responsible for the development of affordable housing units throughout the region and avoid the concentration of low income households.

### ***County***

#### County of Los Angeles General Plan and Antelope Valley Area Plan (AVAP)

The *County of Los Angeles General Plan* and AVAP address population, housing, and employment issues that affect the County. Relevant goals and policies in the AVAP include those listed below from the Land Use, Economic Development, and Housing Elements:

#### *Land Use Element*

- **Policy LU 1.1:** Direct the majority of the unincorporated Antelope Valley’s future growth to rural town center areas and identified economic opportunity areas, through appropriate land use designations, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

#### *Economic Development Element*

**Goal ED1:** A healthy and balanced economic base in the Antelope Valley that attracts a wide range of industries and businesses and provides high-paying jobs for local residents.

- **Policy ED 1.1:** Promote the continued development of regional commercial and industrial employment centers in economic opportunity areas in the Antelope Valley.
- **Policy ED 1.3:** Support the growth of “high-tech” industries to employ the Antelope Valley population’s highly educated workforce.
- **Policy ED 1.14:** Promote appropriate types of residential development in the vicinity of existing communities and town centers that are in reach of existing infrastructure and utilities.
- **Policy ED 1.15:** Where appropriate, promote residential development as part of a wider mixed use strategy in communities that desire such uses in their areas and where plans for major infrastructure and facilities are currently underway. These areas have been identified as economic opportunity areas as shown in the Land Use Policy Map (Map 2.1) of this Area Plan.

#### *Los Angeles County Housing Element*

The 2014–2021 Housing Element of the County identifies the County’s existing and projected housing needs in the unincorporated areas, its goals, policies, and programs to meet these

needs; and actions that would encourage housing development in the County to address its housing needs. The County has a future housing need for 30,145 new dwelling units for the 2014–2021 planning period and there are adequate sites in the County to build these units. The County has also developed programs to reduce regulatory barriers and provide incentives for housing development.

A consistency analysis of the proposed Project with the specific goals and policies with the County’s relevant plans, policies and regulations is provided in the Land Use, Entitlements, and Planning section (Section 5.8) in this document.

### 5.9.3 ENVIRONMENTAL SETTING

#### Population

##### *Regional*

##### Southern California Association of Governments (SCAG)

As part of its regional planning efforts, SCAG adopted growth projections for its use in the update of regional plans. These projections are based on coordination with the SCAG Plans and Programs Technical Advisory Committee, the DOF, County and local jurisdictions, County Transportation Commissions, the general public, and other major stakeholders. In accordance with interagency coordination, these projections are based on anticipated trends in employment, national growth, migration patterns, and internal birth rates. SCAG’s growth projections include increased population and development activities for the area that includes the Project site.

Data from the 2012 and 2016 RTP/SCS is included in this section to best present the most recent population, housing, and employment projections for the SCAG region. As shown in Table 5.9-1, SCAG Region Population Projections, the SCAG region is anticipated to increase by approximately 1,073,000 residents between 2012 and 2020 and by 2.743 million between 2020 and 2040, for a total population of over 22 million people by 2040.

**TABLE 5.9-1  
SCAG REGION POPULATION PROJECTIONS**

	2000 <sup>a</sup>	2010 <sup>b</sup>	2016 <sup>c</sup>			
SCAG Region	16,516,006	18,051,534	18,954,083			
2012 Projections <sup>d</sup>			<b>2008</b>	<b>2020</b>	<b>2035</b>	
			17,895,000	19,663,000	22,091,000	
2016 Projections <sup>e</sup>			<b>2012</b>	<b>2020</b>	<b>2035</b>	<b>2040</b>
			18,322,000	19,395,000	21,486,000	22,138,000
SCAG: Southern California Association of Governments						
Sources:						
<sup>a</sup> DOF 2011, <sup>b</sup> DOF 2012, <sup>c</sup> DOF 2016, <sup>d</sup> SCAG 2012a, <sup>e</sup> SCAG 2016c.						

As stated above, SCAG's growth forecasts serve as the most current projections, and were informed by input from the County and other local jurisdictions, and continue to show planned future development consistent with the Project on the Project site. The Project's planned population and housing growth is also consistent with the County's Antelope Valley Area Plan, as discussed further in, Section 5.8, Land Use, Entitlements and Planning.

### **County of Los Angeles**

Los Angeles County, which includes the Project site, has been, and continues to be, the most populous county in the Southern California region. In 2000, the County's population including cities, totaled 9,519,338 persons (DOF 2011). The DOF estimates the County's January 2016 population at 10,241,335 persons (DOF 2016).

Table 5.9-2, Los Angeles County Population, includes data from the 2000 and 2010 U.S. Census included in the DOF estimates of the current Los Angeles County population. The County population is estimated to have increased by 7.6 percent or 721,997 people between 2000 and 2016.

**TABLE 5.9-2  
LOS ANGELES COUNTY POPULATION**

	<b>2000<sup>a</sup></b>	<b>2010<sup>a</sup></b>	<b>2016<sup>b</sup></b>
Lancaster	118,718	156,633	157,094
Palmdale	116,670	152,750	160,072
Santa Clarita	151,088	176,320	219,611
Unincorporated	986,214	1,057,426	1,051,989
North Los Angeles County Total	N/A	658,755 <sup>c</sup>	N/A
Los Angeles County Total	9,519,338	9,818,605	10,241,335
N/A: Not available			
Sources:			
<sup>a</sup> DOF 2011, <sup>b</sup> DOF 2016, <sup>c</sup> SCAG 2016d.			

Table 5.9-3 presents SCAG's 2012 projections and 2016 projections for the County. SCAG's 2012 projections show the Los Angeles County population was projected to increase by approximately 1.11 million people between the DOF 2016 data (10,241,335 residents) and SCAG's projected 2035 population (11,353,000 residents) (SCAG 2012a). SCAG's 2016 projections show an increase of 0.90 million people between the DOF 2016 data (10,241,335 residents) and SCAG's projected 2035 population (11,145,100 residents) and an increase of 1.27 million people between the DOF 2016 data (10,241,335 residents) and SCAG's projected 2040 population (11,514,800 residents) (SCAG 2016b).

**TABLE 5.9-3  
LOS ANGELES COUNTY POPULATION PROJECTIONS**

	2012 Projections <sup>a</sup>			2016 Projections <sup>b</sup>			
	2008	2020	2035	2012	2020	2035	2040
Lancaster	154,500	174,800	201,300	158,300	167,400	195,800	209,900
Palmdale	149,200	179,300	206,100	154,200	166,500	183,100	201,500
Santa Clarita	175,900	201,100	237,100	202,000	220,600	250,900	262,200
Unincorporated	1,052,800	1,159,100	1,399,500	1,040,700	1,106,600	1,216,100	1,273,700
North Los Angeles County Total <sup>c, d</sup>	651,929	787,438	946,557	657,825	741,375	896,309	985,840
Los Angeles County Total	9,778,000	10,404,000	11,353,000	9,922,600	10,326,200	11,145,100	11,514,800

Sources:  
<sup>a</sup> SCAG 2012a, <sup>b</sup> SCAG 2016b, <sup>c</sup> SCAG 2016d, <sup>d</sup> SCAG 2016e.

### North Los Angeles County Subregion

The North Los Angeles County Subregion includes all land in Los Angeles County north of the northern border of the City of Los Angeles and all cities and unincorporated communities bordering the southern edge of the Angeles National Forest. The population of North Los Angeles County, which includes the Project site, was estimated at 658,755 persons in 2010, which was 6.7 percent of the total County population of 9,818,605 persons (SCAG 2016d). The 2012 resident population of this Subregion is estimated at 657,825 persons (SCAG 2016e). The unincorporated area within this Subregion is projected to have 186,918 residents in 2020 and 312,291 residents in 2040 (SCAG 2017).

From 2000 to 2016, the City of Santa Clarita grew by 45.4 percent, while the Cities of Palmdale and Lancaster grew by 37.2 percent and 32.3 percent, respectively. This population growth is a result of both natural increase (births) and immigration from other regions. These rates exceed Los Angeles County's overall rate of 7.6 percent for the same time period (DOF 2011, 2016).

From DOF's 2016 data to SCAG's projected 2040 population, the resident population is anticipated to grow in the Cities of Santa Clarita (19.4 percent), Lancaster (33.6 percent), and Palmdale (25.9 percent) (DOF 2016, SCAG 2016b). The population of North Los Angeles County is also projected to increase by 49.86 percent from SCAG's 2012 to 2040 estimates (SCAG 2016e). The unincorporated areas in North Los Angeles County would also grow from a 2012 estimate of 143,325 persons to 186,875 persons by 2020 (30.4 percent) and to 312,240 persons by 2040 (17.2 percent) (SCAG 2012b, 2016d, 2016e).

Table 5.9-2 (above) indicates that the North Los Angeles County Subregion will continue to represent a growing portion of the County's population, increasing to 7.2 percent of the County population in 2020 and to 8.6 percent of the County population in 2040 (SCAG 2016e). This trend is, in part, due to the developed characteristics of eastern, central, and southern Los Angeles County, where land for additional development is in limited supply.



Much of the undeveloped land in western Los Angeles County is constrained by environmental factors. Thus, the North Los Angeles County Subregion represents the most viable area for substantial future growth and development in the County.

### *Antelope Valley*

The AVAP was adopted by the Los Angeles County Board of Supervisors on June 16, 2015 (LACDRP 2015b). As part of the AVAP, population projections were provided through the year 2035. Since the Antelope Valley is not a Census Designated Place (i.e., a region identified by the U.S. Census Bureau for statistical purposes), all data in Table 5.9-4, Population Projections for the Antelope Valley are projections based on development and demographic estimates by the County, SCAG and DOF. (SCAG's 2012 and 2016 projections for the Cities of Lancaster and Palmdale are provided in Table 5.9-3 above.)

**TABLE 5.9-4  
POPULATION PROJECTIONS FOR THE ANTELOPE VALLEY**

	2000 <sup>a</sup>	2010 <sup>a</sup>	2013	2020 <sup>c</sup>	2035
Lancaster	118,718	156,633	155,759 <sup>b</sup>	167,400	195,800 <sup>c</sup>
Palmdale	116,670	152,750	156,877 <sup>b</sup>	166,500	183,100 <sup>c</sup>
Unincorporated Area	66,800	73,590	93,490 <sup>a</sup>	N/A	405,410 <sup>a d</sup>
<b>Antelope Valley Total*</b>	302,188	382,973	406,126	N/A	784,310
N/A - Not Available					
* Total population of the unincorporated area and the Cities of Lancaster and Palmdale.					
Sources:					
<sup>a</sup> Los Angeles County 2015c, <sup>b</sup> DOF 2016, <sup>c</sup> SCAG 2016b					

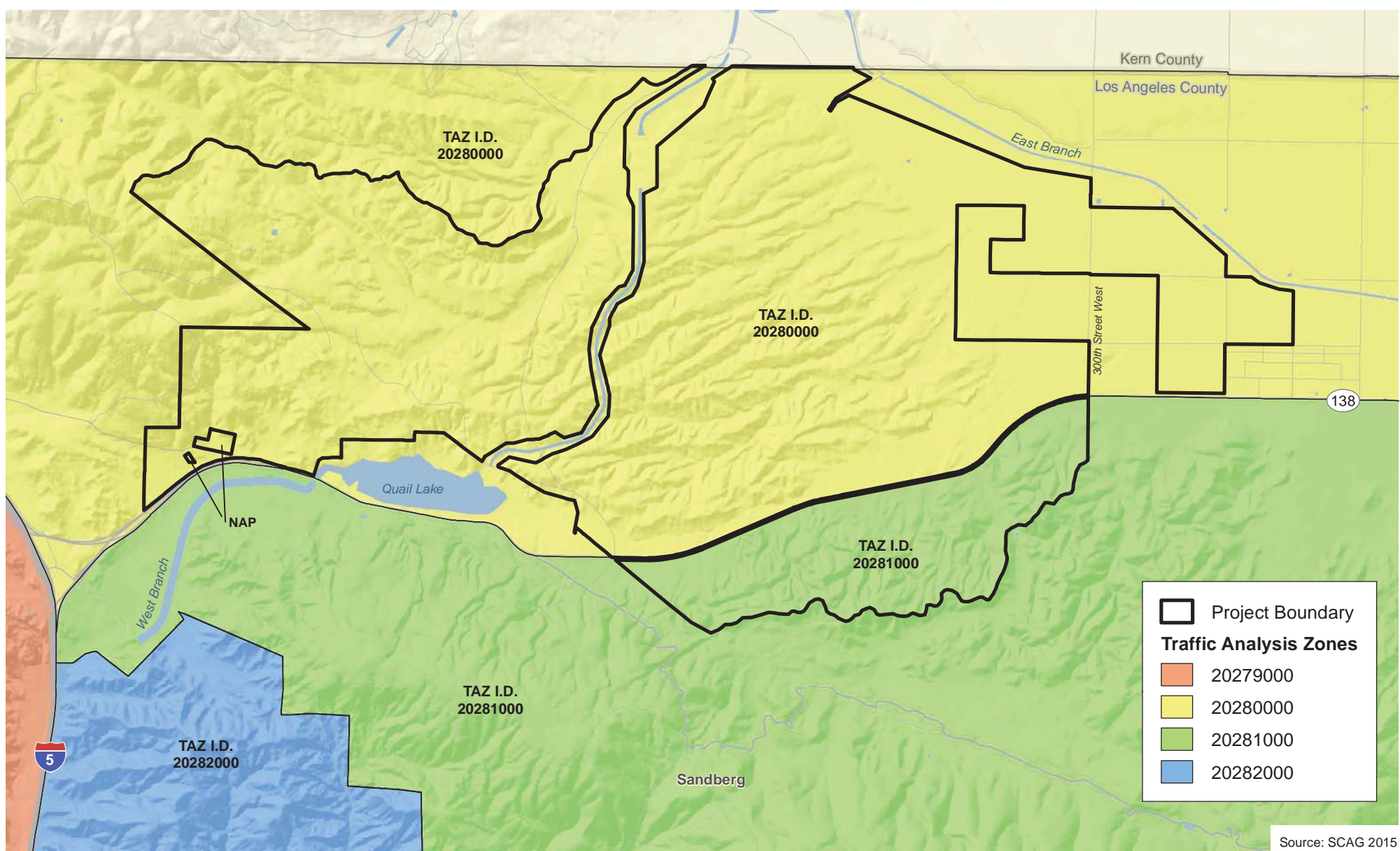
### *Project Site*

There is an existing residential dwelling unit located east of the Aqueduct and near the center of the northern property line. Assuming an average household size of 3.52 persons per household (January 2016 average for unincorporated areas of the County) (DOF 2016), the Project site would have a resident population of approximately 4 individuals.

SCAG's growth projections included a breakdown at the TAZ level. The Project site is located in portions of two TAZs and population projections for these TAZs are provided in Table 5.9-5 below. TAZ 20280000 includes the area north of SR-138 and east of I-5. TAZ 20281000 includes the area south of SR-138 (see Exhibit 5.9-1). As shown, significant population growth is anticipated in TAZ 20280000, which covers the portion of the Project site north of SR-138.

TAZ projections for the area that includes the Project site, which were also reflected in corresponding figures included in the 2012 RTP/SCS (SCAG 2012e) and 2016 RTP/SCS (SCAG 2016a), are consistent with the existing population and housing stock in the area and the projected household and employment components of the Project. The 2040 household projections at the TAZ level in the 2016 RTP/SCS are consistent with the proposed Project's

D:\Projects\SCEN\Centennial\MXD\EIR\Ex\_TAZs\_2015\013.mxd



Source: SCAG 2015

# Traffic Analysis Zones

Centennial Project

# Exhibit 5.9-1



buildout estimates; however, the 2040 population projections by SCAG are less than the Project's buildout population. The difference may be due to the average household size used in the projections, such that SCAG assumes a smaller household size.

The Project's population and housing levels are consistent with the County's approved AVAP, as discussed in greater detail in Section 5.8, Land Use, Entitlements and Planning.

**TABLE 5.9-5  
POPULATION PROJECTIONS FOR TAZS**

	2008 <sup>a</sup>	2012 <sup>b</sup>	2020 <sup>a</sup>	2035 <sup>a</sup>	2040 <sup>b</sup>
TAZ 20280000	372	311	27,575	65,264	50,505
TAZ 20281000	1,041	350	2,079	4,038	1,367
<b>Total</b>	<b>1,413</b>	<b>661</b>	<b>29,654</b>	<b>69,302</b>	<b>51,872</b>
a - from 2012 RTP/SCS b - from 2016 RTP/SCS Source: <sup>a</sup> SCAG, 2012e, <sup>b</sup> 2015d.					

### ***Kern County***

Kern County occupies approximately 8,200 square miles and is located directly north of Los Angeles County and the Project site. The resident population in the Kern County is centralized in the Bakersfield metropolitan area, which includes the Cities of Bakersfield and Arvin, as well as the unincorporated communities of Oildale, Lamont, Buttonwillow, Old River, Pumpkin Center, Rosedale, and Greenfield. In 2016, the population of Bakersfield (379,110 persons) made up approximately 42.8 percent of the population in Kern County (886,507 persons) (DOF 2016).

The population in Kern County has experienced consistent growth over the past several decades. Between 2000 and 2010, the population rose by 26.9 percent from approximately 661,645 persons to 839,631 persons (DOF 2011). Between 2010 and 2016, the population grew by 5.6 percent. Approximately 34.9 percent of the County's population (309,425 persons) live in the unincorporated areas in 2016 (DOF 2016).

Based on adopted growth forecasts, the Kern County population is anticipated to increase into the foreseeable future, as shown in Table 5.9-6, Kern County Population Projections.

**TABLE 5.9-6  
KERN COUNTY POPULATION PROJECTIONS**

	2000 <sup>a</sup>	2010 <sup>a</sup>	2016 <sup>b</sup>	2020 <sup>c</sup>	2030 <sup>c</sup>	2040 <sup>c</sup>
Kern County Total	661,653	839,600	886,507	1,010,800	1,208,200	1,444,100
Sources: <sup>a</sup> DOF 2011, <sup>b</sup> DOF 2016, <sup>c</sup> KCOG 2014b.						

## Ventura County

For the purposes of the analyses included in this EIR and this Section, data from Ventura County were not included. While the Project site is located approximately six miles east of the northeastern corner of Ventura County, no population centers or major transportation routes are located in Ventura County in the regional vicinity of the Project site. Land in Ventura County in the Project vicinity includes the Los Padres National Forest and the Hungry Valley State Vehicular Recreation Area, which would not accommodate future development. The nearest cities to the Project site in Ventura County are the Cities of Fillmore and Ojai, located 27 miles and 35 miles southwest of the Project site, respectively. Both cities are located immediately south of the Los Padres National Forest and neither city serves as a major regional population or employment center. The largest city in Ventura County (by population), Oxnard, is located approximately 44 miles southwest of the Project site. As the Project site is physically and economically separated from population and employment centers within Ventura County, Ventura County will not be analyzed further in this document.

## Housing

### Regional

#### Southern California Association of Governments (SCAG)

In 2000, the 6-county SCAG region had a total of 5,722,035 housing units (DOF 2007) and 6,464,184 units in 2016 (DOF 2016). Table 5.9-7, SCAG Region Household Projections, projects the number of households in the SCAG region through 2040. According to the 2012 projections, the number of households is expected to increase at an average growth rate of about 1.3 percent per year between 2008 and 2035 (SCAG 2012a). The 2016 projections show a slower growth of 0.93 percent from 2012 to 2040 (SCAG 2016c).

**TABLE 5.9-7  
SCAG REGION HOUSEHOLD PROJECTIONS**

	2000 <sup>a</sup>	2010 <sup>b</sup>	2016 <sup>c</sup>			
SCAG Region	5,722,035	6,326,167	6,464,184			
2012 Projections <sup>d</sup>			<b>2008</b>	<b>2020</b>	<b>2035</b>	
			5,814,000	6,458,000	7,325,000	
2016 Projections <sup>e</sup>			<b>2012</b>	<b>2020</b>	<b>2035</b>	<b>2040</b>
			5,885,000	6,415,000	7,172,000	7,412,000
Sources: <sup>a</sup> DOF 2007, <sup>b</sup> DOF 2011, <sup>c</sup> DOF 2016, <sup>d</sup> SCAG 2012a, <sup>e</sup> SCAG 2016a.						

Comparing the DOF data included in Table 5.9-7 and Table 5.9-1, SCAG Region Population Projections, population in the region rose at a faster rate (5.0 percent) than did the number of housing units (2.2 percent) between 2010 and 2016 (DOF 2011, 2016). This has increased population-to-household ratios, which has, in turn, increased the average household size.

**Los Angeles County**

Los Angeles County, which includes the Project site, has the largest housing stock of any county in the Southern California region. In 2016, the County's housing stock totaled 3,504,061 units (DOF 2016). Table 5.9-8, Los Angeles County Housing Stock, includes data on the County's historic housing stock from 2000 to 2016.

**TABLE 5.9-8  
LOS ANGELES COUNTY HOUSING STOCK**

	2000 <sup>a</sup>	2010 <sup>a</sup>	2016 <sup>b</sup>
Lancaster	41,745	51,835	52,733
Palmdale	37,096	46,544	47,012
Santa Clarita	52,456	62,055	71,686
Unincorporated	293,304	316,888	311,784
North Los Angeles County Total	N/A	202,710 <sup>c, d</sup>	N/A
Los Angeles County Total	3,270,906	3,443,087	3,504,061
N/A: Not available d –number of households Sources: a DOF 2011, b DOF 2016, c SCAG 2016d.			

Table 5.9-9 presents SCAG's 2012 projections and 2016 projections for number of households in the County, which is projected to increase to 3,852,000 households by 2035 under the 2012 projections and to 3,809,300 households by 2035 and to 3,946,600 households by 2040 under the 2016 projections.

**TABLE 5.9-9  
LOS ANGELES COUNTY HOUSEHOLD PROJECTIONS**

	2012 Projections <sup>a</sup>			2016 Projections <sup>b</sup>			
	2008	2020	2035	2012	2020	2035	2040
Lancaster	46,300	52,200	58,800	47,400	52,400	61,000	65,300
Palmdale	41,900	51,300	58,800	43,100	47,600	56,000	59,300
Santa Clarita	59,300	70,100	81,900	67,300	75,600	86,300	90,300
Unincorporated	298,100	336,100	405,500	292,700	332,700	371,800	392,400
North Los Angeles County Subregion Total <sup>c, d</sup>	200,636	251,558	304,241	200,990	245,473	302,836	331,399
Los Angeles County Total	3,228,000	3,513,000	3,852,000	3,257,600	3,493,700	3,809,300	3,946,600
Sources: a SCAG 2012a, b SCAG 2016b, c SCAG 2016d, d SCAG 2016e.							

Table 5.9-10, Los Angeles County 2015 Housing Units by Type, details the breakdown of existing housing units in Los Angeles County. This data shows that nearly half (49.2 percent) the housing stock in the County is comprised of single-family detached residential units; a bigger portion (70.67 percent) of the housing stock in the unincorporated areas are single-family detached residential units (DOF 2016).

**TABLE 5.9-10  
LOS ANGELES COUNTY 2016 HOUSING UNITS BY TYPE**

Housing Type	Number of Units	Percent of Total Units
Single-Family Detached	1,722,821	49.17%
Single-Family Attached	230,228	6.57%
Multifamily, 2-4 Units	286,298	8.17%
Multifamily, 5 or More Units	1,206,417	34.43%
Mobile Homes, Other	58,297	1.66%
<b>Total Units</b>	<b>3,504,061</b>	<b>100.00%</b>
Source: DOF 2016.		

A result of housing production in the County not meeting demand is a potential long-term upward trend in housing prices. While often viewed as a boon by existing property owners, escalating prices result in more families unable to own homes, therefore promoting out-migration to surrounding counties.

#### North Los Angeles County Subregion

##### *Regional Housing Needs Assessment (RHNA)*

As identified above, the SCAG develops the RHNA to identify existing and future housing needs for the region. SCAG uses the County's median household income to determine housing affordability in each county. RHNA housing allocations are divided into five categories, which are each based on the County's median household income for a family of four persons:

- **Extremely Low Income:** Less than 30 percent of the County median family income.
- **Very Low Income:** A maximum of 50 percent of the County median family income.
- **Low Income:** A maximum of 80 percent of the County median family income.
- **Moderate Income:** A maximum of 120 percent of the County median family income.
- **Above Moderate Income:** More than 120 percent of the County median family income.

Income limits are also adjusted for household size so that larger households have higher income limits than smaller households. The adjustments in income based on household size are as follows:

Number of Persons in Household	Income Adjustment
1	70%
2	80%
3	90%
4	Base (100%)
5	108%
6	116%
7	124%
8	132%

With the median income in Los Angeles County at \$64,800 in 2016, the income limits per household size are provided in Table 5.9-11.

**TABLE 5.9-11  
LOS ANGELES COUNTY INCOME LIMITS (2016)**

Household Income Category	Number of Persons in Household							
	1	2	3	4	5	6	7	8
Extremely Low Income	\$18,250	\$20,850	\$23,450	\$26,050	\$28,440	\$32,580	\$36,730	\$40,890
Very Low Income	\$30,400	\$34,750	\$39,100	\$43,400	\$46,900	\$50,350	\$53,850	\$57,300
Lower Income*	\$48,650	\$55,600	\$62,550	\$69,450	\$75,050	\$80,600	\$86,150	\$91,700
Median Income	\$45,350	\$51,850	\$58,300	\$64,800	\$70,000	\$75,150	\$80,350	\$85,550
Moderate Income	\$54,450	\$62,200	\$70,000	\$77,750	\$83,950	\$90,200	\$96,400	\$102,650

\* Lower income exceeding the median income is an anomaly for this County due to US Department of Housing and Urban Development (HUD) historical adjustments to median income. Households low income figures are derived from very low income figures that are not adjusted by HUD for exceptions.

Source: HCD 2016.

In accordance with the RHNA, the County's Housing Element states that for the entirety of the unincorporated areas of the County, 30,145 new housing units are needed to meet its future housing needs between 2014 and 2021. Part of this housing need would be provided in the unincorporated areas located within the North Los Angeles County Subregion. Housing development would also occur in the cities of Lancaster, Palmdale and Santa Clarita to meet their future housing needs. Table 5.9-12, Future Housing Needs: 2014–2021 provides the breakdown of future housing needs by income level.

**TABLE 5.9-12  
FUTURE HOUSING NEEDS: 2014–2021**

Household Income Category	Future Housing Needs			
	Unincorporated Areas (Countywide)	Lancaster	Palmdale	Santa Clarita
Very Low Income	7,854	627	1,395	2,208
Lower Income	4,650	384	827	1,315
Moderate Income	5,060	413	898	1,410
Above Moderate Income	12,581	1,086	2,332	3,389
<b>Total</b>	<b>30,145</b>	<b>2,510</b>	<b>5,452</b>	<b>8,322</b>

Source: SCAG 2012d.

The unincorporated areas of the North Los Angeles County Subregion (specifically, the Santa Clarita and Antelope Valley areas) account for a substantial proportion of new home construction and existing home resale activity in Los Angeles County. SCAG projects that the North Los Angeles County Subregion would have 245,473 households by 2020 and 331,399 households by 2040, an increase of 85,926 households over 20 years (SCAG 2016e). The unincorporated area within this Subregion is projected to have 69,982 households in 2020 and 116,546 households in 2040 (SCAG 2017).

In the County's Housing Element, the housing potential in the Newhall Ranch Specific Plan and the Northlake Specific Plan are included in the Adequate Sites Inventory for the North Los Angeles County Subregion.

Although the RHNA targets for the unincorporated County area as a whole are not broken down by subregion or community, the proposed Project would help meet the demand for housing and the need for affordable housing in the North Los Angeles County Subregion, which includes unincorporated County areas. Thus, these housing goals are applicable to the proposed Project.

#### *Antelope Valley*

The AVAP, adopted by the Los Angeles County Board of Supervisors in 2015, does not include detailed housing stock data, but the EIR for the AVAP provides housing stock information for the Antelope Valley area, as provided in Table 5.9-13.

**TABLE 5.9-13  
ANTELOPE VALLEY HOUSING STOCK**

	2000	2010	2013	Post-2035/Buildout
Unincorporated Area	21,803	26,962	24,739	106,180

Source: LACDRP 2015c



*Project Site*

The site contains very limited development. As noted above, the existing residence of a Tejon employee is located at the northern central boundary of the site.

As discussed above, the SCAG 2012 and 2016 TAZ projections for households on the areas including the Project site are consistent with the Project's proposed housing development, and SCAG's household growth projections for the TAZs that include the Project site are provided in Table 5.9-14 below.

**TABLE 5.9-14  
HOUSEHOLD PROJECTIONS FOR TRAFFIC ANALYSIS ZONES**

	2008 <sup>a</sup>	2012 <sup>b</sup>	2020 <sup>a</sup>	2035 <sup>a</sup>	2040 <sup>b</sup>
TAZ 20280000	124	126	9,897	22,328	21,910
TAZ 20281000	347	145	742	1,436	586
Total	471	271	10,639	23,764	22,496
a - from 2012 RTP/SCS b - from 2016 RTP/SCS Source: <sup>a</sup> SCAG 2012e, <sup>b</sup> 2015d.					

***Kern County***

Kern County Council of Governments (KCOG) has developed housing projections for the cities and unincorporated area of Kern County as part of its RHNA and for use in its RTP. The projections show that Kern County is anticipated to experience substantial housing growth over the next decade. This growth is projected to approximately keep pace with the County's projected population increase. Between 2016 and 2030, Kern County's population is anticipated to grow by 36.3 percent, and over the same time period, the housing stock is projected to increase by 43.1 percent. Table 5.9-15, Kern County Housing Projections, outlines Kern County's existing and projected housing stock. Much of Kern County's growth is projected to occur in the Bakersfield Metropolitan Area (approximately 50 miles north of the Project site).

**TABLE 5.9-15  
KERN COUNTY HOUSING PROJECTIONS**

	2000 <sup>a</sup>	2010 <sup>b</sup>	2013 <sup>b</sup>	2016 <sup>c</sup>	2020 <sup>b</sup>	2023 <sup>b</sup>	2030 <sup>b</sup>
Unincorporated Area	100,694	112,117	113,221	114,052	136,200	139,400	147,300
Kern County Total	231,567	284,367	288,624	294,401	352,300	371,800	421,200
Sources: <sup>a</sup> DOF 2011, <sup>b</sup> KCOG 2014a, <sup>c</sup> DOF 2016.							

Kern County is not part of the SCAG region and the SCAG RHNA does not identify the housing needs for Kern County. The KCOG and the HCD have determined that Kern County will

require a substantial increase in housing stock over the next several years. According to the Kern County RHNA, Kern County's allocation of housing units for the period between January 2013 and December 2023 is 67,675 units. Table 5.9-16, Kern County Future Housing Need: 2013–2023, provides a breakdown of housing needs by income level. As with the SCAG, affordability categories discussed previously, the income levels are based on the median household income within Kern County, which was \$57,900 in 2015.

**TABLE 5.9-16  
KERN COUNTY FUTURE HOUSING NEED: 2013–2023**

Income Level	Future Housing Need			
	Total for Kern County	Percentage	Unincorporated Area	Percentage
Very Low	16,850	24.9	4,887	22.6
Lower	10,555	15.6	3,108	14.4
Moderate	11,235	16.6	3,127	14.5
Above Moderate	29,035	42.9	10,461	48.5
<b>Total</b>	<b>67,675</b>	<b>100.0</b>	<b>21,583</b>	<b>100.0</b>

Source: KCOG 2014a.

## Employment

### Regional

#### Southern California Association of Governments (SCAG)

Historically, the SCAG region has experienced significant job growth. The data provided represents the most current projections and were adopted as part of the 2016–2040 RTP/SCS. The SCAG region's employment base decreased by 3.43 percent between 2000 and 2010 (SCAG 2012a). However, Table 5.9-17, SCAG Region Employment Projections, shows that regional employment between 2012 and 2040 is forecasted to increase by approximately 2.432 million jobs or at a rate of 1.17 percent per year to 2040.

**TABLE 5.9-17  
SCAG REGION EMPLOYMENT PROJECTIONS**

	2000	2010	2015			
SCAG Region <sup>a</sup>	7,482,000	7,225,000	–			
2012 Projections <sup>b</sup>			<b>2008</b>	<b>2020</b>	<b>2035</b>	
			7,738,000	8,414,000	9,441,000	
2016 Projections <sup>c</sup>			<b>2012</b>	<b>2020</b>	<b>2035</b>	<b>2040</b>
			7,440,000	8,507,000	9,572,000	9,872,000

Sources: <sup>a</sup> SCAG 2012a <sup>b</sup> SCAG 2012a, <sup>c</sup> SCAG 2016b.  
Note: The grayed-out boxes do not apply or have corresponding data.

**Los Angeles County**

During the period between 2007 and 2013, an approximately 3.3 percent decrease in the number of jobs occurred Countywide, with an 11 percent decrease in the unincorporated County area (SCAG 2015a). As shown in Table 5.9-18, Los Angeles County Employment Base, the County experienced a decline in employment in most areas due to the economic recession.

**TABLE 5.9-18  
LOS ANGELES COUNTY EMPLOYMENT BASE**

	2007 <sup>a</sup>	2008 <sup>b</sup>	2010 <sup>a</sup>	2013 <sup>a</sup>
Lancaster	51,422	49,700	48,121	47,468
Palmdale	33,896	32,700	31,508	30,318
Santa Clarita	97,142	92,900	87,433	76,041
Unincorporated	245,966	237,000	227,029	219,002
North Los Angeles County Total <sup>c</sup>	N/A	213,899	190,154	N/A
Los Angeles County Total	4,520,583	4,340,370	4,130,998	4,372,375
N/A - Not available Sources: <sup>a</sup> SCAG 2015a, <sup>b</sup> SCAG 2012a, <sup>c</sup> SCAG 2016d.				

Table 5.9-19 provides SCAG's employment projections. According to SCAG's 2012 forecasts, employment growth rates in Los Angeles County are expected to be positive for the foreseeable future, with an increase to 4,558,000 jobs by 2020 and to 4,827,000 jobs by 2035 (SCAG 2012a). SCAG's 2016 forecasts shows employment growth rates in Los Angeles County will increase to 4,662,500 jobs by 2020 and to 5,225,800 jobs by 2040 (SCAG 2016b). As shown in the table, SCAG expects a lower growth rate for the County as a whole, with higher job growth in the unincorporated area and in the Cities of Lancaster, Palmdale and Santa Clarita.

**TABLE 5.9-19  
LOS ANGELES COUNTY EMPLOYMENT PROJECTIONS**

	2012 Projections <sup>a</sup>			2016 Projections <sup>b</sup>			
	2008	2020	2035	2012	2020	2035	2040
Lancaster	49,700	51,900	54,200	45,800	51,700	56,700	59,600
Palmdale	32,700	38,900	47,200	29,300	32,200	38,100	40,300
Santa Clarita	92,900	108,700	122,600	73,500	83,700	91,300	95,900
Unincorporated	237,000	266,100	318,100	222,900	237,500	272,400	288,400
North Los Angeles County Total <sup>c, d</sup>	213,899	264,354	321,743	181,089	211,300	258,082	280,447
Los Angeles County Total	4,340,370	4,558,000	4,827,000	4,246,600	4,662,500	5,062,100	5,225,800

Sources:  
<sup>a</sup> SCAG 2012a, <sup>b</sup> SCAG 2016b, <sup>c</sup> SCAG 2016d, <sup>d</sup> SCAG 2016e.

### North Los Angeles County Subregion

SCAG projects that the North Los Angeles County Subregion will experience a higher job growth rate than the County as a whole. As shown in Table 5.9-19 above, between 2020 and 2035, the North Los Angeles County Subregion is projected to experience a 22.1 percent increase in employment, compared to an 8.6-percent increase in the County as a whole. Between 2035 and 2040, the job base in this Subregion would increase by another 8.7 percent. This Subregion is projected to account for 12.3 percent of the County's new job growth between 2020 and 2040 (SCAG 2016e). The unincorporated area within this Subregion is projected to have 43,648 jobs in 2020 and 84,624 jobs in 2040 (SCAG 2017).

### *Antelope Valley*

The AVAP, adopted by the Los Angeles County Board of Supervisors in 2015, does not include detailed employment data and the EIR for the AVAP only includes the SCAG estimates of 38,608 jobs in 2008 in the unincorporated areas of the Antelope Valley and the Santa Clarita Valley; with a projection of 64,875 jobs by 2020 and 97,763 jobs by 2035. A 2013 employment base in the unincorporated Antelope Valley area of 31,838 jobs and a Post-2035 buildout estimate of 102,513 jobs is also provided in the AVAP EIR (LACDRP 2015c).

### *Project Site*

While the site includes a portion of the High Desert Hunt Club and a large portion of the site is used for grazing and agricultural activities, there are no employees permanently stationed at the site.

SCAG's employment growth projections for the TAZs that include the Project site (see Exhibit 5.9-1) are provided in Table 5.9-20 below. As shown, employment growth is anticipated in both TAZs that include the Project site, and includes employment generation associated with implementation of the Project.

**TABLE 5.9-20  
EMPLOYMENT PROJECTIONS FOR TAZS**

	2008 <sup>a</sup>	2012 <sup>b</sup>	2020 <sup>a</sup>	2035 <sup>a</sup>	2040 <sup>b</sup>
TAZ 20280000	4	9	6,652	16,605	23,418
TAZ 20281000	105	45	2,900	7,166	513
<b>Total</b>	<b>109</b>	<b>54</b>	<b>9,552</b>	<b>23,771</b>	<b>23,931</b>
a – from 2012 RTP/SCS b – from 2016 RTP/SCS Source: <sup>a</sup> SCAG 2012e, <sup>b</sup> 2015d.					

### ***Unemployment***

Unemployment rates are variable, based on local, regional, and national economic conditions. Table 5.9-21, Unemployment Rates, lists the unemployment rates in 2000, 2010 and 2016, as calculated by the State Economic Development Department.

**TABLE 5.9-21  
UNEMPLOYMENT RATES**

	2000 <sup>a</sup>	2010 <sup>b</sup>	2016 <sup>c</sup>
State of California	5.0%	12.4%	5.0%
Los Angeles County	5.7%	12.6%	4.8%
Palmdale	–	15.5%	6.5%
Lancaster	–	17.5%	5.4%
Santa Clarita	–	7.8%	4.4%
Kern County	9.0%	15.9%	9.2%
Sources: <sup>a</sup> EDD 2015, <sup>b</sup> EDD 2013, <sup>c</sup> EDD 2016a, 2016b.			

### **Los Angeles County**

As shown in Table 5.9-21 above, in April 2015, unemployment in Los Angeles County was estimated to be 4.8 percent (EDD 2016b). This is lower than the State's 2016 unemployment rate, which is calculated at 5.0 percent. The unemployment rate for the North Los Angeles County Subregion is not calculated separately in State publications, although unemployment rates for the incorporated cities in North Los Angeles County are included as part of Table 5.9-21.

As shown, the City of Santa Clarita experienced the lowest unemployment rate (4.4 percent) of any city within North Los Angeles County in 2016, and has historically experienced unemployment rates below regional averages (EDD 2016b).

Kern County

As shown in Table 5.9-21 above, Kern County experienced higher unemployment rates than the State as a whole. This is likely due to the seasonal nature of the agricultural sector of the Kern County economy (Bakersfield Californian 2006).

Table 5.9-22, Kern County Employment Projections, provides an estimate of the employment base within Kern County in 2010 and employment projections out to 2040. The projections indicate that employment in Kern County will increase by 55.6 percent over the next 3 decades.

**TABLE 5.9-22  
KERN COUNTY EMPLOYMENT PROJECTIONS**

	2010 <sup>a</sup>	2015 <sup>a</sup>	2020	2035	2040
Kern County	273,900	328,600	355,200	409,000	426,100
Source: Caltrans 2014.					

#### 5.9.4 PROJECT DESIGN FEATURES

**PDF 9-1** The Centennial Affordable Housing Implementation Plan (see Appendix 3-C of the *Centennial Specific Plan*, which is in Appendix 4.0-A of this EIR) would be adopted in conjunction with the proposed Project. Consistent with the goals of the *County of Los Angeles General Plan's* Housing Element, it is required that affordable units be developed as part of the Project and would include single-family attached, multi-family attached, and mixed-use units that would be deed and rent restricted.

While the number of affordable homes per community will be adjusted through the approval process, a minimum of 10 percent of the dwelling units proposed in the Centennial Project (about 1,933 dwelling units) would be designated as affordable units. The timing of the provision of restricted affordable housing units would be 1,000 affordable units by the time the first 10,000 units are built; 1,500 affordable housing units by the time of completion of 15,000 units; and 1,933 affordable housing units at buildout of the Project's 19,333 units. The product mix of affordable housing (e.g., age-restricted, family, and other product types) will be determined based on demographic conditions and housing needs at the time the affordable housing is proposed to be built.

Under the Centennial Affordable Housing Implementation Plan, home buyers of affordable units would be eligible to receive a percentage of any appreciation with respect to the value of their property over time, depending upon the homebuyer's length of ownership; all affordable rental homes will maintain affordable monthly rents for a minimum of 30 years.

### 5.9.5 THRESHOLD CRITERIA

Based on the County of Los Angeles Environmental Checklist, the Project will have a significant impact on population, housing, and employment if it would:

**Threshold 9-1** Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

**Threshold 9-2** Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.

**Threshold 9-3** Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

**Threshold 9-4** Cumulatively exceed official regional or local population projections.

### 5.9.6 ENVIRONMENTAL IMPACTS

In this impact analysis, the thresholds are taken out of order to better group issues for analysis.

**Threshold 9-1** **Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?**

**Threshold 9-4** **Would the project cumulatively exceed official regional or local population projections?**

### On-Site Impacts

#### *Population*

##### Regional

As discussed in Section 5.8, Land Use, Entitlement and Planning, the Project would implement the guiding principles, goals, and policies of the Regional Comprehensive Plan and the RTP/SCS as they relate to livability, economic prosperity, and sustainability through the development of walkable, mixed use communities at emerging centers and along major transportation corridors. At the same time, the Project would conserve natural resources and open space. The development of both housing and job opportunities at the site, along with nearby schools, parks and public facilities, and a circulation system that would include roads, greenways, bikeways and trails would reduce vehicle trips and their associated emissions. These Project features would promote sustainability consistent with regional goals.

Demographic projections developed as part of SCAG's adopted 2012–2035 and 2016-2040 RTP/SCS includes the Project site, as reflected in corresponding figures in SCAG's 2012

RTP/SCS (SCAG 2012e) and 2016 RTP/SCS (SCAG 2016a), and are the most recently updated demographic projections available for the Project site and regional vicinity. The local jurisdictions and regional projections formally adopted by SCAG have been used to determine Project conformity with these projections.

The total anticipated increase in population generated by development of the Centennial Project (i.e., 57,150 people) represents approximately 2.08 percent of the projected population increase (2,743,000 persons) for the SCAG region between 2020 and 2040, as shown in Table 5.9-1, SCAG Region Population Projections. This increase in population generated by the Project would represent 6.02 percent of SCAG's 2012 projected population increase (949,000 persons) between 2020 and 2035 and 4.81 percent of SCAG's 2016 projected population increase (1,188,600 persons) between 2020 and 2040 for Los Angeles County as a whole (as shown in Table 5.9-3, Los Angeles County Population Projections).

The Project is consistent with the SCAG projections for the North Los Angeles County Subregion and the Antelope Valley in the 2012–2035 RTP/SCS at the TAZ level, where as many as 27,203 new residents are expected from 2008 to 2020 and an additional 37,689 residents from 2020 to 2035 within the TAZ covering the portion of the site north of SR-138 (TAZ 20280000) (SCAG 2012e). The total projected increase is 64,892 residents, of which, 57,150 persons would be residents of the Project.

Under the 2016 RTP/SCS, as many as 50,194 new residents expected from 2012 to 2040 within the TAZ covering the portion of the site north of SR-138 (TAZ 20280000) and 1,017 new residents within the TAZ covering the portion of the Project site south of SR-138 (TAZ 20281000) (SCAG 2015d). The total projected increase is 51,872 residents for the two TAZs covering the Project site, who are all expected to be residents of the Project. Therefore, the resident population of the Project at buildout would be 82.46 percent of the projected resident population of TAZ 20280000 and TAZ 202810000 by 2035, but would exceed the SCAG projections for 2040. As discussed further below under Housing, this suggests that SCAG projections assume a smaller average household size for the area. At the same time, the 2016 RTP/SCS states that TAZ level data or any data at a geography smaller than the jurisdictional level is included in the draft growth forecasts for regional modeling purpose only, and is advisory and non-binding.

The Project is consistent with the population and housing projections included in the approved AVAP, as discussed in greater detail in Section 5.8, Land Use, Planning and Entitlements.

Section 6.0, Growth-Inducing Impacts, contains a detailed analysis of the proposed Project's potential to induce growth. Regional population forecasting is affected by many variables such as economic cycles and demographics. Additionally, the removal of impediments to growth (e.g., constructing utility infrastructure and service systems in a previously undeveloped region) can induce growth. Specifically, at the Project site, the construction of roads, water treatment and delivery systems, sewers, wastewater reclamation facilities, telephone lines, power facilities and services, schools, parks, a library, and police and fire facilities would together reduce obstacles to growth in the northwestern region of Los Angeles County. While Centennial's infrastructure would not be sized to accommodate



growth beyond that which is proposed for the Centennial Project, future nearby landowners could propose to connect to or build upon the Project's infrastructure to serve future development in the surrounding area. Any such future proposals would be subject to environmental analysis pursuant to CEQA, and must include the level of detail (e.g., residential and commercial size information, project footprint information, project water supply quantity and sources, etc.) required for a future project-level review process. Any such approvals of future development in the West EOA would also be a discretionary decision by the County. Since no such projects have been proposed, such details are not available and CEQA does not require speculation. In general, however, buildout of the approved AVAP has informed the cumulative impacts analysis in this EIR and includes the additional increment of development authorized within the West EOA but not included in the Project.

While the Project site is approximately 50 miles south of the City of Bakersfield, much of the surrounding land is unavailable for development. As identified in Section 4.0, Project Description, on June 17, 2008, the Tejon Ranch Company entered into a Conservation and Land Use Agreement (Conservation Agreement) with Audubon California, the Endangered Habitats League, the Natural Resources Defense Council, the Planning and Conservation League, and the Sierra Club (Resource Groups). The Conservation Agreement covers the Centennial lands and allows the Tejon Ranch Company and its development partners to pursue approvals to develop portions of the Tejon Ranch, including the Project site, while providing for the designation of open spaces and the dedication or sale of conservation easements over approximately 240,000 acres of the Tejon Ranch property (approximately 90 percent of the Ranch). Approximately 9,220 acres would be preserved as Open Space in Los Angeles County outside of the Project site, which is included within a total of 23,547 acres of off-site areas that would be set aside for preservation to mitigate impacts to biological resources (see Exhibit 4-12, Off-Site Open Space Preserve/Mitigation Areas). Another 5,624 acres would have an Open Space land use designation on the Project site.

The San Gabriel Mountains and the Angeles National Forest are located south of the Project site. This area is subject to physical and government ownership constraints, including the Los Padres National Forest, the Hungry Valley State Vehicular Recreation Area, and the Angeles National Forest, which total approximately 2.6 million acres—are expected to remain undeveloped. Exhibit 3-4, Local Area Constraints, included in Section 3.0, Environmental Setting, depicts the locations of many of these constraints in relation to the Project site boundary. Other development constraints in the Project area include the steep slopes and rugged terrain in the Tehachapi Mountains to the northwest and the San Gabriel Mountains to the south, and the San Andreas Fault that runs through these mountains. This area also contains environmentally sensitive areas, such as the San Andreas Significant Ecological Area (SEA), as discussed in Section 5.7, Biological Resources.

An additional constraint to development is water supply in the Antelope Valley. Although water supply is not a constraint for the proposed Project, as described in Section 5.18, Water Resources, including recycled water, other future development projects in the area would be constrained if their development was not anticipated in the AVAP and/or the Court-approved adjudication Judgment and Physical Solution (California Superior Court 2015; see Appendix 5.18-E).

Another constraint is the Antelope Valley Area Plan and related provisions of the County General Plan, which focus new urban development in designated locations, including the Project site which is in the West EOA. Development located outside this and other areas designated for future development could occur only if the Board of Supervisors made a policy choice to amend the Antelope Valley Area Plan to allow development not currently allowed.

Notwithstanding these constraints on additional development in the Project vicinity, the existence of the Project makes it reasonably foreseeable that additional development proposals seeking AVAP amendments would be made outside the West EOA.

### Los Angeles County

The AVAP would lead to a total of 106,180 dwelling units, 405,410 residents, and 134,351 jobs in the unincorporated Antelope Valley at buildout, with the majority of this growth in EOAs. As described in Section 4.0, Project Description, the Centennial Project proposes development of a maximum of 19,333 dwelling units, ranging from multi-family attached apartment homes to low-density, single-family detached units. Under the Specific Plan, reconfiguring an existing single family home to accommodate a Living Suite is permissible and does not create a new dwelling unit. Without regard to whether a State density bonus is ever used on the Project site, the total number of dwelling units, inclusive of all product types, cannot exceed the number of dwelling units identified in Section 4.0, Project Description and considered in this EIR absent further CEQA review.

The Project is proposed for development in phases with full buildout over 20 years. Based on this assumption, the proposed Project is estimated to be fully built out and occupied by 2035, with an estimated resident population of approximately 57,150 people. This projection was made using a population generation factors from the Mission Village EIR (SCH No. 2005051143) and the Landmark Village EIR (SCH No. 2004021002), which assumed an average household size of 3.17 persons per household for single-family detached units and 2.38 persons per household for attached and multi-family units (based on data provided by the County Department of Regional Planning).

A maximum of 14,098 single family detached units and 5,235 multi-family units would be constructed on the site (Placeworks 2017). The buildout population would likely be lower than the estimated 57,150 residents, due to variations in development densities and household sizes. However, in this EIR, a maximum buildout population of approximately 57,150 residents is assumed, as it provides a conservative measure by which to analyze specific population-related impacts.

As stated in Policies LU 1.1 and LU 1.2 of the AVAP, future development in the Antelope Valley shall be directed into rural town center areas and economic opportunity areas, while limiting development in rural preserve areas. Consistent with the AVAP and the intent of EOAs, the Project would accommodate growth in the Antelope Valley through new residential, commercial and light industrial developments, while preserving the rural character and ecological resources of the surrounding areas.

The AVAP projects population increases in the Antelope Valley, mainly within EOAs, where future development will be directed. The Land Use Plan in the Centennial Specific Plan

reflects the land use designations for the site, as contained in the AVAP. The Project would lead to growth and development (and a corresponding increase in population) in areas of the Antelope Valley that have been planned for future development under the AVAP, as provided in its Land Use Policy Map and Rural Preservation Strategy.

As stated above, the AVAP anticipates a buildout population 405,410 residents in the unincorporated area. Since the site is located within the West EOA where future growth and development is planned, the Project is consistent with growth projections for the Antelope Valley. While the West EOA covers a larger area than just the site, a large area surrounding the site is designated as Open Space in the AVAP and is expected to remain undeveloped. The land immediately to the west (Gorman Post Ranch) currently has a development application pending with the County of Los Angeles for future residential development, although it is not consistent with the 2015 *Antelope Valley Area Plan*. Development in this area is also constrained by steep topography and the presence of the San Andreas Earthquake Fault. Areas to the north and southeast would remain as open space in accordance with the Conservation Agreement between the Tejon Ranch and various agencies and groups. Thus, other future development in the West EOA would be limited to privately owned properties to the south and east of the site.

Since the Project's estimated population of 57,150 residents would represent 14.1 percent of the buildout population of the Antelope Valley's unincorporated area, the Project would not be taking up a large portion of future growth planned for the area. Rather, it would result in a population increase that would be in accordance with County projections and would not lead to substantial growth on the Project site or in the Antelope Valley. The site is also identified as a Future Rural Town Area which would serve as a transition between rural town centers and rural preserve areas, and where future development is anticipated. Thus, population growth associated with the Project is consistent with anticipated population increases under the AVAP.

## ***Housing***

### Regional

Based on the SCAG's household projections presented in Table 5.9-7, SCAG Region Household Projections, the total number of housing units proposed by the Centennial Project (i.e., 19,333 units), if all occupied, would represent approximately 1.94 percent of the projected 997,000 household increase for the SCAG region between years 2020 and 2040. The total number of housing units proposed by the Project, if all occupied, would represent approximately 4.27 percent of the projected 452,900-household increase for Los Angeles County between years 2020 and 2040. The Project would also provide 22.5 percent of the projected increase of 85,926 households in the North Los Angeles County Subregion. At the TAZ level, as many as 9,771 new dwelling units are expected from 2012 to 2020 and an additional 12,013 dwelling units from 2020 to 2040 in the TAZ covering the portion of the site north of SR-138. This projected 21,784-dwelling-unit increase would include future development (of 19,333 units or 88.75 percent) on the Project site. TAZ household projections for the area that includes the Project site, which were reflected in corresponding figures included in the 2012 RTP/SCS (SCAG 2012e) and 2016 RTP/SCS (SCAG 2016a), are consistent with the housing capacity of the Project. In addition, limited development in areas

adjacent to the site is anticipated due to environmental, ownership, and regulatory constraints. Thus, no conflict with SCAG projections would occur. Related impacts from the proposed Project would be less than significant.

Since the 2040 household projections at the TAZ level in the 2016 RTP/SCS are consistent with the proposed Project's buildout estimates, but the 2040 population projections by SCAG are less than the Project's buildout population, the difference may be due to the average household size used in the projections. SCAG assumes a smaller household size (assumes an average household size of 2.3 persons per household in TAZ 20280000 and TAZ 20281000) than estimated for the Project (assumes an average household size of 3.17 persons per household for single-family detached units and 2.38 persons per household for attached and multi-family units). Since the Project is consistent with SCAG's household projections, and the TAZ level data is considered advisory and non-binding, the exceedance in population projections at the TAZ level for the 2016 RTP/SCS is not a significant adverse impact as it relates to the exceedance of regional population projections.

#### *Regional Housing Needs Assessment*

The Project would contribute to meeting the State-mandated Regional Housing Needs Assessment (RHNA) housing production goals for the County and would be consistent with the regional effort to boost housing production to meet regional housing needs. Also, much of the land near the Project site is not suitable for further development beyond that which would be implemented as part of the proposed Project.

The 2014–2021 RHNA identifies the need for approximately 30,145 new dwelling units in unincorporated Los Angeles County, of which 12,504 units would have to be for very low and lower income households and 5,060 units for moderate income households. The Project would contribute to meeting the RHNA housing production goals for the County and would be consistent with the regional effort to boost housing production in unincorporated areas of Los Angeles County to meet regional housing needs.

In accordance with the Centennial Affordable Housing Implementation Plan (PDF 9-1), the Project would also include a minimum of 10 percent or 1,933 units that would be affordable to either very low, low, or moderate income households. A mix of single family attached, multi-family attached, and mixed-use units would be provided throughout the Project site. A total of 387 units or 20 percent of the affordable units would be affordable to very low income households. A total of 483 units or 25 percent of the affordable units would be affordable to low income households. The remaining 1,063 units or 55 percent of the affordable units would be affordable to moderate income households. These units would include for sale units that would be deed restricted for sale to very low, low and moderate income households and for rent units that would be restricted for rent to very low, low, and moderate income households. Affordable housing product segmentation (e.g., senior, family, and other product types) would be determined based on demographic data and market demand at the time the units were proposed for construction. Section 4.5.17 in Section 4.0, Project Description, of this Draft EIR summarizes the Affordable Housing Program that is provided in Appendix 3-C of the Centennial Specific Plan.

The timing of the provision of restricted affordable housing units would be 1,000 affordable units by the time the first 10,000 units are built; 1,500 affordable housing units by the time of completion of 15,000 units; and 1,933 affordable housing units at buildout of the Project's 19,333 units. While the number of affordable homes per community will be adjusted through the approval process, the total number of affordable homes proposed in Centennial will remain at a minimum of ten percent of the total development.

### Los Angeles County

Housing development in the Antelope Valley area of Los Angeles County would occur in the incorporated cities of Lancaster and Palmdale, as well as in other unincorporated areas of the Antelope Valley. Development in these unincorporated areas has been planned by the County in its recently adopted AVAP, where future growth would be accommodated largely in EOAs. Since the Project site is located in the West EOA, it is anticipated to accommodate future growth. This future growth would be regulated by the Land Use Policy Map in the AVAP. The Centennial Project proposes development in accordance with the Land Use Policy Map and would locate residential development in areas designated as residential areas and at permitted densities. The AVAP estimates an increase of 81,441 dwelling units in the Antelope Valley unincorporated areas from 2013 to buildout. The Project's 19,333 dwelling units would make up 23.74 percent of this housing stock increase. Thus, the Project's future housing development would be consistent with the AVAP and no conflict with the County's projected housing stock growth would occur.

## **Employment**

### Regional

The total number of permanent jobs created by the Centennial Project is anticipated to be approximately 23,675 jobs (Placeworks 2017). This will include jobs at on-site commercial uses, business parks, commercial recreation uses, and public facilities (e.g., fire stations, schools, library, and Sheriff's station).

SCAG's 2012 growth forecasts show an employment increase to 9,441,000 jobs by 2035 and the 2016 projections show 9,838,616 jobs by 2040 in the entire SCAG region (SCAG 2012a, 2016a). SCAG's 2016 growth forecasts show an employment increase to 9,572,000 jobs by 2035 and 9,872,000 jobs by 2040 in the entire SCAG region (SCAG 2016c). The Project's 23,675 jobs would represent only 0.24–0.25 percent of the projected 2035 and 2040 job base. Based on the 2016 employment projections presented for the SCAG region shown in Table 5.9-17, SCAG Region Employment Projections, the Project would represent approximately 1.73 percent of the projected 1,365,000 employment increase between years 2020 and 2040. No conflict at the regional level would occur.

At the TAZ level, SCAG projects a 6,643-job increase from 2012 to 2020 for TAZ 202800000 (north of SR-138) and a 2,855-job increase for TAZ 20281000 (south of SR-138) for the same time period. An increase of 16,766 jobs for TAZ 202800000 but 468 new jobs for TAZ 20281000 are expected from 2012 to 2040. A total of 23,931 jobs in both TAZs is projected by 2040 (SCAG 2012e, 2015d). The Project's 23,675 jobs would represent 98.93 percent of the projected 2040 jobs base of 23,931 jobs in both TAZs. Using SCAG's 2016 projections for

a larger employment base in the region by 2040, the Project would make up a lower percentage of the future employment base in the region. Since the Project would not lead to job growth in exceedance of projections, no conflict would occur.

### Los Angeles County

The Centennial Project would create approximately 23,675 new permanent jobs. Based on the 2016 employment projections presented for Los Angeles County, as shown in Table 5.9-19, Los Angeles County Employment Projections, the total number of permanent jobs created by the Project would represent approximately 4.20 percent of the projected 563,300 employment increase for Los Angeles County between years 2020 and 2040 (SCAG 2016b).

Job growth in the unincorporated County area of the Antelope Valley is anticipated with future non-residential development, as planned in the AVAP to occur primarily in EOAs. The Project proposes commercial and business park uses in areas designated by the Land Use Policy Map of the AVAP for these uses. The Project also proposes commercial areas, schools, and institutional uses within the residential villages, consistent with the implementation program for the West EOA, as contained in the AVAP. Specifically, land use adjustment may occur in the West EOA such that areas designated as Residential 5 (H5) may be converted to General Commercial (CG) or Public and Semi-public (P) designations without amending the AVAP, as long as the resulting residential densities do not exceed those provided in the AVAP and no change in unmitigated significant impacts occurs. The conversion of residential to commercial areas may also occur, provided the amount of planned commercial building square footage does not result in any new unmitigated significant impacts.

As discussed earlier, a buildout employment base of 134,351 jobs is estimated for the unincorporated area. Approximately 23,675 jobs (or 17.62 percent of the buildout estimate) would be provided by the Project. These jobs would also represent 23.09 percent of the 102,513-job increase from 2008 to buildout. Thus, job creation by the Project is not expected to conflict with AVAP projections.

### ***Jobs-Housing Ratio***

The AVAP intends to provide a jobs/housing ratio of 1.3 jobs per dwelling unit in the unincorporated area of the Antelope Valley. The Economic Development Element of the AVAP sets a strategy of designating areas for light and heavy industrial uses near major transportation corridors and/or a concentration of skilled labor force in EOAs. The Project would implement this strategy through the development of commercial and business park uses on the site and along SR-138, for use by high-tech manufacturing, transportation, and logistics companies. In addition, commercial areas, schools, and institutional uses are proposed within the residential villages, which would also increase the employment base at the site and in the area. The Project would generate a total of approximately 23,675 jobs on site, which would expand the employment base in an area that is largely rural residential in land use and would improve the jobs-housing ratio in the Antelope Valley. The Project would also include residential development to create a mixed use community in the West EOA, consistent with the AVAP's Land Use Policy Map and Rural Preservation Strategy.

While the Project would have an on-site jobs-housing ratio of 1.22 at buildout, the Project would create jobs in the West EOA where job growth is planned by the County and in areas that are designated for non-residential development on the AVAP's Land Use Policy Map. Thus, the Project would positively contribute to the attainment of the target jobs/housing ratio of 1.3 jobs per dwelling unit for the unincorporated area of the Antelope Valley. Also, the Project would not cause an imbalance among jobs, housing, and population. Rather, the Project would achieve the economic development objectives for the Antelope Valley through a balanced urban development located adjacent to critical transportation and water infrastructure.

In summary, implementation of the Project is considered growth accommodating rather than growth inducing at a regional level based on SCAG projections. Therefore, would be less than significant in relation to planned growth in the region. However, because the Project would substantially increase population and housing relative to the existing Project site conditions, this increase in population and housing on the Project site is considered significant. However, no mitigation would be appropriate since the Project is consistent with approved growth plans in the region. This represents a significant and unavoidable impact.

### **Off-Site Impacts**

The proposed off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings would not, by themselves, directly or indirectly generate any permanent new resident population, housing, or jobs not associated with operation of the Project. No impact would occur.

**Impact Summary:** The proposed Project would introduce a maximum of 19,333 housing units, approximately 57,150 residents, and approximately 23,675 jobs at the site at full buildout. This growth would occur in the West EOA, where future growth is planned and would be in accordance with the AVAP's Land Use Policy Map. TAZ projections for the area that includes the Project site, which are reflected in corresponding figures included in the 2012 RTP/SCS (SCAG 2012e) and 2016 RTP/SCS.

Based on the estimated number of households and employment-generating uses on site at Project buildout, the Centennial Project would create a projected ratio of 1.22 jobs per dwelling unit. While this ratio would be lower than the AVAP goal of 1.3 jobs per dwelling unit, the Project would assist in providing housing and employment opportunities in the unincorporated Antelope Valley area consistent with the AVAP resident and employment projections. Thus, it would not cause an imbalance between jobs, housing and population, but would support the AVAP's jobs-housing goal. In summary, implementation of the Project is considered growth accommodating rather than growth inducing at a regional level based on SCAG projections. Therefore, would be less than significant in relation to planned population, housing, and employment growth in the region. However, because the Project would substantially increase growth

relative to the existing Project site conditions, this increase in population and housing on the Project site is considered significant. However, no mitigation would be appropriate since the Project is consistent with approved growth plans in the region. This represents a significant and unavoidable impact.

**Threshold 9-2**      **Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?**

**Threshold 9-3**      **Would the project displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?**

### **On-Site Impacts**

Implementation of the Centennial Project would not displace a substantial number of housing units or people since 94 percent of the Project site is currently used for cattle grazing and the remaining 6 percent is currently farmed agricultural land or natural open space. Section 3.0, Environmental Setting, details the current uses and structures on site. There is one occupied residential dwelling unit located east of the Aqueduct and near the center of the northern property line. This residential structure includes accessory structures and several trailers that are used to support grazing and property caretaking activities. The residence would be demolished and/or relocated and its inhabitants would be displaced during development of Village 5.

However, the Project Applicant/Developer would provide notice to the Tejon Ranch employee and site residents. The loss of one dwelling unit is minor in light of the total number of dwelling units proposed by the Project. Thus, displacement impacts from Project implementation would be less than significant.

### **Off-Site Impacts**

There is no housing or on-site employment located in the locations of proposed off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings. These features would be located on private (i.e., Tejon Ranch-owned) property or within public rights-of-way. Therefore, no impact related to displacement of housing or people would occur due to the off-site Project features.

***Impact Summary:*** There would be less than significant impacts related to potential displacement of people or housing units as a result of implementing the Centennial Project. The majority of the Project site is undeveloped; there is one residential unit and several accessory structures and occupied trailers on the site. This unit would be demolished and/or relocated and the existing household would be displaced voluntarily as development occurs on the site. Impacts related to housing or population displacement would be less than significant.



## **Consistency with Antelope Valley Area Plan**

As discussed above, the Project would be consistent with the location and extent of growth and development proposed in the AVAP. Relevant goals and policies in the AVAP address the need to improve the economic base of the Antelope Valley and promote mixed use development, while preserving the rural character of the valley. The Project is consistent with these goals and policies since it includes areas for non-residential development that would increase job opportunities in the West EOA, as planned by the AVAP, and since the Project proposes a mixed-use development on the site that has been planned for future development under the AVAP. The Project would not conflict with goals and policies in the AVAP that address population, housing, and employment issues.

Section 6.0, Growth-Inducing Impacts, presents the analysis of possible indirect impacts due to growth wholly or partially induced by Project implementation. Section 7.0, Cumulative Impacts, presents the analysis of the Project's impacts in combination with anticipated impacts related to regional growth and local projects.

### **5.9.7 MITIGATION MEASURES**

While the Project's impacts on population, housing, and employment would be considered a significant impact when compared to the existing Project site conditions, no mitigation would be appropriate because the Project is consistent with approved growth plans in the region.

### **5.9.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION**

The proposed Project is consistent with the population, household, and employment projections contained within the 2012--2035 RTP/SCS and the 2016-2040 RTP/SCS projections, and the demographic projections in the AVAP. However, because the Project would substantially increase growth relative to the existing Project site conditions and no mitigation would be appropriate, this increase in population and housing on the Project site is considered significant and unavoidable.

In summary, implementation of the Project is considered growth accommodating rather than growth inducing at a regional level based on SCAG projections. Therefore, would be less than significant in relation to planned growth in the region. However, because the Project would substantially increase population and housing relative to the existing Project site conditions, this increase in population and housing on the Project site is considered significant and unavoidable. However, no mitigation would be appropriate since the Project is consistent with approved growth plans in the region.

### 5.9.9 REFERENCES

- Bakersfield Californian, The. 2006 (March 24). *Kern's Unemployment Rate Edges Up*. Bakersfield, CA: Bakersfield Californian.
- California Department of Finance (DOF). 2016 (May 1). Report E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011 – 2016, with 2020 Benchmark. Sacramento, CA: DOF.
- . 2012 (November). E-8 Historical Population and Housing Estimates for Cities, Counties and the State, 2000-2010. Sacramento, CA: DOF.
- . 2011 (March 8). Total Population: 2000 and 2010, Incorporated Cities by County in California. Sacramento, CA: DOF.
- . 2007 (August). E-8 Historical Population and Housing Estimates for Cities, Counties and the State, 1990-2000. Sacramento, CA: DOF.
- California Department of Housing and Community Development (HCD). 2016 (May 24). *State Income Limits for 2016*. Sacramento, CA: HCD.
- . 2011 (August 17). Correspondence to H. Ikhata (SCAG) from Glen Campora (HCD) Re: Regional Housing Needs Assessment Determination. Sacramento, CA: HCD.
- . 2000. *Raising the Roof: California Housing Development Projections and Constraints, 1997-2020 Statewide Housing Plan Update*. Sacramento, CA: HCD. <http://escholarship.org/uc/item/1391n947>.
- California Department of Transportation (Caltrans). 2014 (September). California County-Level Economic Forecast 2014-2040. Sacramento, CA: Caltrans.
- California Employment Development Department, Labor Market Information Division (EDD). 2016a (December 16). REPORT 400 C Monthly Labor Force Data for Counties, November 2016 – Preliminary. Sacramento, CA: EDD.
- . 2016b (December 16). Monthly Labor Force Data for Cities and Census Designated Places (CDP), November 2016 - Preliminary. Sacramento, CA: EDD.
- . 2015 (May 22). Historical Civilian Labor Force. Sacramento, CA: EDD.
- . 2013 ((April 19). Monthly Labor Force Data for Cities and Census Designated Places (CDP), Annual Average 2010 – Revised. Sacramento, CA: EDD.
- California, State of. 2009. *California Code of Regulations* (Title 14, Natural Resources; Division 6, Resources Agency; Chapter 3, Guidelines for Implementation of the California Environmental Quality Act). Sacramento, CA: the State.

- Kern County Council of Governments (KCOG). 2014a (June 19). Final Draft Regional Housing Needs Allocation Plan, January 1, 2013 – December 31, 2023. Bakersfield, CA: KCOG.
- . 2014b (June 19). *2014 Regional Transportation Plan/Sustainable Communities Strategy*. Bakersfield, CA: Kern COG.  
[http://www.kerncog.org/images/docs/rtp/2014\\_RTP.pdf](http://www.kerncog.org/images/docs/rtp/2014_RTP.pdf).
- . 2009 (October). Final Regional Growth Forecast Report. Bakersfield, CA: KCOG.
- Los Angeles, County of Department of Regional Planning (LACDRP). 2015a (October 6). Los Angeles County General Plan 2035. Los Angeles, CA: LACDRP.  
<http://planning.lacounty.gov/generalplan/generalplan>.
- . 2015b (June 16). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP.  
<http://planning.lacounty.gov/tnc/documents>.
- . 2015c (June 2). Town and Country – Environmental Review. Los Angeles, CA: LACDRP. <http://planning.lacounty.gov/tnc/environmental/>.
- . 2015e (last accessed). Los Angeles County, California – Code of Ordinances (Title 21, Subdivisions). Tallahassee, FL: Municode Corporation for the County.  
[https://www.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances](https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances).
- . 2014 (February 4). Los Angeles County Housing Element, 2014-2021 – Text-Only version. Los Angeles, CA: LACDRP.  
[http://planning.lacounty.gov/assets/upl/project/housing\\_element.pdf](http://planning.lacounty.gov/assets/upl/project/housing_element.pdf).
- . 2010 (October). *Mission Village Draft Environmental Impact Report* (SCH No. 2005051143). Los Angeles, CA: LACDRP.
- . 2006 (November). *Landmark Village Draft Environmental Impact Report* (SCH No. 2004021002). Los Angeles, CA: LACDRP.
- Placeworks. 2017. *Centennial Specific Plan* (prepared for the County of Los Angeles Department of Regional Planning). Santa Ana, CA: Placeworks. (Appendix 4.0-A).
- Southern California Association of Governments (SCAG). 2017 (January 10). Personal communication. Email from Y. Zhou (SCAG) to J. Cho (BonTerra Psomas) titled RE: 2016-2040 RTP/SCS.
- . 2016a (April 7). Final 2016 RTP/SCS – Demographics and Growth Forecast Appendix. Los Angeles, CA: SCAG.  
[http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS\\_DemographicsGrowthForecast.pdf](http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS_DemographicsGrowthForecast.pdf).

- . 2016b (April 13). 2016-2040 RTP/SCS Final Growth Forecast by Jurisdiction. Los Angeles, CA: SCAG.  
[http://www.scag.ca.gov/Documents/2016\\_2040RTPSCS\\_FinalGrowthForecastbyJurisdiction.pdf](http://www.scag.ca.gov/Documents/2016_2040RTPSCS_FinalGrowthForecastbyJurisdiction.pdf)
  - . 2016c (April 7). The 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy. Los Angeles, CA: SCAG.  
<http://scagrtpscscs.net/Documents/2016/final/f2016RTPSCS.pdf>
  - . 2016d (April 25). Personal communication. Email from Y. Zhou (SCAG) to J. Alido (BonTerra Psomas) with an attachment entitled “RTP12\_subregion\_021612v2.csv”.
  - . 2016e (December 13). Personal communication. Email from Y. Zhou (SCAG) to J. Cho (BonTerra Psomas) titled RE: 2016-2040 RTP/SCS.
  - . 2015a (May). Profile of Los Angeles County. Los Angeles, CA: SCAG.  
<https://scag.ca.gov/Documents/LosAngelesCountyLP.pdf>
  - . 2015b (May 26). Personal communication. Telephone Conversation between Simon Choi (SCAG) and Josephine Alido (BonTerra Psomas).
  - . 2015c (May 27). Personal communication. Telephone Conversation between Ying Zhou (SCAG) and Josephine Alido (BonTerra Psomas).
  - . 2015d (December 15). Personal communication. Email Conversation between Ying Zhou (SCAG) and Carla Walecka (Carla Walecka Planning).
  - . 2012a (April). 2012 Regional Transportation Plan/Sustainable Communities Strategy - Growth Forecast Appendix. Los Angeles, CA: SCAG.  
[http://rtpscscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP\\_GrowthForecast.pdf](http://rtpscscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP_GrowthForecast.pdf).
  - . 2012b. 2012 Adopted Growth Forecast (an excel spreadsheet). Los Angeles, CA: SCAG.  
<http://gisdata.scag.ca.gov/Pages/SocioEconomicLibrary.aspx?keyword=Forecasting>.
  - . 2012d (August 29). 5<sup>th</sup> Cycle *Regional Housing Needs Assessment Final Allocation Plan, 1/1/2014-10/1/2021*. Los Angeles, CA: SCAG.  
<http://www.scag.ca.gov/Documents/5thCyclePFinalRHNAplan.pdf>
  - . 2012e. Tier 2 (TAZ) for the 2012-2035 Regional Transportation Plan. Los Angeles, CA: SCAG. <http://gisdata.scag.ca.gov/Pages/GIS-Library.aspx?keyword=tier>
  - . 2008 (October). *Regional Comprehensive Plan*. Los Angeles, CA: SCAG.  
<http://scag.ca.gov/NewsAndMedia/Pages/RegionalComprehensivePlan.aspx>
- U.S. Census Bureau. 2000. *U.S. Decennial Census*. Washington, DC: U.S. Census Bureau.  
<http://www.census.gov/main/www/cen2000.html>.

## 5.10 TRAFFIC, ACCESS, AND CIRCULATION

### 5.10.1 INTRODUCTION

#### **Purpose**

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA) Guidelines, requires that traffic, access, and circulation issues be evaluated as part of the environmental documentation process. The traffic impacts from the proposed Centennial Project are analyzed under existing and future conditions. The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criteria for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively.

#### **Summary**

This section of the EIR analyzes traffic conditions with and without the Project in the near-term (under Existing conditions) and long-term cumulative (under 2035 buildout conditions for Los Angeles County and 2040 buildout conditions for Kern County).

Potential traffic increases associated with Project implementation would affect traffic operations and levels of service at roadways internal to the site and at roadways and freeways serving the site. These impacts would be addressed by a range of on-site and off-site Project improvements and the implementation of Project Design Features (PDFs) and mitigation measures (MMs). The PDFs and MMs include new internal roads, improved intersection configurations, and the addition of traffic signals that have been incorporated into the Project and payment of fair share fees for needed freeway and expressway improvements, as identified below. With the incorporation of PDFs and the recommended MMs, Project impacts to traffic on State Route (SR) 138, streets intersecting SR-138 in the Project vicinity, freeway mainline segments, freeway interchange ramps, and arterial roadway intersections will be less than significant.

The Project Applicant intends to implement and fund State transportation facility mitigation measures through a proposed Centennial Transportation Improvement Program (CTIP) agreement with the California Department of Transportation (Caltrans). The CTIP would provide funding contributions, phasing, guarantees of payments, and collection of third-party contributions for MM implementation. Alternatively, the Project will pay a fair share contribution towards the construction of transportation facilities that will mitigate for potential Project impacts (see MM 10-3, MMs 10-6 through MM 1-28, and MMs 10-31 through 10-45). With these traffic mitigation measures, there will not be a significant Project or cumulative impact from Project traffic. The Project will also be in compliance with the Los Angeles County and Kern County Congestion Management Programs (CMPs). The Project will incorporate PDFs to reduce vehicle use and promote alternative transportation, including transit use, in compliance with applicable transportation plans, policies, and regulations. However, if Caltrans does not implement planned and required improvements

on State facilities, the Project would contribute to significant unavoidable impacts since the County (as the Lead Agency) lacks jurisdiction and control over State highway facilities, and cannot mandate the construction of improvements to these facilities.

## Section Format

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce significant impacts; and level of significance after mitigation, if any. This information is presented in the following format (Please refer to Section 2.0, Introduction, and Section 5.0, Environmental Setting, Impacts, and Mitigation, for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - Methodology
  - References
- Relevant Plans, Policies, and Regulations
- Environmental Setting
- Project Design Features
- Threshold Criteria
- Environmental Impacts – A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- References

## Methodology

The traffic study includes evaluation of on-site roadway and access needs and off-site analysis consisting of peak hour evaluation of freeway mainlines, major connectors such as the Interstate (I) 5/SR-138 and SR-14/SR-138 interchanges, interchange ramps at key growth locations (e.g., Santa Clarita Valley), arterial roadways and intersections within the Project site, and multi-lane highways.

Due to the significant size of the Project study area, multiple sources of traffic forecast volumes have been utilized to prepare a comprehensive set of future condition traffic volumes. The traffic forecasts for the study area roadway system were produced using a combination of sources: The North County Sub-Area Travel Demand Forecasting Model, the

Kern Council of Governments (Kern COG) Regional Transportation Plan (RTP) model, and the Santa Clarita Valley Consolidated Traffic Model (SCVCTM). For detailed on-site traffic data, a focused window model, the Centennial Traffic Model (CTM), was developed specifically for use in the traffic study. Existing conditions were characterized from traffic counts in Los Angeles County and Kern County during 2014 and 2015 (see Appendix 5.10-A). Future transportation conditions for Los Angeles County locations south of the Fort Tejon/I-5 interchange were evaluated by using data from a travel demand model that is a derivative of the Southern California Association of Governments' (SCAG's) 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) model which includes forecasts to 2035. Future transportation conditions for Kern County locations along I-5 and SR-99 north of the Fort Tejon/I-5 interchange were evaluated by using data from Kern COG's 2014 RTP/SCS model, which includes forecasts to 2040. Brief descriptions of each of these models follow.

### ***The North County Sub-Area Travel Demand Forecasting Model***

The North County Sub-Area Travel Demand Forecasting Model (North County sub-area model) was originally developed for use in the Northwest 138 Corridor Improvement Project in conjunction with Los Angeles County Metropolitan Transportation Authority (Metro) and Caltrans. The North County sub-area model is a derivative of the SCAG 2012 RTP/SCS model and is consistent with SCAG's regional forecasts. The model was refined for use in the *Antelope Valley Area Plan* (AVAP), which was adopted by the County in June 2015. The sub-area model reflects socioeconomic projections and transportation network improvements contained in the SCAG 2012 RTP/SCS and produces traffic forecasts for the year 2035. The model-area includes northern Los Angeles County, including the Santa Clarita Valley and the Cities of Lancaster and Palmdale), and portions of Kern County.

The AVAP version of the North County sub-area model was used to derive year 2035 future forecasted volumes for highway and roadway links in the study area (generally south of the Fort Tejon/I-5 interchange), with and without the maximum land use and development allowed under the Project. The North County sub-area model produced average daily traffic (ADT) volumes and AM and PM peak period volumes that were converted to peak hour estimates. The sub-area model was also used to analyze project impacts directly due to the Project. A special select zone model run was prepared to reflect the Project's trip generation quantities, and the resulting traffic volumes forecasts were assigned to the sub-area model's roadway network. The resulting traffic volumes represent the quantity of Project traffic on each of the roadway links in the study area. These volumes are incrementally added to the existing condition traffic counts to derive the existing plus Project scenario.

### ***Santa Clarita Valley Consolidated Traffic Model***

The Santa Clarita Valley Consolidated Traffic Model (SCVCTM) is a traffic demand model for the Santa Clarita Valley area of Los Angeles County. It was designed as a windowed model with a substantially higher level of detail than the associated regional models. The model has the capability for peak hour and ADT analysis, and is used by both the City of Santa Clarita and the County of Los Angeles as a forecasting tool for a variety of traffic studies in the Santa Clarita Valley.

The SCVCTM was originally prepared by the City of Santa Clarita and the County of Los Angeles in 1992 and has been updated for use for a variety of applications since that time. The SCVCTM utilizes detailed land use data and has the ability to provide traffic volume forecasts for a long-range cumulative setting. The buildout version of the model is based on the One Valley One Vision (OVOV) County Area Plan and City of Santa Clarita General Plan, which were adopted by the County and the City, respectively, in 2012.

The SCVCTM modeled area encompasses all of the Santa Clarita Valley, including the City of Santa Clarita as well as the adjacent unincorporated portions of Los Angeles County. The westerly boundary of the model area is the Ventura County line and the easterly boundary is just east of Agua Dulce Canyon Road. The northern boundary of the traffic model area is just north of the Castaic community and the southern boundary represents the confluence of the I-5 and SR-14 freeways. While the area modeled by the SCVCTM is within the modeled area of the North County sub-area model, the SCVCTM produces forecasts at a higher level of detail for the Santa Clarita Valley.

### ***Centennial Traffic Model Forecasts***

For on-site analyses, a special windowed land use-based model, the CTM was prepared, providing detailed traffic forecasting for the Project site itself. The external travel pattern relationships are derived from the AVAP version of the North County sub-area model and hence it is directly compatible with the area-wide modeling procedures utilized for the Project's off-site impact analysis.

The primary purpose of the CTM is to provide traffic forecasts for the Specific Plan area based on the specific land use designations of the planning areas and to evaluate Project access. Detailed intersection evaluation is provided with peak hour intersection design and intersection capacity evaluation. CTM is utilized to determine peak hour forecasts for primary access points along SR-138.

### ***SCAG and Kern COG Travel Models***

SCAG is responsible for the development and maintenance of regional travel demand forecasting models for the six county region: Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial. The SCAG 2012 RTP/SCS model includes forecasts for 2035 that were updated based on the recently approved AVAP and are utilized for evaluating potential Project impacts in locations south of the Fort Tejon/I-5 interchange in Los Angeles County. An informal check was also made against 2016–2040 RTP/SCS data released by SCAG, and the check indicated consistency with both the 2012–2035 RTP/SCS and the 2016–2040 RTP/SCS for the Centennial area.

The 2014 Kern COG RTP/SCS addresses regional transportation issues in the County of Kern. The Kern COG model was originally developed in 1996, with the latest comprehensive update occurring in support of the 2014 RTP/SCS. The 2014 Kern COG RTP/SCS model includes forecasts to 2040 and provides the most recent estimates available for evaluating potential Project impacts along I-5 and SR-99 north of the Fort Tejon/I-5 interchange in Kern County. The Draft Kern COG 2015-2050 Regional Growth Forecast Draft report was also informally consulted for growth assumption consistency.



### ***Future Transportation Settings***

Buildout of the Centennial Project is assumed to occur over a 20-year time frame and will accompany the long-term development of the Antelope Valley and the surrounding area. The Specific Plan buildout analysis is carried out for the long-range 2035 cumulative conditions time frame that was utilized for evaluation of the AVAP and OVOV Area Plan/General Plan. The Kern COG RTP/SCS 2040 forecasts were used for I-5 and SR-99 segments and ramps north of the Fort Tejon/I-5 interchange in Kern County. The long-range cumulative versions of the traffic models noted above were thereby used as the appropriate mechanisms for preparing long-range traffic volume forecasts.

### **References**

Although all references cited for preparation of this analysis are listed in Section 5.10.9, the primary technical references for this section are listed below.

Stantec. 2017 (May). *Centennial Specific Plan Traffic Study*. Irvine, CA: Stantec (Appendix 5.10-A).

California Department of Transportation (Caltrans). 2007 (June 13) Correspondence regarding: Centennial Traffic Study – February 2006, Methodology and Modeling (Appendix 5.10-B).

## **5.10.2 RELEVANT PLANS, POLICIES, AND REGULATIONS**

### **Regional**

#### ***SCAG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)***

SCAG is the Metropolitan Planning Organization (MPO) for six counties: San Bernardino, Orange, Riverside, Los Angeles, Ventura, and Imperial, which encompasses an area of more than 38,000 square miles with a population exceeding 19 million persons. As the designated MPO, the federal government mandates that SCAG research and prepare plans for transportation, growth management, hazardous waste management, and air quality. SCAG has developed a number of plans to achieve these regional objectives, including the 2012–2035 RTP/SCS, which was the current RTP/SCS at the time of the Project’s NOP.

The 2016–2040 RTP/SCS was adopted by SCAG on April 7, 2016, which is a long-range transportation plan that provides a vision for regional transportation investments over a period of 20 years or more. Using growth forecasts and economic trends, the RTP/SCS considers the role of transportation in a more holistic light, including economic factors, environmental issues, and quality-of-life goals. It provides an opportunity to identify transportation strategies that address mobility needs for the future, while demonstrates compliance with Senate Bill (SB) 375 (discussed in Section 5.21, Climate Change) to ensure that the SCAG region can meet its regional GHG reduction targets set by the California Air Resources Board (CARB). The RTP/SCS exceeds the targets issued by CARB (which are an 8-percent reduction by 2020 and a 13-percent reduction by 2035), and would result in an 8

percent reduction by 2020, an 18 percent reduction by 2035, and a 21 percent reduction by 2040 (SCAG 2016).

The goals of the 2016–2040 RTP/SCS are as follows (SCAG 2016):

- Goal 1:** Align the plan investments and policies with improving regional economic development and competitiveness.
- Goal 2:** Maximize mobility and accessibility for all people and goods in the region.
- Goal 3:** Ensure travel safety and reliability for all people and goods in the region.
- Goal 4:** Preserve and ensure a sustainable regional transportation system.
- Goal 5:** Maximize the productivity of our transportation system.
- Goal 6:** Protect the environment and health of our residents by improving air quality and encouraging active transportation (e.g., bicycling and walking).
- Goal 7:** Actively encourage and create incentives for energy efficiency, where possible.
- Goal 8:** Encourage land use and growth patterns that facilitate transit and active transportation.
- Goal 9:** Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.

The Project’s consistency with these goals is discussed in Section 5.8, Land Use, Entitlements, and Planning. Outcomes for these goals include mobility/accessibility, reliability, location efficiency, productivity, safety and health, economic well-being, cost effectiveness, system sustainability, and environmental quality, with the corresponding performance measures outlined in Table 5.10-1, RTP/SCS Performance Measures.

**TABLE 5.10-1  
RTP/SCS PERFORMANCE MEASURES**

<b>Outcome</b>	<b>Performance Measure/Indicator</b>	<b>Definition</b>	<b>Performance Target</b>
Location Efficiency	Share of growth in High-Quality Transit Areas (HQTAs)	Share of the region's growth in households and employment in HQTAs	Improvement(increase) over No Project Baseline
	Land consumption	Greenfield land consumed and refill land consumed	Improvement (decrease) over No Project Baseline
	Vehicle Miles Traveled (VMT)	Average daily vehicle miles driven per person	Improvement (decrease) over No Project Baseline
	Transit Mode Share	The share of total trips that use transit for work and non-work trips	Improvement (increase) over No Project Baseline
	Average distance for work and non-work trips	The average distance traveled for work or non-work trips	Improvement (decrease) over No Project Baseline
	Percent of trips less than 3 miles	The share of work and non-work trips which are fewer than 3 miles	Improvement (increase) over No Project Baseline
	Work trip length distribution	The statistical distribution of work trip length in the region	Improvement (increase) over No Project Baseline
Mobility and Accessibility	Person delay per capita	Delay per capita can be used as a supplemental measure to account for population growth impacts on delay	Improvement (decrease) over No Project Baseline
	Person delay by facility type	Delay: Excess travel time resulting from the difference between a reference speed and actual speed	Improvement (decrease) over No Project Baseline
	Truck delay by facility type	Delay: Excess travel time resulting from the difference between a reference speed and actual speed	Improvement (decrease) over No Project Baseline
	Travel time distribution for transit, SOV, HOV for work and non-work trips	Travel time distribution for transit, SOV, and HOV for work and non-work trips	Improvement (increase) over No Project Baseline
Safety and Health	Collision rates by severity by mode (per 100 million vehicle miles)	Collision rate per 100 million vehicle miles by mode and number of fatalities and serious injuries by mode (all, bicycle/ pedestrian)	Improvement (decrease) over No Project Baseline
	Criteria pollutants emissions (tons per day)	CO, NOx, PM2.5, PM10, and VOC	Meet federal air quality conformity requirements (FR)
	Air pollution-related health measures	Pollution-related respiratory disease incidence and cost	Improvement (decrease) over No Project Baseline
	Physical activity-related health measures	Physical activity/weight related health issues and costs	Improvement over No Project Baseline
	Mode share of walking and bicycling	Mode share of walking and biking for work trips, non-work trips and all trips	Improvement (increase) over No Project Baseline
Environmental Quality	Greenhouse gas emissions	CO, NOx, PM2.5, PM10, and VOC Per capita greenhouse gas emissions (CO <sub>2</sub> )	Meet State GHG reduction targets (SR)

**TABLE 5.10-1  
RTP/SCS PERFORMANCE MEASURES**

<b>Outcome</b>	<b>Performance Measure/Indicator</b>	<b>Definition</b>	<b>Performance Target</b>
Economic Well Being	Additional jobs supported by improving competitiveness	Number of jobs added to the economy as a result of improved transportation conditions which make the region more competitive	Improvement (increase) over No Project Baseline
	Additional jobs supported by transportation investment	Total number of jobs supported in the economy as a result of transportation expenditures	Improvement (increase) over No Project Baseline
Investment Effectiveness	Benefit/cost ratio	Ratio of monetized user and societal benefits to the agency transportation costs	Greater than 1.0
Transportation System Sustainability	Cost to preserve multimodal system to current and state of good repair	Annual costs per capita required to preserve the regional multimodal system to current conditions	Improvement (decrease) over No Project Baseline
<p>RTP/SCS: Regional Transportation Plan/Sustainable Communities Strategy; AQTA: High-Quality Transit Area; VMT: vehicle miles traveled; SOV: single-occupancy vehicle; HOV: high-occupancy vehicle; CO: carbon monoxide; FR: Federal Air Quality Conformity Requirements; CO<sub>2</sub>: carbon dioxide; SR: State GHG Reduction Targets; NO<sub>x</sub>: oxides of nitrogen; PM<sub>2.5</sub>: fine particulate matter with a diameter of 2.5 microns or less; PM<sub>10</sub>: respirable particulate matter with a diameter of 10 microns or less; VOC: volatile organic compounds; SCAG: Southern California Association of Governments</p> <p>Notes: Performance measures tied to goals for reliability, preservation, productivity, health, energy efficiency, and security cannot currently be reliably forecasted and are not included in Table 5.1. However, SCAG has identified related measures to be used for monitoring purposes, and these are discussed in the Performance Measures technical report.</p> <p>Performance measures are assessed at the regional level. SCAG encourages, but does not require, agencies to be consistent with the RTP/SCS performance measures to the extent practical in their subregional and project-level planning studies.</p> <p>Source: SCAG 2016.</p>			

### ***Federal Transportation Improvement Program (SCAG Region)***

The Federal Transportation Improvement Program (FTIP) is the implementation tool for the SCAG RTP/SCS and includes a listing of highway improvements, transit, rail and bus facilities, high occupancy vehicle lanes, signal synchronization, intersection improvements, freeway ramps and other transportation projects that have been proposed by cities and local agencies in the SCAG region. The 2015 FTIP lists federally funded projects and regionally significant projects for the six-year period 2014/2015–2019/2020 and was developed in compliance with State and federal requirements. The 2015 FTIP has been reviewed and adopted by SCAG. It has also been given an air quality conformity determination by the Federal Highway Administration (FHWA)/Federal Transit Administration (FTA). The 2015 FTIP includes completion of the Project Approval and Environmental Document (PA&ED) for alternative improvements to SR-138 from I-5 to SR-14.

### ***Kern COG 2014 RTP/SCS and Transportation Improvement Program***

As discussed above, the 2040 projections from the 2014 Kern COG RTP/SCS provide the most recent forecasts of future conditions for evaluating potential Project impacts to I-5 and SR-99 in Kern County north of the Fort Tejon/I-5 interchange. The Kern COG is the federally

designated Metropolitan Planning Organization and State-designated Regional Transportation Planning Agency responsible for preparing and updating the RTP/SCS for Kern County. The 2014 RTP/SCS is a 26-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. The 2014 RTP/SCS also includes measures that implement State requirements to reduce greenhouse gas (GHG) emissions from passenger vehicles and light-duty trucks by 5 percent per capita by 2020 and 10 percent per capita by 2035 as compared to 2005. Consistent with State and Federal transportation planning requirements, the Kern COG is responsible for preparing a Transportation Improvement Program (TIP) in cooperation with member agencies and Caltrans for all highways, streets, roads, aviation, transit and guideway projects in the Kern County area that use federal or State funding. Projects listed in the Ken County FTIP are designed to be consistent with, and implement, the Regional Transportation Plan for Kern County.

## **County**

### ***Congestion Management Program for Los Angeles County***

Sections 65088 through 65089 of the *California Government Code* require that a congestion management program be developed, adopted and updated biennially for every county. The program would have to address increasing traffic congestion on California's freeways and highways by linking transportation, land use, and air quality decisions and through coordination between State, regional, county, and city transportation and land use agencies, transit providers, and air pollution control districts.

The Congestion Management Program (CMP) for Los Angeles County was developed and is implemented by Metro, as the Congestion Management Agency for the County. The CMP was last updated in 2010 and addresses the impact of local growth on the regional transportation system. The CMP calls for (1) monitoring the designated CMP highway and roadway system; (2) a multi-modal system performance analysis; (3) a Transportation Demand Management Program to promote alternative modes of transportation; (4) a Land Use Analysis Program; (5) a seven-year capital improvement program of projects on the CMP highway and roadway system; and (6) a deficiency plan to maintain LOS standards.

The CMP requires cities and the County to monitor land use and roadway performance by individual jurisdictions and provide guidelines for preparing a Traffic Impact Analysis (TIA). The CMP also sets the LOS standard in Los Angeles County at LOS E, except where base year LOS is worse than E. The CMP highway system includes monitoring stations on the SR-14 and SR-138 in the Antelope Valley. The SR-14 and SR-138 monitoring stations operated at LOS D or better during the AM and PM peak hours in 2009 (Metro 2010).

### ***Congestion Management Program for Kern County***

The Congestion Management Program for Kern County (Kern CMP) is a section of the Kern COG RTP/SCS that is intended to relate population growth, traffic growth, and land use decisions to transportation system performance standards and air quality improvements. The Kern CMP contains six sections, including a land use impact analysis, multi-modal

performance standards, a regional traffic model, transportation demand management programs, a capital improvement program and a deficiency plan. As discussed below in Threshold 10-4, the traffic analysis considered potential Project impacts to State highway locations along I-5 and SR-99 in Kern County that are in the Kern CMP. The Project would be consistent with the CMP goals and objectives.

### ***County of Los Angeles General Plan and Antelope Valley Area Plan***

The *County of Los Angeles General Plan* and *Antelope Valley Area Plan* address traffic, access, and circulation issues that affect the County and the unincorporated area of the Antelope Valley. Relevant goals and policies in the Antelope Valley Area Plan include the following:

#### Land Use Element

**Policy LU 5.1:** Ensure that development is consistent with the Sustainable Communities Strategy adopted in 2012, an element of the Regional Transportation Plan developed by the Southern California Association of Governments.

**Policy LU 5.4:** Ensure that there is an appropriate balance of residential uses and employment opportunities within close proximity of each other.

#### Mobility Element

**Goal M 1:** Land use patterns that promote alternatives to automobile travel.

**Policy M 1.1:** Direct the majority of the unincorporated Antelope Valley's future growth to rural town centers and economic opportunity areas, to minimize travel time and reduce the number of vehicle trips, as indicated in the Land Use designations shown on the Land Use Policy Map (Map 2.1) of this Area Plan.

**Policy M 1.2:** Encourage the continued development of rural town center areas that provide for the daily needs of local residents, reducing the number of vehicle trips and providing local employment opportunities.

**Policy M 1.3:** Encourage new parks, recreation areas, and public facilities to locate in rural town center areas, rural town areas, and economic opportunity areas.

**Policy M 1.4:** Ensure that new developments have a balanced mix of residential uses and employment opportunities as well as park, recreation areas and public facilities within close proximity of each other.

**Policy M 1.5:** Promote alternatives to automobile travel in rural town center areas and rural town areas by linking these areas through pedestrian walkways, trails, and bicycle routes.

**Goal M 2:** Reduction of vehicle trips and emissions through effective management of travel demand, transportation systems, and parking.

**Policy M 2.1:** Encourage the reduction of home-to-work trips through the promotion of home-based businesses, live-work units, and telecommuting.

**Policy M 2.2:** Encourage trip reduction through promotion of carpools, vanpools, shuttles, and public transit.

**Policy M 2.3:** In evaluating new development proposals, require trip reduction measures to relieve congestion and reduce air pollution from vehicle emissions.

**Policy M 2.4:** Develop multi-modal transportation systems that offer alternatives to automobile travel by implementing the policies regarding regional transportation, local transit, bicycle routes, trails, and pedestrian access contained in this Mobility Element.

**Policy M 2.5:** As residential development occurs in communities, require transportation routes, including alternatives to automotive transit, to link to important local destination points such as shopping, services, employment, and recreation.

**Policy M 2.6:** Within rural town center areas, explore flexible parking regulations such as allowing residential and commercial development to meet parking requirements through a combination of on-site and off-site parking, where appropriate, or encouraging the provision of different types of parking spaces.

**Goal M 3:** An efficient network of major, secondary, and limited secondary highways to serve the Antelope Valley.

**Policy M 3.1:** Implement the adopted Highway Plan for the Antelope Valley, in cooperation with the cities of Lancaster and Palmdale. Ensure adequate funding on an ongoing basis through financing programs, such as grants, congestion pricing, bonding, fair share cost assignments, etc.

**Policy M 3.2:** In rural areas, require rural highway standards that minimize the width of paving and placement of curbs, gutters, sidewalks, street lighting, and traffic signals, as adopted by the Department of Public Works.

**Policy M 3.3:** Implement highway improvements only when necessitated by increasing traffic or new development or for safety reasons.

**Policy M 3.4:** Maintain existing highways to ensure safety, and require adequate street and house signage for emergency response vehicles.

**Policy M 3.5:** As future land use changes occur, periodically review traffic counts and traffic projections and revise the Highway Plan accordingly.

**Policy M 3.6:** Engage local communities and agencies in the planning and implementation of transportation improvements.

**Goal M 4:** A network of local streets that support the rural character of the unincorporated Antelope Valley without compromising public safety.

**Policy M 4.1:** Require rural local street standards that minimize the width of paving and placement of curbs, gutters, sidewalks, street lighting, and traffic signals, as adopted by the Department of Public Works.

**Policy M 4.2:** Maintain existing local streets to ensure safety, and require adequate signage for emergency response vehicles.

**Policy M 4.3:** Encourage ongoing maintenance of private local streets to ensure public safety.

**Goal M 5:** Long-haul truck traffic is separated from local traffic, reducing the impacts of truck traffic on local streets and residential areas.

**Policy M 5.1:** Support development of the High Desert Corridor and the Northwest 138 Corridor Improvement Project, to provide a route for truck traffic between Interstate 5, State Route 14, and Interstate 15.

**Policy M 5.2:** Direct truck traffic to designated truck routes and prohibit truck traffic on designated scenic routes, to the greatest extent feasible.

**Policy M 5.3:** Require that designated truck routes are designed and paved to accommodate truck traffic, preventing excessive pavement deterioration from truck use.

**Policy M 5.4:** Add rest stops along designated truck routes to provide stopping locations away from residential uses.

**Policy M 5.5:** Develop appropriate regulations for truck parking on local streets to avoid impacts to residential areas.

**Goal M 6:** A range of transportation options to connect the Antelope Valley to other regions.

**Policy M 6.1:** Support the development of Palmdale Regional Airport and encourage a range of commercial air travel options.

**Policy M 6.2:** Support the development of William J. Fox Airfield as a facility for general aviation, air cargo operations, and commuter air travel.

**Policy M 6.3:** Support the development of the High Desert Corridor and the Northwest 138 Corridor Improvement Project between Interstate 5, State Route 14, and Interstate 15, and encourage the participation of private enterprise and capital.

**Policy M 6.4:** Support increases in Metrolink commuter rail service, and support the expansion of commuter rail service on underutilized rail lines where appropriate.

**Policy M 6.5:** Support the development of the California High Speed Rail System, with a station in Palmdale to provide links to Northern California and other portions of Southern California, and encourage the participation of private enterprise and capital.

**Policy M 6.6:** Support the development of a high-speed rail system linking Palmdale to Victorville and Las Vegas, and encourage the participation of private enterprise and capital.

**Policy M 6.7:** Establish a regional transportation hub in Palmdale with feeder transit service to the rural areas of the unincorporated Antelope Valley.

**Policy M 6.8:** In planning for all regional transportation systems, consider and mitigate potential impacts to existing communities, and minimize land use conflicts.



**Policy M 6.9:** Engage regional agencies, such as Caltrans, SCAG, Metro, and the California High Speed Rail Authority in the implementation of an effective and efficient integrated multi-modal regional transportation network. Ensure adequate funding on an ongoing basis through financing programs, such as grants, congestion pricing, bonding, fair share cost assignments, etc.

**Goal M 7:** Bus service is maintained and enhanced throughout the Antelope Valley.

**Policy M 7.1:** Maintain and increase funding to the Antelope Valley Transit Authority for bus service.

**Policy M 7.2:** Support increases in bus service to heavily traveled areas and public facilities, such as parks and libraries.

**Policy M 7.3:** Support increases in bus service to rural communities, linking them to a regional transportation hub in Palmdale and shopping and employment centers in Lancaster and Palmdale.

**Policy M 7.4:** Improve access for all people, including seniors, youth, and the disabled, by maintaining off-peak service and equipping transit services for wheelchairs and bicycles.

**Policy M 7.5:** Encourage the use of advanced technologies in the planning and operation of the transit system.

**Goal M 8:** Alternative transit options in areas not reached by bus service.

**Policy M 8.1:** Support the expansion of dial-a-ride services to rural communities, linking them to a regional transportation hub in Palmdale and shopping and employment centers in Lancaster and Palmdale.

**Policy M 8.2:** Evaluate the feasibility of alternative transit options, such as community shuttle services and privately operated transit, to increase accessibility.

**Goal M 9:** A unified and well-maintained bicycle transportation system throughout the Antelope Valley with safe and convenient routes for commuting, recreation, and daily travel.

**Policy M 9.1:** Implement the adopted Bikeway Plan for the Antelope Valley in cooperation with the cities of Lancaster and Palmdale. Ensure adequate funding on an ongoing basis.

**Policy M 9.2:** Along streets and highways in rural areas, add safe bicycle routes that link to public facilities, a regional transportation hub in Palmdale, and shopping and employment centers in Lancaster and Palmdale.

**Policy M 9.3:** Ensure that bikeways and bicycle routes connect communities and offer alternative travel modes within communities.

**Policy M 9.4:** Encourage provision of bicycle racks and other equipment and facilities to support the use of bicycles as an alternative means of travel.

**Goal M 10:** A unified and well-maintained multi-use (equestrian, hiking, and mountain bicycling) trail system that links destinations such as rural town centers and recreation areas throughout the Antelope Valley.

**Policy M 10.1:** Implement the adopted Trails Plan for the Antelope Valley in cooperation with the cities of Lancaster and Palmdale. Ensure adequate funding on an ongoing basis.

**Policy M 10.2:** Connect new development to existing population centers with trails, requiring trail dedication and construction through the development review and permitting process.

**Policy M 10.3:** Maximize fair and reasonable opportunities to secure additional trail routes (dedicated multi-use trail easements) from willing property owners.

**Policy M 10.4:** Ensure trail access by establishing trailheads with adequate parking and access to public transit, where appropriate and feasible.

**Policy M 10.5:** Locate and design trail routes to minimize impacts to sensitive environmental resources and ecosystems.

**Policy M 10.6:** Where trail connections are not fully implemented, collaboratively work to establish safe interim connections.

**Policy M 10.7:** Ensure that existing trails and trailheads are properly maintained by the relevant agencies.

**Policy M 10.8:** Solicit community input to ensure that trails are compatible with local needs and character.

**Goal M 11:** A continuous, integrated system of safe and attractive pedestrian routes linking residents to rural town center areas, schools, services, transit, parks, and open space areas.

**Policy M 11.1:** Improve existing pedestrian routes and create new pedestrian routes, where appropriate and feasible. If paving is deemed necessary, require permeable paving consistent with rural community character instead of concrete sidewalks.

**Policy M 11.2:** Within rural town center areas, require that highways and streets provide pleasant pedestrian environments and implement traffic calming methods to increase public safety for pedestrians, bicyclists, and equestrian riders.

**Policy M 11.3:** Within rural town center areas, promote pedestrian-oriented scale and design features, including public plazas, directional signage, and community bulletin boards.

**Policy M 11.4:** Within rural town center areas, encourage parking to be located behind or beside structures, with primary building entries facing the street. Encourage also the provision of direct and clearly delineated pedestrian walkways from transit stops and parking areas to building entries.

**Policy M 11.5:** Implement traffic calming methods in areas with high pedestrian usage, such as school zones.

### Conservation and Open Space Element

**Policy COS 9.2:** Develop multi-modal transportation systems that offer alternatives to automobile travel to reduce the number of vehicle trips, including regional transportation, local transit, bicycle routes, trails, and pedestrian networks, as directed in the policies of the Mobility Element.

### Economic Development Element

**Policy ED 1.4:** Support the development of the High Desert Corridor and the Northwest 138 Corridor Improvement projects to improve the east-west movement of goods, particularly between the Antelope Valley and the industrial areas of Kern and San Bernardino counties and beyond.

**Policy ED 1.5:** Promote the development of an “Inland Port” in the Antelope Valley, providing additional employment in the trade and logistics sectors.

**Policy ED 1.6:** Support the development of a range of travel options that better connect the Antelope Valley to existing regional trade and employment in other regions, including the High Desert Corridor and the Northwest 138 Corridor Improvement Projects.

A consistency analysis of the proposed Project with applicable goals and policies in the County’s General Plan, AVAP, and other relevant plans, policies and regulations is provided in Section 5.8, Land Use, Entitlements, and Planning.

## **5.10.3 ENVIRONMENTAL SETTING**

The Project site is located east of the Golden State Freeway (I-5) and adjacent to SR-138 in northwestern unincorporated Los Angeles County. The northern boundary of the Project site extends to the Los Angeles/Kern County line and the southern boundary extends south of SR-138. The western boundary is approximately one mile east of I-5 and the eastern Project site boundary is defined by 290<sup>th</sup> Street West and the northern extension of Margalo Drive.

The Project site comprises approximately 12,323 acres of largely undeveloped land that is primarily used for grazing, with 1,000 acres used for agricultural purposes. SR-138 runs through the southern section of the site. In addition, 300<sup>th</sup> Street West runs through the eastern portion of the site from SR-138 over the East Branch of the California Aqueduct and to the agricultural fields to the north. Gorman Post Road crosses the southwestern portion of the Project site and runs in a northwesterly direction from SR-138 to the community of Gorman by I-5. Cement Plant Road is a paved roadway that runs northwesterly and northerly from SR-138 through the Project site to provide access to the National Cement Plant that is located northwest of the site in Kern County. Several paved access roads are also present near the West Branch of the California Aqueduct and associated facilities, which cut through the site. Other on-site paved roads lead to localized agricultural operations on the site. In addition, many unpaved roads exist as part of farming and grazing activities on the Project site.

Since Project-related traffic will utilize roadways within a much broader study area, for purposes of the analysis summarized in this section, the study area includes both local and the major regional roadways within an area defined by the northern end of the Santa Clarita Valley, the Palmdale/Lancaster area, and the southern Bakersfield region.

The Project site is approximately 35 miles north of the City of Santa Clarita and can be accessed via I-5. The site is approximately 50 miles south of the City of Bakersfield in Kern County, via I-5 and SR-99. The cities of Lancaster and Palmdale are located approximately 36 miles and 43 miles east of the Project site, respectively, via SR-138 and the Antelope Valley Freeway (SR-14) (see Exhibit 5.10-1, Project Site Location and Vicinity).

The following existing traffic conditions describe the current transportation system, traffic volumes, and operating conditions on the highway system in the study area. The existing traffic conditions described below provide the baseline for developing the study area's estimated future traffic conditions.

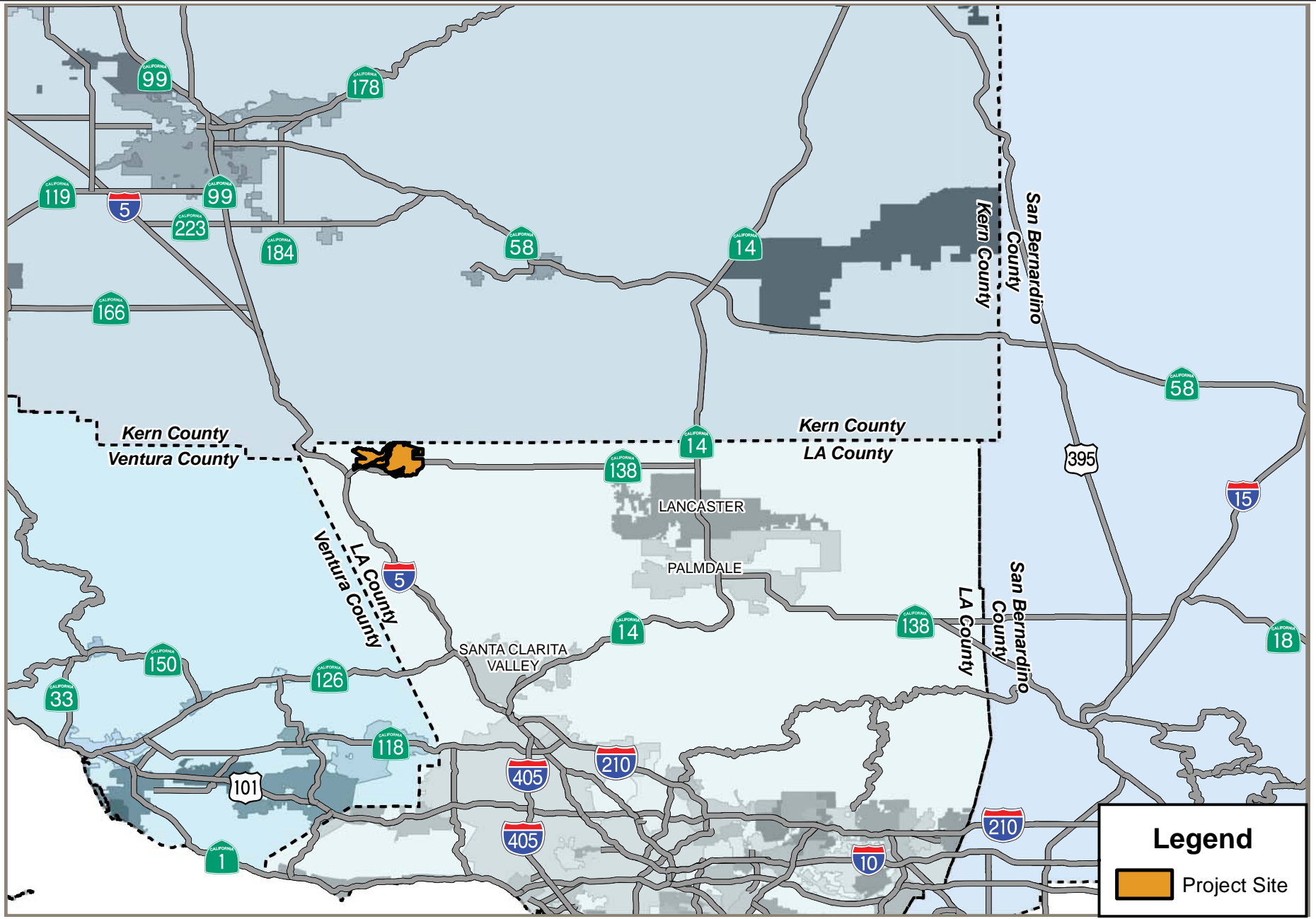
### **Existing Highway System**

The Golden State Freeway (or I-5) is located approximately one mile west of the site and currently has four lanes in each direction in the vicinity of the Project site. The SR-14 serves the eastern edge of the study area. The SR-14 freeway is currently two lanes in each direction in the vicinity of the SR-138/SR-14 partial cloverleaf interchange. Connecting I-5 to SR-14 as an east-west roadway is SR-138, which has a grade-separated, Y-style interchange with I-5 and four lanes from I-5 to approximately one mile east, where it transitions to a two-lane rural highway standard. SR-138 provides direct access to the Project site. The I-5 freeway continues north from the SR-138 intersection to Tejon Summit, located at the approximate border of Los Angeles County and Kern County, and then descends for approximately 6 miles at a 6 percent average grade from the Fort Tejon/I-5 interchange to the Grapevine Road/I-5 interchange on the San Joaquin Valley floor. The freeway has three mixed use and one truck lane in each direction in the grade area. SR-99 branches west from I-5 farther north in the valley and extends north through Bakersfield.

The highway system in the study area is illustrated in Exhibit 5.10-2, Study Area Highway System – Existing (2014 and 2015) Conditions.

Freeway capacities on a per-lane basis within the Project study area were derived for existing conditions using the methodology outlined in the *2010 Highway Capacity Manual* (TRB 2010). Table 5.10-2, Capacities for Freeways and Expressways– Existing Conditions, summarizes the capacities of freeways and regional highways (I-5, SR-14, SR-138 and SR-99) and the parameters used for their derivation.

D:\Projects\CEN\Centennial\GRA\PHICSEIR\Ex\_Project\_Location\_20160506.ai



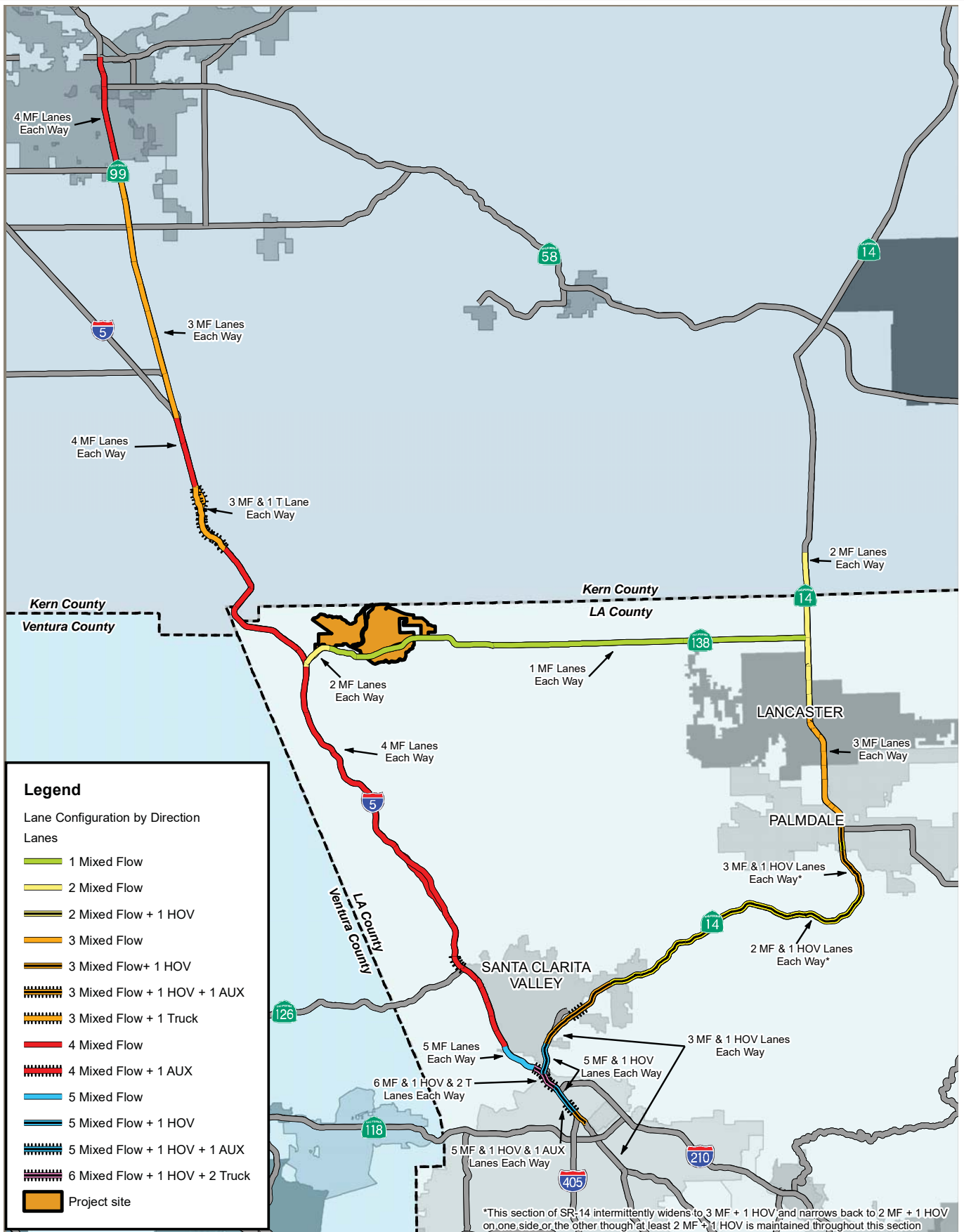
Source: Stantec 2016

### Project Site Location and Vicinity

### Exhibit 5.10-1

Centennial Project





Source: Stantec 2017

## Study Area Highway System – Existing (2014 and 2015) Conditions Exhibit 5.10-2

Centennial Project



**TABLE 5.10-2  
CAPACITIES FOR FREEWAYS AND EXPRESSWAYS - EXISTING CONDITIONS**

	Location	Lanes	MSF	f <sub>w</sub>	P <sub>T</sub>	E <sub>T</sub>	f <sub>HV</sub>	f <sub>P</sub>	SF/Lane
<b>I-5</b>									
1	Btw SR-99 and Laval/Wheeler	4M	2,400	1.0	22%	1.5	0.90	0.95	2,050
2a	Btw Laval/Wheeler and Grapevine (NB)	4M	2,400	1.0	22%	1.5	0.90	0.95	2,050
2b	Btw Laval/Wheeler and Grapevine (SB)	4M	2,400	1.0	22%	1.5	0.90	0.95	2,050
3a	Btw Grapevine and Fort Tejon Rd (NB)	2M	2,400	1.0	2.2%	3.0	0.96	0.95	2,206
3b	Btw Grapevine and Fort Tejon Rd (SB)	2M	2,300	1.0	2.2%	3.5	0.95	0.95	2,070
3c	Btw Grapevine and Fort Tejon Rd (Truck) (NB)	2M/T	-	-	100.0%	-	-	-	1,025
3d	Btw Grapevine and Fort Tejon Rd (Truck) (SB)	2M/T	-	-	100.0%	-	-	-	1,025
4a	Btw Fort Tejon Rd and Lebec Rd (NB)	4M	2,400	1.0	24%	2.0	0.81	0.95	1,839
4b	Btw Fort Tejon Rd and Lebec Rd (SB)	4M	2,400	1.0	24%	1.5	0.89	0.95	2,036
5a	Btw Lebec Rd and Frazier Mtn Park (NB)	4M	2,400	1.0	24%	2.0	0.81	0.95	1,839
5b	Btw Lebec Rd and Frazier Mtn Park (SB)	4M	2,400	1.0	24%	1.5	0.89	0.95	2,036
6a	Btw Frazier Mtn Park and Gorman Rd (NB)	4M	2,400	1.0	24%	1.5	0.89	0.95	2,036
6b	Btw Frazier Mtn Park and Gorman Rd (SB)	4M	2,350	1.0	24%	3.5	0.63	0.95	1,401
7a	Btw Gorman Rd and N Jct SR-138 (NB)	4M	2,400	1.0	23%	2.0	0.81	0.95	1,849
7b	Btw Gorman Rd and N Jct SR-138 (SB)	4M	2,400	1.0	23%	1.5	0.90	0.95	2,042
8a	Btw N Jct SR-138 and Quail Lake Rd (NB)	4M	2,400	1.0	23%	2.0	0.81	0.95	1,849
8b	Btw N Jct SR-138 and Quail Lake Rd (SB)	4M	2,400	1.0	23%	1.5	0.90	0.95	2,042
9	Btw Quail Lake Rd and S Jct SR-138	4M	2,350	1.0	25%	3.5	0.62	0.95	1,375
10	Btw S Jct SR-138 and Smokey Bear Rd	4M	2,350	1.0	25%	3.5	0.62	0.95	1,375
11	Btw Smokey Bear Rd and Vista Del Lago Rd	4M	2,350	1.0	25%	3.0	0.67	0.95	1,489
12	Btw Vista Del Lago Rd and Templin Hwy	4M	2,350	1.0	25%	3.0	0.67	0.95	1,489
13	Btw Templin Hwy and Lake Hughes Rd	4M	2,350	1.0	25%	3.0	0.67	0.95	1,489
14	Btw Lake Hughes Rd and Parker Rd	4M	2,400	1.0	15%	2.5	0.81	0.95	1,856
15	Btw Parker Rd and Hasley Cyn Rd	4M	2,400	1.0	15%	2.5	0.81	0.95	1,856
16	Btw Hasley Cyn Rd and N Jct SR-126	4M (+1A)	2,400	1.0	15%	2.5	0.81	0.95	1,856

**TABLE 5.10-2  
CAPACITIES FOR FREEWAYS AND EXPRESSWAYS - EXISTING CONDITIONS**

	Location	Lanes	MSF	f <sub>w</sub>	P <sub>T</sub>	E <sub>T</sub>	f <sub>HV</sub>	f <sub>P</sub>	SF/Lane
17	Btw N Jct SR-126 and Rye Cyn Rd	4M	2,400	1.0	15%	2.5	0.82	0.95	1,867
18	Btw Rye Cyn Rd and Magic Mountain Pkwy	4M	2,400	1.0	13%	2.5	0.84	0.95	1,918
19	Btw Magic Mountain Pkwy and Valencia Blvd	4M	2,400	1.0	13%	2.5	0.84	0.95	1,918
20	Btw Valencia Blvd and McBean Pkwy	4M	2,400	1.0	13%	2.5	0.84	0.95	1,918
21	Btw McBean Pkwy and Lyons Ave/Pico Cyn Rd	4M	2,400	1.0	10%	2.5	0.87	0.95	1,990
22a	Btw Lyons Ave and Calgrove Blvd (NB)	4M	2,400	1.0	10%	2.5	0.87	0.95	1,990
22b	Btw Lyons Ave and Calgrove Blvd (SB)	4M (+1T)	2,400	1.0	10%	2.5	0.87	0.95	1,990
23a	Btw Calgrove Blvd and SR-14 (NB)	4M (+1T[C])	2,400	1.0	10%	2.5	0.87	0.95	1,990
23b	Btw Calgrove Blvd and SR-14 (SB)	4M (+2T[C])	2,400	1.0	10%	2.5	0.87	0.95	1,990
24a	Btw SR-14 and SR-210 (NB)	3M (+1H+3A[F]+2T)	2,350	1.0	8%	2.5	0.89	0.95	1,997
24b	Btw SR-14 and SR-210 (SB)	4M (+1H+2A[F]+2T)	2,350	1.0	8%	2.5	0.89	0.95	1,997
25a	Btw SR-210 and Roxford (NB)	4M (+1H+1A[F])	2,400	1.0	6%	1.5	0.97	0.95	2,212
25b	Btw SR-210 and Roxford (SB)	5M (+1H)	2,400	1.0	6%	1.5	0.97	0.95	2,212
26	Btw Roxford St and I-405	5M (+1H+1A[F])	2,400	1.0	6%	1.5	0.97	0.95	2,212
27	Btw I-405 and San Fernando Mission Blvd	3M (+1H)	2,400	1.0	8%	1.5	0.96	0.95	2,190
<b>SR-14</b>									
28	Btw Dawn Rd and Rosamond Blvd	2M	2,400	1.0	6%	1.5	0.97	1.00	2,332
29	Btw Rosamond Blvd and Ave A	2M	2,400	1.0	5%	1.5	0.97	1.00	2,339
30	Ave A and N Jct SR-138/Ave D	2M	2,400	1.0	5%	1.5	0.97	1.00	2,339
31	Btw Jct SR-138/Ave D and Ave F	2M	2,400	1.0	6%	1.5	0.97	1.00	2,332
32	Btw Ave F and Ave G	2M	2,400	1.0	6%	1.5	0.97	1.00	2,332
33	Btw Ave G and Ave H	2M	2,400	1.0	6%	1.5	0.97	1.00	2,332
34	Btw Ave H and Ave I	2M	2,400	1.0	6%	1.5	0.97	1.00	2,332
35	Btw Ave I and Ave J	3M	2,400	1.0	6%	1.5	0.97	1.00	2,332
36	Btw Ave J and 20th St W	3M	2,400	1.0	5%	1.5	0.97	1.00	2,339
37	Btw 20th St W and Ave K	3M	2,400	1.0	5%	1.5	0.97	1.00	2,339
38	Btw Ave K and Ave L	3M	2,400	1.0	5%	1.5	0.97	1.00	2,339
39	Btw Ave L and Ave M	3M	2,400	1.0	5%	1.5	0.97	1.00	2,339
40	Btw Ave M and Ave N	3M	2,400	1.0	5%	1.5	0.97	1.00	2,339
41	Btw Ave N and 10th St W	3M	2,400	1.0	5%	1.5	0.97	1.00	2,339
42	Btw 10th St W and Rancho Vista Blvd	3M	2,400	1.0	5%	2.5	0.93	1.00	2,225



**TABLE 5.10-2  
CAPACITIES FOR FREEWAYS AND EXPRESSWAYS - EXISTING CONDITIONS**

	Location	Lanes	MSF	f <sub>w</sub>	P <sub>T</sub>	E <sub>T</sub>	f <sub>HV</sub>	f <sub>P</sub>	SF/Lane
43	Btw Rancho Vista Blvd and S Jct SR-138/Palmdale Blvd	3M	2,400	1.0	5%	2.5	0.93	1.00	2,225
44a	Btw S Jct SR-138 and Ave S (NB)	2M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,225
44b	Btw S Jct SR-138 and Ave S (SB)	3M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,225
45a	Btw Ave S and Pearblossom/Sierra Hwy (NB)	2M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,225
45b	Btw Ave S and Pearblossom/Sierra Hwy (SB)	3M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,225
46a	Btw Pearblossom/Sierra Hwy and Angeles Forest Hwy (NB)	2M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,225
46b	Btw Pearblossom/Sierra Hwy and Angeles Forest Hwy (SB)	3M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,225
47a	Btw Angeles Forest Hwy and Soledad (NB)	3M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,225
47b	Btw Angeles Forest Hwy and Soledad (SB)	2M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,225
48	Btw Soledad and Santiago Rd	2M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,236
49	Btw Santiago Rd and Crown Valley Rd	2M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,236
50	Btw Crown Valley Rd and Ward Rd	2M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,236
51a	Btw Ward Rd and Escondido Cyn Rd (NB)	3M (+1H)	2,350	1.0	5%	2.5	0.93	1.00	2,189
51b	Btw Ward Rd and Escondido Cyn Rd (SB)	2M (+1H)	2,350	1.0	5%	2.5	0.93	1.00	2,189
52a	Btw Escondido Cyn Rd and Agua Dulce Cyn Rd (NB)	3M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,236
52b	Btw Escondido Cyn Rd and Agua Dulce Cyn Rd (SB)	2M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,236
53a	Btw Agua Dulce Cyn Rd and Soledad Rd (NB)	3M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,236
53b	Btw Agua Dulce Cyn Rd and Soledad Rd (SB)	2M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,236
54	Btw Shadow Pines/Soledad Rd and Sand Cyn Rd	2M (+1H)	2,400	1.0	5%	2.5	0.93	1.00	2,236
55	Btw Sand Cyn Rd and Via Princessa	3M (+1H)	2,400	1.0	6%	2.5	0.92	1.00	2,215
56	Btw Via Princessa and Golden Valley Rd	3M (+1H+1A)	2,400	1.0	6%	2.5	0.92	1.00	2,215
57	Btw Golden Valley Rd and Placerita Cyn Rd	3M (+1H)	2,400	1.0	6%	2.5	0.92	1.00	2,215
58	Btw Placerita Cyn Rd and San Fernando Rd/Newhall Ave*	3M (+1H)	2,400	1.0	6%	2.5	0.92	1.00	2,215
59	Btw San Fernando Rd//Newhall Ave and Jct I-5	5M (+1H)	2,400	1.0	6%	2.5	0.92	1.00	2,215

**TABLE 5.10-2  
CAPACITIES FOR FREEWAYS AND EXPRESSWAYS – EXISTING CONDITIONS**

Location		Lanes	MSF	fw	P <sub>T</sub>	E <sub>T</sub>	f <sub>HV</sub>	f <sub>P</sub>	SF/Lane
<b>SR-138</b>									
60	Btw Jct I-5 and Gorman Post Rd	2M	2,100	N/A	21%	1.5	0.91	1.00	1,904
61	Btw Gorman Post Rd and Old Ridge Route Rd	1M	2,100	N/A	21%	1.5	0.91	1.00	1,904
62	Btw Old Ridge Route Rd and 300th St W	1M	2,100	N/A	21%	1.5	0.91	1.00	1,904
63	Btw 300th St W and Three Pts Rd	1M	2,100	N/A	21%	1.5	0.91	1.00	1,904
64	Btw Three Pts Rd and 245th St (Ave F)	1M	2,100	N/A	21%	1.5	0.91	1.00	1,904
65	Btw 245th St W and 170th St W	1M	2,100	N/A	21%	1.5	0.91	1.00	1,904
66	Btw 170th St W and 110th St W	1M	2,100	N/A	14%	1.5	0.93	1.00	1,962
67	Btw 110th St W and 60th W	1M	2,100	N/A	14%	1.5	0.93	1.00	1,962
68	Btw 60th W and Jct SR-14 North	1M	2,100	N/A	14%	1.5	0.93	1.00	1,962
<b>SR 99</b>									
70	Btw Stockdale Hwy and Jct SR-58 W	4M	2,400	1.0	14%	1.5	0.94	1.00	2,246
71	Btw SR-58 W and SR-58E	4M	2,400	1.0	14%	1.5	0.94	1.00	2,246
72	Btw Jct SR-58 E and Ming Ave	4M	2,400	1.0	14%	1.5	0.94	1.00	2,246
73	Btw Ming Ave and White Lane	4M	2,400	1.0	9%	1.5	0.96	1.00	2,296
74	Btw White Lane and Panama Lane	4M	2,400	1.0	9%	1.5	0.96	1.00	2,296
75	Btw Panama Lane and Jct SR-119 W	4M	2,400	1.0	9%	1.5	0.96	1.00	2,296
76	Btw Jct SR-119 W and Houghton Rd	3M	2,400	1.0	24%	1.5	0.89	1.00	2,141
77	Btw Houghton Rd and Jct SR-233 E	3M	2,400	1.0	24%	1.5	0.89	1.00	2,141
78	Btw Jct SR-223 E and Old U.S. 99	3M	2,400	1.0	25%	1.5	0.89	1.00	2,133
79	Btw Old U.S. 99 and Herring Rd	3M	2,400	1.0	25%	1.5	0.89	1.00	2,133
80	Btw Herring Rd and Sandrini Rd.	3M	2,400	1.0	25%	1.5	0.89	1.00	2,133
81	Btw Sandrini Rd and David Rd	3M	2,400	1.0	25%	1.5	0.89	1.00	2,133
82	Btw David Rd and Valpredo	3M	2,400	1.0	25%	1.5	0.89	1.00	2,133
83	Btw Valpredo and Jct SR-166 W	3M	2,400	1.0	29%	1.5	0.87	1.00	2,096
84	Btw Jct SR-166 W and Jct I-5	3M	2,400	1.0	34%	1.5	0.86	1.00	2,054
<p>MSF: Maximum service flow rate per mixed flow (general purpose) lane under ideal conditions (vph); fw: Lane width factor; P<sub>T</sub>: Proportion of heavy vehicles; E<sub>T</sub>: Passenger car equivalent for heavy vehicles; f<sub>HV</sub>: Heavy vehicle adjustment factor; f<sub>P</sub>: Driver population factor; SF: service flow rate for LOS "E" under prevailing roadway conditions for mixed flow (general purpose) lanes (vph); Btw: between; SR: State Route; #M: number of mixed flow lanes; NB: northbound; SB: southbound #T: number of truck lanes; Jct: junction; #HOV: number of HOV lanes; (N): north; (S): south; (NB): northbound; (SB): southbound; n/o: north of; s/o: south of.</p> <p><sup>a</sup> Based on field survey of location (source: Caltrans)</p> <p>Capacities for special use lanes:            High Occupancy Vehicle (HOV) or High Occupancy Toll (HOT) Lane: 1,600 vehicles/hour/lane            Auxiliary Lane: 1,000 vehicles/hour/lane            Auxiliary Lane for Freeway to Freeway Connectors: 2,000 vehicles/hour/lane            Truck Lane: 1,600 vehicles/hour/lane            Truck Lane on Extended Uphill Grade: 1,200 vehicles/hour/lane</p> <p>Source: Stantec 2017 (Table 2-1).</p>									

### Existing Traffic Volumes

Daily traffic volumes for representative locations within the study area are provided in Exhibit 5.10-3, Average Daily Traffic Volumes – Existing Conditions. Peak hour turning movement volumes at intersections along SR-138 in the vicinity of the Project site are provided in Exhibit 5.10-4, AM Peak Hour Intersection Volume Counts on SR-138 (Existing Conditions) and Exhibit 5.10-5, PM Peak Hour Intersection Volume Counts on SR-138 (Existing Conditions). SR-138, the only regional roadway that currently exists adjacent to the Project site, has an existing ADT of about 5,000 between I-5 and SR-14 (see Exhibit 5.10-3).

Existing traffic counts used for the intersection analysis were collected in 2014 and 2015. Counts for intersections near the Project site, along SR-138/Avenue D, were collected in July 2015. Counts for intersections in Kern County were collected in July 2015 and counts for ramp-arterial intersections along the I-5 freeway in the Castaic area and Santa Clarita Valley area were collected between 2014 and 2015.

For State highways, traffic count data was obtained from the Caltrans Traffic Census, the Caltrans Performance Measurement System (PeMS) and the Los Angeles County Department of Public Works Machine Count Traffic Volumes database. These traffic counts represent 2014 and 2010 conditions, which is the most current data available from Caltrans and the County, respectively, at this time.

Table 5.10-3 provides the ICU and LOS analysis conducted for select intersections in the study area. As shown, all intersections operate at LOS D or better.

**TABLE 5.10-3  
ICU AND LOS SUMMARY – EXISTING (2014 AND 2015) CONDITIONS**

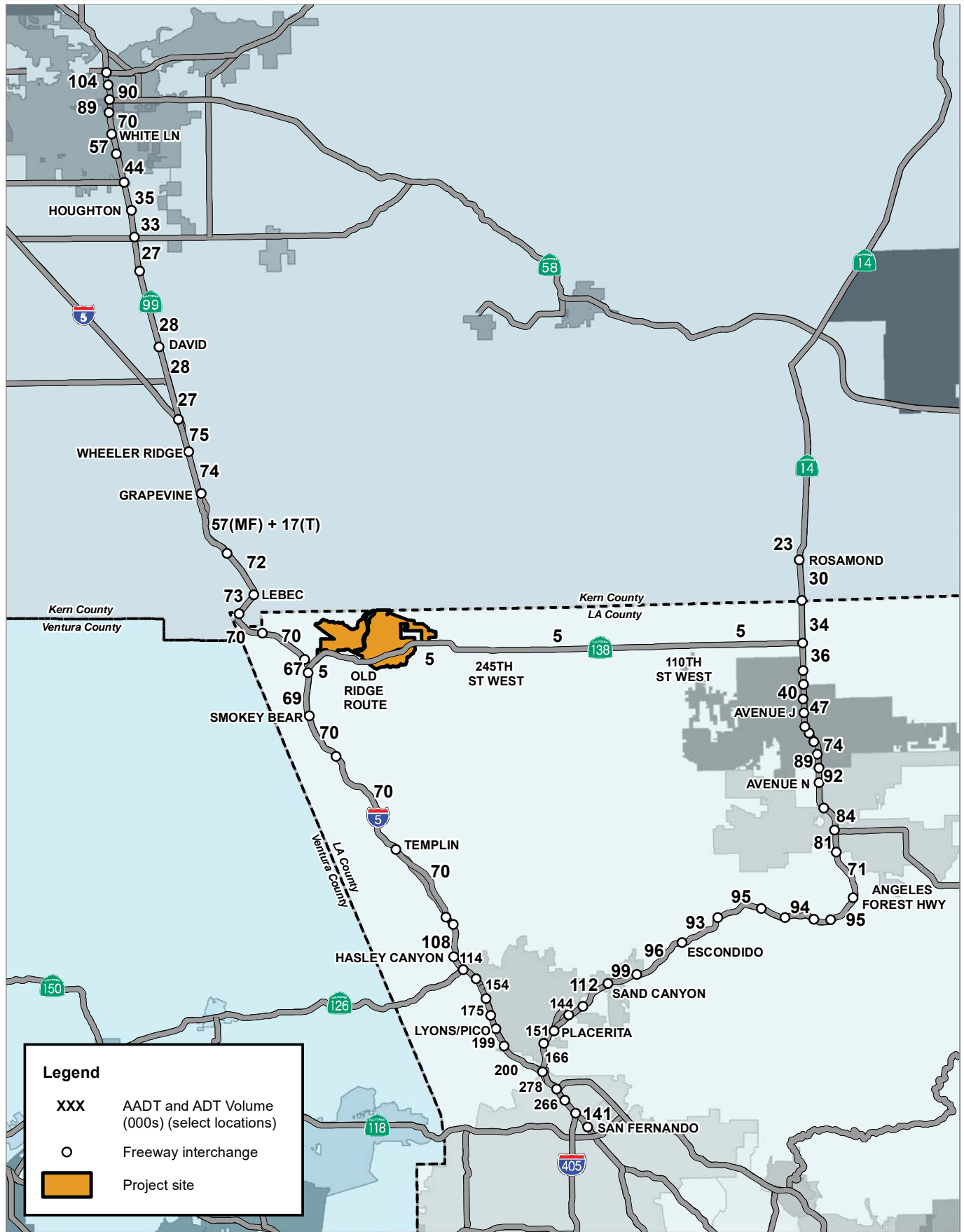
Intersection	Jurisdiction	AM Peak Hour		PM Peak Hour		Count
		ICU	LOS	ICU	LOS	Date
3. 300th St W and SR-138 <sup>1</sup>	LA County/Caltrans	0.17	A	0.20	A	7/14/2015
6. Three Points Road and SR-138	LA County/Caltrans	0.19	A	0.21	A	7/14/2015
7. 245th St W and SR-138	LA County/Caltrans	0.17	A	0.19	A	7/14/2015
8. 230th St W and SR-138	LA County/Caltrans	0.16	A	0.19	A	7/14/2015
9. 190th St W and SR-138	LA County/Caltrans	0.17	A	0.19	A	7/14/2015
10. 170th St W and SR-138	LA County/Caltrans	0.20	A	0.20	A	7/14/2015
11. 110th St W and SR-138	LA County/Caltrans	0.17	A	0.21	A	7/15/2015
12. 90th St W and SR-138	LA County/Caltrans	0.20	A	0.25	A	7/14/2015
13. 60th St W and SR-138 <sup>1</sup>	LA County/Caltrans	0.22	A	0.25	A	7/14/2015
14. 30th St W and SR-138	LA County/Caltrans	0.20	A	0.21	A	7/15/2015
15. SR-14 SB Ramps and SR-138	Caltrans	0.18	A	0.19	A	7/15/2015
16. SR-14 NB Ramps and SR-138	Caltrans	0.18	A	0.20	A	7/16/2015
17. 90 <sup>th</sup> St W/Willow Springs and Rosamond <sup>2</sup>	Kern County	0.16	A	0.22	A	7/14/2015
18. Willow Springs and Oak Creek <sup>2</sup>	Kern County	0.21	A	0.22	A	7/15/2015
19. Willow Springs and Highline <sup>2</sup>	Kern County	0.21	A	0.30	A	7/16/2015

**TABLE 5.10-3  
ICU AND LOS SUMMARY – EXISTING (2014 AND 2015) CONDITIONS**

Intersection	Jurisdiction	AM Peak Hour		PM Peak Hour		Count
		ICU	LOS	ICU	LOS	Date
20. Bear Mountain Blvd/SR-223 and Wheeler Ridge Rd <sup>2</sup>	Kern County/Caltrans	0.32	A	0.46	A	7/14/2015
21. The Old Road and I-5 SB Ramps	LA County/Caltrans	0.41	A	0.39	A	1/27/2015
22. I-5 NB Ramps and Lake Hughes	LA County/Caltrans	0.31	A	0.41	A	1/27/2015
23. I-5 SB On Ramp and Parker	LA County/Caltrans	0.60	A	0.52	A	1/22/2015
24. I-5 NB Off Ramp and Parker	LA County/Caltrans	0.46	A	0.55	A	1/22/2015
25. I-5 NB Ramps and Hasley Canyon	LA County/Caltrans	11.5*	B	11.9*	B	11/4/2014
26. I-5 SB Ramps and Sedona/Old Road	LA County/Caltrans	0.71	C	0.55	A	11/4/2014
27. The Old Road and Hasley Canyon	LA County	8.7*	A	9.5*	A	11/4/2014
28. I-5 NB Ramps and SR-126	Caltrans	0.66	B	0.64	B	3/4/2014
29. I-5 SB Ramps and SR-126	Caltrans	0.75	C	0.48	A	4/1/2014
30. The Old Road and I-5 SB Ramps	LA County/Caltrans	0.70	B	0.85	D	3/11/2014
31. I-5 SB Ramps and Magic Mountain	LA County/Caltrans	0.44	A	0.40	A	3/11/2014
32. I-5 NB Ramps and Magic Mountain	City of Santa Clarita/Caltrans	0.52	A	0.45	A	3/5/2014
33. I-5 SB Ramps and Valencia	LA County/Caltrans	0.41	A	0.39	A	3/11/2014
34. I-5 NB Ramps and Valencia	City of Santa Clarita/Caltrans	0.55	A	0.48	A	3/11/2014
35. I-5 SB Ramps and McBean	LA County/Caltrans	0.43	A	0.55	A	3/13/2014
36. I-5 NB Ramps and McBean	City of Santa Clarita/Caltrans	0.44	A	0.53	A	3/11/2014
37. I-5 SB/Marriott and Pico/Lyons	LA County/Caltrans	0.43	A	0.63	B	3/11/2014
38 I-5 NB On/Off and Lyons Ave	City of Santa Clarita/Caltrans	0.55	A	0.63	B	3/11/2014
39. I-5 SB Ramps and Calgrove	City of Santa Clarita/Caltrans	0.46	A	0.57	A	3/11/2014
40. I-5 NB Ramps and Calgrove	City of Santa Clarita/Caltrans	0.53	A	0.46	A	3/11/2014

ICU: intersection capacity utilization; LOS: level of service  
 \* This location is a roundabout; therefore, the LOS shown is based on average delay (sec/veh)  
 1 denotes LA County CMP route and cross street  
 2 denotes Kern County CMP principal arterial  
 Source: Stantec 2017 (Table 2-2).

D:\Projects\CEN\Centennial\GRAPHICS\EIR\Ex\_AvgDailyTrafficVolumes\_20170511.ai



Source: Stantec 2017

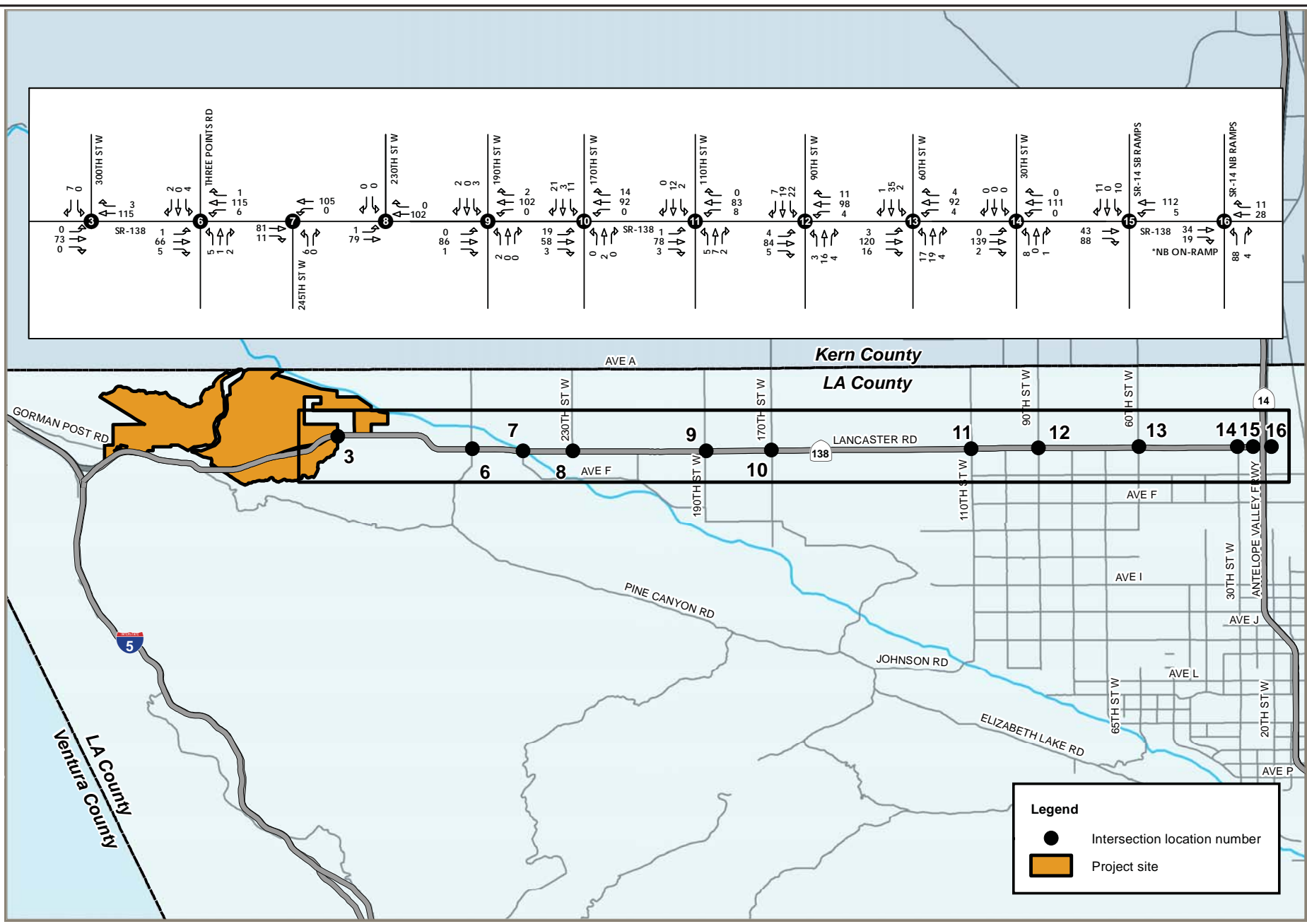
# Average Daily Traffic Volumes – Existing Conditions

# Exhibit 5.10-3

Centennial Project



D:\Projects\CEN\Centennial\GRAPHICS\EIR\EX\_AMPeakHour\Volumes\_20160506.ai



Source: Stantec 2017

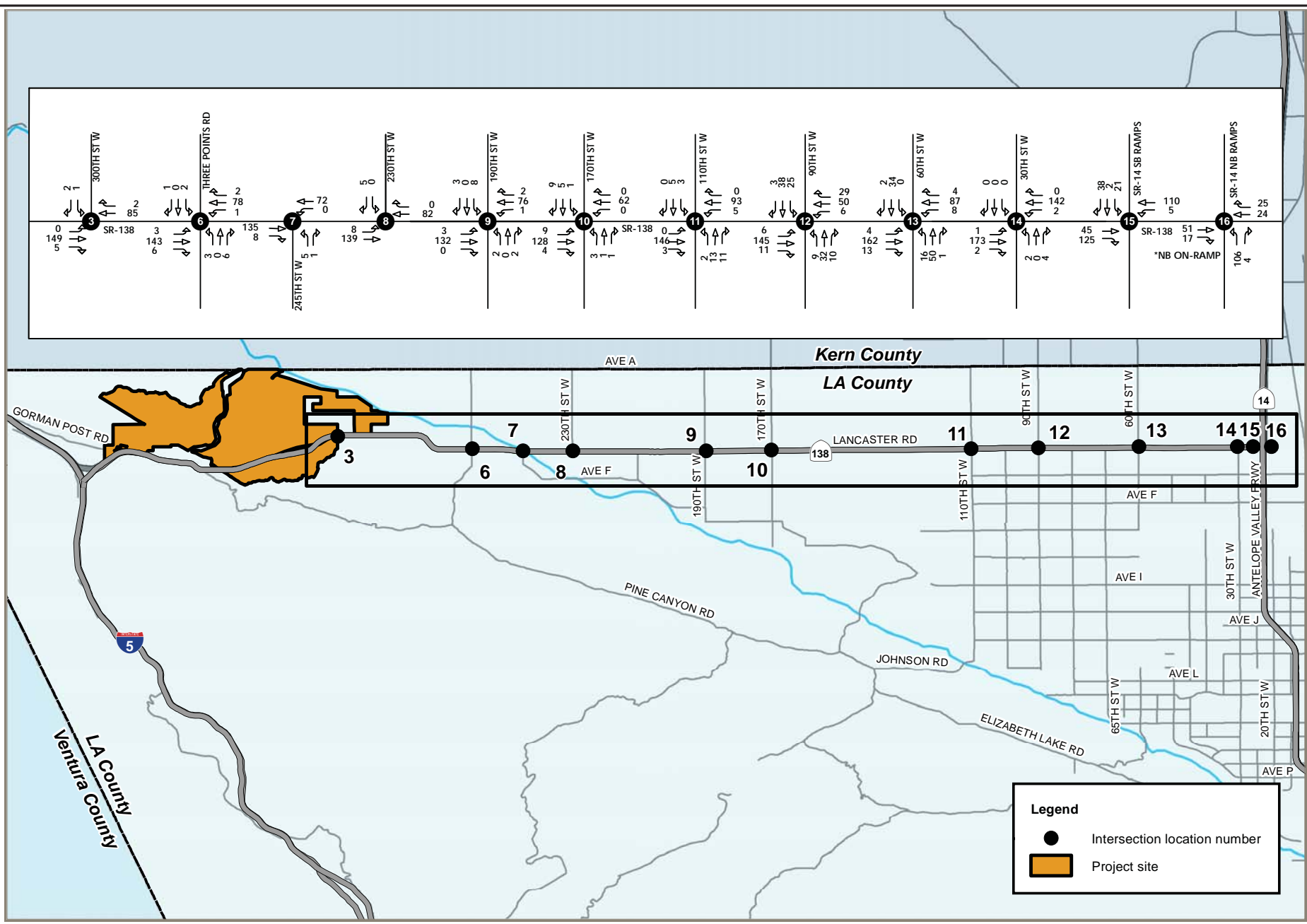
# AM Peak Hour Intersection Volume Counts on SR-138 (Existing Conditions)

## Exhibit 5.10-4

Centennial Project



D:\Projects\CEN\Centennial\GRAPHICS\EIR\EX\_PMPeakHourVolumes\_20160506.ai



PM Peak Hour Intersection Volume Counts on SR-138 (Existing Conditions)

Exhibit 5.10-5

Centennial Project



Annual average daily traffic (AADT), ADT, peak hour freeway volumes and the corresponding vehicle to capacity (V/C) ratios for existing peak hour conditions are shown in Table 5.10-4 (northbound and eastbound directions) and Table 5.10-5 (southbound and westbound directions). Existing (2014 and 2015) AADT volumes were obtained from the Caltrans Traffic Census. For SR-138, mid-block and intersection counts were collected. The most accurate indication of congestion is average speeds, which have been obtained for freeway segments known to have recurring peak hour congestions. Based on average speeds, the areas of the I-5 from the Santa Clarita Valley area to the I-405 junction experience peak hour speeds indicative of recurring congestion. In addition, congestion on the SR-14 occurs in the westbound direction in the AM, and eastbound during the PM.

Peak hour volumes and the corresponding V/C ratios for select freeway on-ramps and off-ramps that have the potential to be affected by the Project are presented in Table 5.10-6. Ramp volume data was derived using the same methodology used for the freeway mainline segments.



**TABLE 5.10-4  
EXISTING (2014 AND 2015) FREEWAY PEAK HOUR VOLUMES AND V/C SUMMARY - NORTHBOUND AND EASTBOUND**

Location		AADT Volume (2-Way)	Northbound/Eastbound					
			Lanes	Total Capacity	AM Vol	AM V/C	PM Vol	PM V/C
<b>I-5</b>								
1	Btw SR-99 and Laval/Wheeler	75,000	4M	8,200	1,561	0.19	2,158	0.26
2	Btw Laval/Wheeler and Grapevine	74,000	4M	8,200	1,570	0.19	2,051	0.25
3a	Btw. Grapevine and Fort Tejon Rd (Mixed-flow)	50,000	2M	4,412	1,013	0.23	1,362	0.31
3b	Btw. Grapevine and Fort Tejon Rd (Mixed-flow + Truck)	24,000	2M/T	2,050	528	0.26	673	0.33
4	Btw Fort Tejon Rd and Lebec Rd	72,000	4M	7,355	1,390	0.19	2,426	0.33
5	Btw Lebec Rd and Frazier Mtn Park	73,000	4M	7,355	1,409	0.19	2,460	0.33
6	Btw Frazier Mtn Park and Gorman Rd	70,000	4M	8,143	1,351	0.17	2,359	0.29
7	Btw Gorman Rd and N Jct SR-138	70,000	4M	7,398	1,351	0.18	2,359	0.32
8	Btw N Jct SR-138 and Quail Lake Rd	67,000	4M	7,398	1,293	0.17	2,258	0.31
9	Btw Quail Lake Rd and S Jct SR-138	67,000	4M	5,500	1,293	0.24	2,258	0.41
10	Btw S Jct SR-138 and Smokey Bear Rd	69,000	4M	5,500	1,332	0.24	2,325	0.42
11	Btw Smokey Bear Rd and Vista Del Lago Rd	70,000	4M	5,957	1,351	0.23	2,359	0.40
12	Btw Vista Del Lago Rd and Templin Hwy	70,000	4M	5,957	1,351	0.23	2,359	0.40
13	Btw Templin Hwy and Lake Hughes Rd	70,000	4M	5,957	1,351	0.23	2,359	0.40
14	Btw Lake Hughes Rd and Parker Rd	73,000	4M	7,422	1,504	0.20	1,949	0.26
15	Btw Parker Rd and Hasley Cyn Rd	108,000	4M	7,422	2,225	0.30	2,884	0.39
16	Btw Hasley Cyn Rd and N Jct SR-126 (NB)	114,000	4M (+1A)	8,422	2,348	0.28	3,044	0.36
17	Btw N Jct SR-126 and Rye Cyn Rd	130,000	4M	7,470	2,678	0.36	3,471	0.46
18	Btw Rye Cyn Rd and Magic Mountain Pkwy	154,000	4M	7,670	3,172	0.41	4,112	0.54
19	Btw Magic Mountain Pkwy and Valencia Blvd	165,000	4M	7,670	3,399	0.44	4,406	0.57
20	Btw Valencia Blvd and McBean Pkwy	175,000	4M	7,670	3,605	0.47	4,673	0.61
21	Btw McBean Pkwy and Lyons Ave/Pico Cyn Rd	186,000	4M	7,960	3,832	0.48	4,966	0.62
22	Btw Lyons Ave and Calgrove Blvd	199,000	4M	7,960	4,099	0.52	5,313	0.67
23	Btw Calgrove Blvd and SR-14	200,000	4M (+1T[C])	9,160	4,120	0.45	5,340	0.58
24	Btw SR-14 and SR-210	278,000	3M (+1H+3A[F]+2T)	16,791	6,644	0.40	7,951	0.47
25	Btw SR-210 and Roxford	266,000	4M (+1H+1A[F])	12,449	6,357	0.51	7,608	0.61

**TABLE 5.10-4  
EXISTING (2014 AND 2015) FREEWAY PEAK HOUR VOLUMES AND V/C SUMMARY - NORTHBOUND AND EASTBOUND**

Location		AADT Volume (2-Way)	Northbound/Eastbound					
			Lanes	Total Capacity	AM Vol	AM V/C	PM Vol	PM V/C
26	Btw Roxford St and I-405	283,000	5M (+1H+1A[F])	14,661	6,764	0.46	8,094	0.55
27	Btw I-405 and San Fernando Mission Blvd	141,000	3M (+1H)	8,171	3,370	0.41	4,033	0.49
<b>SR-14</b>								
28	Btw Dawn Rd and Rosamond Blvd	23,000	2M	4,665	1,083	0.23	849	0.18
29	Btw Rosamond Blvd and Ave A	30,000	2M	4,679	651	0.14	1,725	0.37
30	Ave A and N Jct SR-138/Ave D	34,000	2M	4,679	1,244	0.27	1,261	0.27
31	Btw Jct SR-138/Ave D and Ave F	36,000	2M	4,665	1,318	0.28	1,336	0.29
32	Btw Ave F and Ave G	38,000	2M	4,665	1,391	0.30	1,410	0.30
33	Btw Ave G and Ave H	38,000	2M	4,665	1,391	0.30	1,410	0.30
34	Btw Ave H and Ave I	40,000	2M	4,665	1,328	0.28	1,484	0.32
35	Btw Ave I and Ave J	47,000	3M	6,997	1,560	0.22	1,744	0.25
36	Btw Ave J and 20th St W	42,000	3M	7,016	1,394	0.20	1,558	0.22
37	Btw 20th St W and Ave K	59,000	3M	7,016	1,959	0.28	2,189	0.31
38	Btw Ave K and Ave L	74,000	3M	7,016	2,457	0.35	2,745	0.39
39	Btw Ave L and Ave M	89,000	3M	7,016	2,955	0.42	3,302	0.47
40	Btw Ave M and Ave N	92,000	3M	7,016	3,054	0.44	3,413	0.49
41	Btw Ave N and 10th St W	87,000	3M	7,016	2,888	0.41	3,228	0.46
42	Btw 10th St W and Rancho Vista Blvd	87,000	3M	6,675	2,888	0.43	3,228	0.48
43	Btw Rancho Vista Blvd and S Jct SR-138/Palmdale Blvd	84,000	3M	6,675	2,789	0.42	3,116	0.47
44	Btw S Jct SR-138 and Ave S	81,000	2M (+1H)	6,050	2,689	0.44	3,005	0.50
45	Btw Ave S and Pearblossom/Sierra Hwy	71,000	2M (+1H)	6,050	2,357	0.39	2,634	0.44
46	Btw Pearblossom/Sierra Hwy and Angeles Forest Hwy	83,000	2M (+1H)	6,050	2,756	0.46	3,079	0.51
47	Btw Angeles Forest Hwy and Soledad	95,000	3M (+1H)	8,275	3,154	0.38	3,525	0.43
48	Btw Soledad and Santiago Rd	95,000	2M (+1H)	6,071	3,154	0.52	3,525	0.58
49	Btw Santiago Rd and Crown Valley Rd	94,000	2M (+1H)	6,071	3,121	0.51	3,487	0.57
50	Btw Crown Valley Rd and Ward Rd	95,000	2M (+1H)	6,071	3,154	0.52	3,525	0.58

**TABLE 5.10-4  
EXISTING (2014 AND 2015) FREEWAY PEAK HOUR VOLUMES AND V/C SUMMARY - NORTHBOUND AND EASTBOUND**

Location		AADT Volume (2-Way)	Northbound/Eastbound					
			Lanes	Total Capacity	AM Vol	AM V/C	PM Vol	PM V/C
51	Btw Ward Rd and Escondido Cyn Rd	93,000	3M (+1H)	8,167	3,088	0.38	3,450	0.42
52	Btw Escondido Cyn Rd and Agua Dulce Cyn Rd	93,000	3M (+1H)	8,307	1,776	0.21	4,669	0.56
53	Btw Agua Dulce Cyn Rd and Soledad Rd	96,000	3M (+1H)	8,307	1,834	0.22	4,819	0.58
54	Btw Shadow Pines/Soledad Rd and Sand Cyn Rd	99,000	2M (+1H)	6,071	1,891	0.31	4,970	0.82
55	Btw Sand Cyn Rd and Via Princessa	112,000	3M (+1H)	8,246	2,139	0.26	5,622	0.68
56	Btw Via Princessa and Golden Valley Rd	144,000	3M (+1H+1A)	9,246	2,750	0.30	7,229	0.78
57	Btw Golden Valley Rd and Placerita Cyn Rd	144,000	3M (+1H)	8,246	2,750	0.33	7,229	0.88
58	Btw Placerita Cyn Rd and San Fernando Rd/Newhall Ave	151,000	3M (+1H)	8,246	2,884	0.35	4,243	0.51
59	Btw San Fernando Rd/Newhall Ave and Jct I-5	166,000	5M (+1H)	12,676	3,171	0.25	4,665	0.37
<b>SR-138</b>								
60	Btw Jct I-5 and Gorman Post Rd	4,500	2M	3,808	73	0.02	154	0.04
61	Btw Gorman Post Rd and Old Ridge Route Rd	4,900	1M	1,904	73	0.04	154	0.08
62	Btw Old Ridge Route Rd and 300th St W	4,700	1M	1,904	73	0.04	154	0.08
63	Btw 300th St W and Three Pts Rd	4,700	1M	1,904	73	0.04	152	0.08
64	Btw Three Pts Rd and 245th St (Ave F)	4,700	1M	1,904	92	0.05	151	0.08
65	Btw 245th St W and 170th St W	4,700	1M	1,904	89	0.05	147	0.08
66	Btw 170th St W and 110th St W	4,700	1M	1,962	82	0.04	149	0.08
67	Btw 110th St W and 60th W	4,700	1M	1,962	139	0.07	180	0.09
68	Btw 60th W and Jct SR-14	4,700	1M	1,962	141	0.07	177	0.09
<b>SR-99</b>								
70	Btw Jct SR-58 W and California	104,110	4M	8,985	3,848	0.43	6,276	0.70
71	Btw California and Jct SR-58 E	89,700	4M	8,985	3,392	0.38	5,263	0.59
72	Btw Jct SR-58 E and Ming Ave	88,820	5M	10,107	3,406	0.34	5,478	0.54
73	Btw Ming Ave and White Lane	69,755	4M	8,985	2,614	0.29	4,435	0.49
74	Btw White Lane and Panama Lane	57,090	4M	9,186	2,165	0.24	3,616	0.39
75	Btw Panama Lane and Jct SR-119 W	44,450	4M	9,186	1,622	0.18	2,890	0.31
76	Btw Jct SR-119 W and Houghton Rd	35,470	3M	6,889	1,229	0.18	2,345	0.34

**TABLE 5.10-4  
EXISTING (2014 AND 2015) FREEWAY PEAK HOUR VOLUMES AND V/C SUMMARY - NORTHBOUND AND EASTBOUND**

Location		AADT Volume (2-Way)	Northbound/Eastbound					
			Lanes	Total Capacity	AM Vol	AM V/C	PM Vol	PM V/C
77	Btw Houghton Rd and Jct SR-233 E	33,360	3M	6,422	1,158	0.18	2,176	0.34
78	Btw Jct SR-223 E and Old U.S. 99	27,270	3M	6,422	945	0.15	1,788	0.28
79	Btw Old U.S. 99 and Herring Rd	28,585	3M	6,400	987	0.15	1,860	0.29
80	Btw Herring Rd and Sandrini Rd.	27,775	3M	6,400	960	0.15	1,805	0.28
81	Btw Sandrini Rd and David Rd	27,775	3M	6,400	960	0.15	1,805	0.28
82	Btw David Rd and Valpredo	27,740	3M	6,400	959	0.15	1,803	0.28
83	Btw Valpredo and Jct SR-166 W	27,740	3M	6,400	959	0.15	1,803	0.28
84	Btw Jct SR-166 W and Jct I-5	26,965	3M	6,288	934	0.15	1,733	0.28

AADT: annual average daily traffic (2-way volumes on the SR-99 are average daily traffic (ADT) volumes); V/C: volume-to-capacity ratio; Btw: Between; SR: State Route; Jct: junction; I: Interstate; NB: northbound; SB: southbound; WB: westbound; EB: eastbound ; M – number of mixed flow lanes; #T – number of truck lanes; #H – number of HOT lanes; #A – number of auxiliary lanes

For freeway segments located in LA County (i.e., SR-138, SR-14 and I-5) and Kern County freeway segments on the I-5 from Fort Tejon Interchange to the LA/Kern County line, existing volumes represent 2014 conditions. For remainder of freeway segments located in Kern County (i.e., SR-99 and I-5 from the Grapevine Grade to SR-99), existing volumes represent 2015 conditions.

Source: Stantec 2017 (Table 2-3).

**TABLE 5.10-5  
EXISTING (2014 AND 2015) FREEWAY PEAK HOUR VOLUMES AND V/C SUMMARY – SOUTHBOUND AND WESTBOUND**

Location		AADT Volume (2-Way)	Southbound/Westbound					
			Lanes	Total Capacity	AM Vol	AM V/C	PM Vol	PM V/C
<b>I-5</b>								
1	Btw SR-99 and Laval/Wheeler	75,000	4M	8,200	1,461	0.18	1,884	0.23
2	Btw Laval/Wheeler and Grapevine	74,000	4M	8,200	1,422	0.17	1,780	0.22
3a	Btw Grapevine and Fort Tejon Rd	50,000	2M	4,140	880	0.21	1,038	0.25
3b	Btw Grapevine and Fort Tejon Rd ( Truck)	24,000	2M/T	2,050	518	0.25	744	0.36
4	Btw Fort Tejon Rd and Lebec Rd	72,000	4M	8,143	1,346	0.17	2,304	0.28
5	Btw Lebec Rd and Frazier Mtn Park	73,000	4M	8,143	1,365	0.17	2,336	0.29
6	Btw Frazier Mtn Park and Gorman Rd	70,000	4M	5,606	1,309	0.23	2,240	0.40
7	Btw Gorman Rd and N Jct SR-138	70,000	4M	8,169	1,309	0.16	2,240	0.27
8	Btw N Jct SR-138 and Quail Lake Rd	67,000	4M	8,169	1,253	0.15	2,144	0.26
9	Btw Quail Lake Rd and S Jct SR-138	67,000	4M	5,500	1,253	0.23	2,144	0.39
10	Btw S Jct SR-138 and Smokey Bear Rd	69,000	4M	5,500	1,290	0.23	2,208	0.40
11	Btw Smokey Bear Rd and Vista Del Lago Rd	70,000	4M	5,957	1,309	0.22	2,240	0.38
12	Btw Vista Del Lago Rd and Templin Hwy	70,000	4M	5,957	1,309	0.22	2,240	0.38
13	Btw Templin Hwy and Lake Hughes Rd	70,000	4M	5,957	1,309	0.22	2,240	0.38
14	Btw Lake Hughes Rd and Parker Rd	73,000	4M	7,422	1,854	0.25	2,519	0.34
15	Btw Parker Rd and Hasley Cyn Rd	108,000	4M	7,422	2,743	0.37	3,726	0.50
16	Btw Hasley Cyn Rd and N Jct SR-126 (NB)	114,000	4M (+1A)	8,422	2,896	0.34	3,933	0.47
17	Btw N Jct SR-126 and Rye Cyn Rd	130,000	4M	7,470	3,302	0.44	4,485	0.60
18	Btw Rye Cyn Rd and Magic Mountain Pkwy	154,000	4M	7,670	3,912	0.51	5,313	0.69
19	Btw Magic Mountain Pkwy and Valencia Blvd	165,000	4M	7,670	4,191	0.55	5,693	0.74
20	Btw Valencia Blvd and McBean Pkwy	175,000	4M	7,670	4,445	0.58	6,038	0.79
21	Btw McBean Pkwy and Lyons Ave/Pico Cyn Rd	186,000	4M	7,960	4,724	0.59	6,417	0.81
22	Btw Lyons Ave and Calgrove Blvd	199,000	4M (+1T)	9,560	5,055	0.53	6,866	0.72
23	Btw Calgrove Blvd and SR-14	200,000	4M (+2T[C])	10,360	5,080	0.49	6,900	0.67
24	Btw SR-14 and SR-210	278,000	4M (+1H+2A[F]+2T)	16,788	12,010	0.72	10,925	0.65
25	Btw SR-210 and Roxford	266,000	5M (+1H)	12,661	11,491	0.91	10,454	0.83

**TABLE 5.10-5  
EXISTING (2014 AND 2015) FREEWAY PEAK HOUR VOLUMES AND V/C SUMMARY – SOUTHBOUND AND WESTBOUND**

Location		AADT Volume (2-Way)	Southbound/Westbound					
			Lanes	Total Capacity	AM Vol	AM V/C	PM Vol	PM V/C
26	Btw Roxford St and I-405	283,000	5M (+1H+1A[F])	14,661	12,226	0.83	11,122	0.76
27	Btw I-405 and San Fernando Mission Blvd	141,000	3M (+1H)	8,171	6,091	0.75	5,541	0.68
<b>SR-14</b>								
28	Btw Dawn Rd and Rosamond Blvd	23,000	2M	4,665	499	0.11	1,323	0.28
29	Btw Rosamond Blvd and Ave A	30,000	2M	4,679	1413	0.30	1,107	0.24
30	Ave A and N Jct SR-138/Ave D	34,000	2M	4,679	1129	0.24	1,567	0.34
31	Btw Jct SR-138/Ave D and Ave F	36,000	2M	4,665	1195	0.26	1,660	0.36
32	Btw Ave F and Ave G	38,000	2M	4,665	1,262	0.27	1,752	0.38
33	Btw Ave G and Ave H	38,000	2M	4,665	1,262	0.27	1,752	0.38
34	Btw Ave H and Ave I	40,000	2M	4,665	1,464	0.31	1,844	0.40
35	Btw Ave I and Ave J	47,000	3M	6,997	1,720	0.25	2,167	0.31
36	Btw Ave J and 20th St W	42,000	3M	7,016	1,537	0.22	1,936	0.28
37	Btw 20th St W and Ave K	59,000	3M	7,016	2,159	0.31	2,720	0.39
38	Btw Ave K and Ave L	74,000	3M	7,016	2,708	0.39	3,411	0.49
39	Btw Ave L and Ave M	89,000	3M	7,016	3,257	0.46	4,103	0.58
40	Btw Ave M and Ave N	92,000	3M	7,016	3,367	0.48	4,241	0.60
41	Btw Ave N and 10th St W	87,000	3M	7,016	3,184	0.45	4,011	0.57
42	Btw 10th St W and Rancho Vista Blvd	87,000	3M	6,675	3,184	0.48	4,011	0.60
43	Btw Rancho Vista Blvd and S Jct SR-138/ Palmdale Blvd	84,000	3M	6,675	3,074	0.46	3,872	0.58
44	Btw S Jct SR-138 and Ave S	81,000	3M (+1H)	8,275	2,965	0.36	3,734	0.45
45	Btw Ave S and Pearblossom/Sierra Hwy	71,000	3M (+1H)	8,275	2,599	0.31	3,273	0.40
46	Btw Pearblossom/Sierra Hwy and Angeles Forest Hwy	83,000	3M (+1H)	8,275	3,038	0.37	3,826	0.46
47	Btw Angeles Forest Hwy and Soledad	144,000	2M (+1H)	6,050	3,477	0.57	4,380	0.72
48	Btw Soledad and Santiago Rd	95,000	2M (+1H)	6,071	3,477	0.57	4,380	0.72
49	Btw Santiago Rd and Crown Valley Rd	94,000	2M (+1H)	6,071	3,440	0.57	4,333	0.71
50	Btw Crown Valley Rd and Ward Rd	95,000	2M (+1H)	6,071	3,477	0.57	4,380	0.72
51	Btw Ward Rd and Escondido Cyn Rd	93,000	2M (+1H)	5,978	3,404	0.57	4,287	0.72
52	Btw Escondido Cyn Rd and Agua Dulce Cyn Rd	93,000	2M (+1H)	6,071	4,994	0.82	2,613	0.43

**TABLE 5.10-5  
EXISTING (2014 AND 2015) FREEWAY PEAK HOUR VOLUMES AND V/C SUMMARY – SOUTHBOUND AND WESTBOUND**

Location		AADT Volume (2-Way)	Southbound/Westbound					
			Lanes	Total Capacity	AM Vol	AM V/C	PM Vol	PM V/C
53	Btw Agua Dulce Cyn Rd and Soledad Rd	96,000	2M (+1H)	6,071	5,155	0.85	2,698	0.44
54	Btw Shadow Pines/Soledad Rd and Sand Cyn Rd	99,000	2M (+1H)	6,071	5,316	0.88	2,782	0.46
55	Btw Sand Cyn Rd and Via Princessa	112,000	3M (+1H)	8,246	6,014	0.73	3,147	0.38
56	Btw Via Princessa and Golden Valley Rd	144,000	3M (+1H+1A)	9,246	7,733	0.84	4,046	0.44
57	Btw Golden Valley Rd and Placerita Cyn Rd	144,000	3M (+1H)	8,246	7,733	0.94	4,046	0.49
58	Btw Placerita Cyn Rd and San Fernando Rd/Newhall Ave	151,000	3M (+1H)	8,246	8,109	0.98	7,580	0.92
59	Btw San Fernando Rd//Newhall Ave and Jct I-5	166,000	5M (+1H)	12,676	8,914	0.70	8,333	0.66
<b>SR-138</b>								
60	Btw Jct I-5 and Gorman Post Rd	4,500	2M	3,808	122	0.03	87	0.02
61	Btw Gorman Post Rd and Old Ridge Route Rd	4,900	1M	1,904	122	0.06	87	0.05
62	Btw Old Ridge Route Rd and 300th St W	4,700	1M	1,904	122	0.06	87	0.05
63	Btw 300th St W and Three Pts Rd	4,700	1M	1,904	122	0.06	87	0.05
64	Btw Three Pts Rd and 245th St (Ave F)	4,700	1M	1,904	122	0.06	81	0.04
65	Btw 245th St W and 170th St W	4,700	1M	1,904	113	0.06	87	0.05
66	Btw 170th St W and 110th St W	4,700	1M	1,962	106	0.05	95	0.05
67	Btw 110th St W and 60th W	4,700	1M	1,962	113	0.06	105	0.05
68	Btw 60th W and Jct SR-14 South	4,700	1M	1,962	123	0.06	148	0.08
<b>SR-99</b>								
70	Btw Jct SR-58 W and California	104,110	4M	8,985	4,004	0.45	6,694	0.75
71	Btw California and Jct SR-58 E	89,700	4M	8,985	3,390	0.38	6,895	0.77
72	Btw Jct SR-58 E and Ming Ave	88,820	5M	10,107	3,217	0.32	5,663	0.56
73	Btw Ming Ave and White Lane	69,755	4M	9,186	2,394	0.26	4,508	0.49
74	Btw White Lane and Panama Lane	57,090	4M	9,186	2,072	0.23	3,565	0.39
75	Btw Panama Lane and Jct SR-119 W	44,450	4M	9,186	1,797	0.20	2,581	0.28
76	Btw Jct SR-119 W and Houghton Rd	35,470	3M	6,422	1,533	0.24	1,987	0.31
77	Btw Houghton Rd and Jct SR-233 E	33,360	3M	6,422	1,473	0.23	1,865	0.29
78	Btw Jct SR-223 E and Old U.S. 99	27,270	3M	6,400	1,233	0.19	1,488	0.23
79	Btw Old U.S. 99 and Herring Rd	28,585	3M	6,400	1,284	0.20	1,586	0.25

**TABLE 5.10-5  
EXISTING (2014 AND 2015) FREEWAY PEAK HOUR VOLUMES AND V/C SUMMARY – SOUTHBOUND AND WESTBOUND**

Location		AADT Volume (2-Way)	Southbound/Westbound					
			Lanes	Total Capacity	AM Vol	AM V/C	PM Vol	PM V/C
80	Btw Herring Rd and Sandrini Rd.	27,775	3M	6,400	1,253	0.20	1,537	0.24
81	Btw Sandrini Rd and David Rd	27,775	3M	6,400	1,253	0.20	1,537	0.24
82	Btw David Rd and Valpredo	27,740	3M	6,400	1,251	0.20	1,535	0.24
83	Btw Valpredo and Jct SR-166 W	27,740	3M	6,288	1,251	0.20	1,535	0.24
84	Btw Jct SR-166 W and Jct I-5	26,965	3M	6,162	1,219	0.20	1,507	0.24

Notes:  
AADT: annual average daily traffic (2-way volumes on the SR-99 are average daily traffic (ADT) volumes); V/C: volume-to-capacity ratio; Btw: Between; SR: State Route;  
; M – number of mixed flow lanes; #T – number of truck lanes; #H – number of HOT lanes; #A – number of auxiliary lanes  
For freeway segments located in LA County (i.e., SR-138, SR-14 and I-5) and Kern County freeway segments on the I-5 from Fort Tejon Interchange to the LA/Kern  
County line, existing volumes represent 2014 conditions. For remainder of freeway segments located in Kern County (i.e., SR-99 and I-5 from the Grapevine Grade to  
SR-99), existing volumes represent 2015 conditions.  
Source: Stantec 2017 (Table 2-4).



**TABLE 5.10-6  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY - EXISTING (2014 AND 2015) CONDITIONS**

Northbound/Eastbound								Southbound/Westbound							
Location	ADT	L	Cap	AM Peak Hour		PM Peak Hour		Location	ADT	L	Cap	AM Peak Hour		PM Peak Hour	
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C
<b>I-5</b>															
SR-99 NB Connector	20,600	2	4,000	980	0.25	1,280	0.32	SR-99 SB Connector	21,400	2	4,000	1,000	0.25	1,020	0.26
Laval/Wheeler West NB Off-Ramp	1,450	1	1,500	50	0.03	80	0.05	Laval/Wheeler Ridge West SB On-Ramp	6,200	1	1,500	270	0.18	330	0.22
Laval/Wheeler East NB Off-Ramp	3,850	1	1,500	170	0.11	260	0.17	(not applicable)							
Grapevine NB Off-Ramp	1,750	1	1,500	50	0.03	40	0.03	Grapevine SB On-Ramp	1,200	1	1,500	40	0.03	50	0.03
Fort Tejon Rd NB Off-Ramp	140	1	1,500	10	0.01	10	0.01	Fort Tejon SB On-Ramp	230	1	1,500	10	0.01	20	0.01
Lebec NB Off-Ramp	690	1	1,500	30	0.02	50	0.03	Lebec SB On-Ramp	320	1	1,500	10	0.01	20	0.01
Frazier NB Off-Ramp	3,350	1	1,500	130	0.09	220	0.15	Frazier SB On-Ramp	4,200	1	1,500	160	0.11	280	0.19
Gorman Rd NB Off-Ramp	2,900	1	1,500	110	0.07	190	0.13	Gorman Rd SB On-Ramp	1,250	1	1,500	50	0.03	80	0.05
WB SR-138 NB Connector	1,650	2	4,000	60	0.02	110	0.03	EB SR-138 SB Connector	1,350	2	4,000	50	0.01	90	0.02
EB SR-138 NB Connector	750	2	4,000	30	0.01	50	0.01	WB SR-138 SB Connector	740	2	4,000	30	0.01	50	0.01
Templin Hwy NB On-Ramp	140	1	1,500	10	0.01	10	0.01	Templin Hwy SB Off-Ramp	140	1	1,500	10	0.00	10	0.01
Lake Hughes Rd NB On-Ramp	6,700	1	1,500	250	0.17	440	0.29	Lake Hughes Rd SB Off-Ramp	3,850	1	1,500	150	0.10	250	0.17
Hasley Cyn Rd NB On-Ramp	870	1	1,500	40	0.03	50	0.03	Hasley Cyn Rd SB Off-Ramp	1,250	1	1,500	60	0.04	80	0.05
WB SR-126 NB On-Ramp	5,100	1	1,500	240	0.16	310	0.21	WB SR-126 SB Off-Ramp	7,700	1	1,500	350	0.23	470	0.31
(not applicable)								Rye Canyon Rd SB Off-Ramp	1,650	1	1,500	80	0.05	100	0.07
Magic Mountain Pkwy NB On-Ramp	4,500	2	2,250	210	0.09	280	0.12	Magic Mountain Pkwy SB Off-Ramp	3,950	2	2,250	180	0.08	240	0.11
Valencia Blvd NB On-Ramp	2,150	2	2,250	100	0.04	130	0.06	Valencia Blvd SB Off-Ramp	2,850	2	2,250	130	0.06	170	0.08
WB McBean Pkwy NB On-Ramp	2,550	1	1,500	70	0.05	90	0.06	McBean Pkwy SB Off-Ramp	3,500	1	1,500	160	0.11	210	0.14
Pico Cyn/Lyons NB On-Ramp	9,400	1	1,500	430	0.29	580	0.39	Lyons Ave SB Off-Ramp	4,400	1	1,500	200	0.13	270	0.18
Calgrove Blvd NB On-Ramp	2,650	1	1,500	120	0.08	160	0.11	Calgrove Blvd SB Off-Ramp	2,100	1	1,500	100	0.07	130	0.09
SB Rte 14 NB Connector	5,200	1	2,000	240	0.12	320	0.16	NB SR-14 SB Connector	5,900	1	2,000	270	0.14	360	0.18
WB Rte 210 NB Connector	28,472	2	4,000	1,910	0.48	1,930	0.48	EB SR-210 SB Connector	30,274	2	4,000	2,030	0.51	2,060	0.52
Roxford St NB On-Ramp	4,050	1	1,500	270	0.18	270	0.18	Roxford St SB Off-Ramp	3,000	1	1,500	200	0.13	200	0.13
I-405 NB Connector	62,000	3	6,000	4,150	0.69	4,210	0.70	I-405 SB Connector	65,000	3	6,000	4,360	0.73	4,410	0.74

**TABLE 5.10-6  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY - EXISTING (2014 AND 2015) CONDITIONS**

Northbound/Eastbound								Southbound/Westbound							
Location	ADT	L	Cap	AM Peak Hour		PM Peak Hour		Location	ADT	L	Cap	AM Peak Hour		PM Peak Hour	
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C
<b>SR-14</b>															
Rosamond Blvd NB Off-Ramp	6,750	1	1,500	460	0.31	640	0.43	WB Rosamond Blvd SB On-Ramp	3,622	1	1,500	250	0.17	340	0.23
(not applicable)								EB Rosamond Blvd SB On-Ramp	3,200	1	1,500	110	0.07	130	0.09
Jct Rte 138/ Ave D NB Off-Ramp	1,600	1	1,500	110	0.07	130	0.09	Jct Rte 138/Avenue D SB On-Ramp	1,540	1	1,500	110	0.07	130	0.09
WB Jct Rte 138/Ave D NB On-Ramp	250	1	1,500	20	0.01	20	0.01	(not applicable)							
EB Jct Rte 138/Ave D NB On-Ramp	340	1	1,500	20	0.01	30	0.02	Jct Rte 138/Ave D SB Off-Ramp	510	1	1,500	40	0.03	40	0.03
WB Ave H NB On-Ramp	1,600	1	1,500	110	0.07	130	0.09	Ave H SB Off-Ramp	1,900	1	1,500	130	0.09	160	0.11
EB Ave H NB On-Ramp	300	1	1,500	20	0.01	20	0.01	(not applicable)							
Ave I NB On-Ramp	3,500	1	1,500	240	0.16	290	0.19	Ave I SB Off-Ramp	2,700	1	1,500	190	0.13	220	0.15
Ave J NB On-Ramp	2,700	1	1,500	190	0.13	220	0.15	Ave J SB Off-Ramp	3,200	1	1,500	220	0.15	270	0.18
EB Ave K NB On-Ramp	1,350	1	1,500	90	0.06	110	0.07	Ave K SB Off-Ram	3,250	1	1,500	230	0.15	270	0.18
WB Ave K NB On-Ramp	2,850	1	1,500	200	0.13	240	0.16	(not applicable)							
EB Ave L NB On-Ramp	1,050	1	1,500	70	0.05	90	0.06	Ave L SB Off-Ramp	3,950	1	1,500	280	0.19	330	0.22
WB Ave L NB On-Ramp	3,450	1	1,500	240	0.16	290	0.19	(not applicable)							
EB Jct Rte 138/Palmdale Blvd NB On-Ramp	2,450	1	1,500	170	0.11	200	0.13	Jct Rte 138/Palmdale Blvd SB Off-Ramp	9,400	1	1,500	660	0.44	780	0.52
WB Jct Rte 138/Palmdale Blvd NB On-Ramp	7,500	1	1,500	520	0.35	620	0.41	(not applicable)							
Golden Valley Rd NB Off-Ramp	5,500	1	1,500	400	0.27	430	0.29	Golden Valley Rd SB On-Ramp	5000	1	1,500	360	0.24	390	0.26
San Fernando Rd NB Off-Ramp	10,200	1	1,500	740	0.49	800	0.53	San Fernando Rd SB On-Ramp	11500	1	1,500	840	0.56	900	0.60
ADT: average daily traffic; L: number of lanes; Cap: Capacity; Vol: Volume; V/C: volume-to-capacity ratio; NB: northbound; WB: - Westbound; EB: Eastbound; I: Interstate; Jct: junction Source: Stantec 2017 (Table 2-6).															

### ***Existing Transit Service***

Given the rural nature of existing conditions on and near the site, no transit service is currently available in the Project area.

### **Future Setting**

The North Los Angeles County area is projected to experience substantial growth over the next 20 years, and this anticipated growth is reflected in the demographic projections contained in the Antelope Valley Area Plan (AVAP). The North County sub-area model was used to evaluate the traffic impacts of the AVAP and encompasses the northern portion of Los Angeles County, including the cities of Lancaster, Palmdale, Santa Clarita, as well as the southern portion of Kern County, including Bakersfield, Arvin, Frazier Park, Rosamond, Taft/Maricopa and Tehachapi. It also reflects the socioeconomic projections and transportation network improvements contained in the SCAG 2012 RTP/SCS model. As discussed above, traffic counts and the most recent forecasts for 2040 in the 2014 Kern COG RTP/SCS model were used to analyze potential Project impacts along I-5 and SR-99 in Kern County.

Transportation improvements will occur with future growth, some of which are currently committed and others are planned or in the planning stages. An evaluation of long-range conditions without the Project is provided in the analysis under Threshold 10-1 in Section 5.10.6, Environmental Impacts, below.

The future traffic conditions (long-range setting) assumes the SCAG and Los Angeles County year 2035 projections for the North Los Angeles County area and the surrounding region and the Kern COG 2040 projections for I-5 and SR-99 north of the Fort Tejon/I-5 interchange. Growth in the Cities of Palmdale and Lancaster, Kern County and Santa Clarita Valley areas, as well as regional facilities, such as I-5, where which trips to and from Centennial will be oriented, are primary considerations in the traffic analysis, along with specific approved or proposed projects in the vicinity of the Project site, such as:

- Tejon Mountain Village (north of the Project in Los Angeles County)
- Tejon Ranch Commerce Center (north of the Project in Kern County)
- Gorman Post Ranch (proposed west of the Project in Los Angeles County)
- Grapevine Specific Plan (proposed north of the Project in Kern County)

### ***Highway System***

Caltrans Transportation Concept Reports for I-5 and SR-14 indicate planned improvements to these facilities, but for some of these segments there is currently no set construction schedule.

Caltrans approved a Final Environmental Impact Report/Environmental Assessment (EIR/EIS) for the I-5 High Occupancy Vehicle (HOV)/Truck Lanes Project SR-14 to Parker Road ("I-5 Improvement Project") in September 2009. The project includes the addition of one HOV lane in each direction on I-5 from the SR-14 Interchange north to Parker Road; truck climbing lanes in each direction from the SR-14 Interchange to Calgrove Boulevard

(northbound) and Pico Canyon Road/Lyons Avenue (southbound); and full auxiliary lanes within portions of the Project study area. Caltrans completed construction of the truck lanes in December 2014. In May 2013, Caltrans approved a Supplemental EIR/Environmental Reevaluation (EIR/ER) for the improvement project that replaces the planned HOV lanes with high occupancy toll (HOT) lanes. The HOT lane project currently is in the design phase and Caltrans estimates the improvements will be completed by 2022. As a result, these improvements are included in the long-range analysis below.

In the vicinity of the Project site, Caltrans is planning to widen SR-138 from two lanes to four or more lanes from I-5 to SR-14, consistent with the recommendations in the North County Combined Highway Corridors Study. The study showed that this highway will experience an increase in traffic volumes (not related to the proposed Project) that will ultimately exceed the capacity of the existing two-lane highway. Caltrans is currently in the process of preparing the Project Approval and Environmental Document (PA&ED) for this expressway project.

The Northwest 138 Corridor Improvement Project expands on the North County Combined Highway Corridor Study and evaluates operational improvements for SR-138 from I-5 to SR-14. In 2013, Caltrans and Metro initiated the draft Northwest State Route 138 Corridor Improvement Project Environmental Impact Report/Statement (draft NW SR-138 EIR/EIS) for improvements to SR-138 between I-5 and SR-14. In July 2016, Caltrans released the draft NW SR-138 EIR/EIS that identified build alternatives that would improve mobility, operations, enhance safety and accommodate foreseeable increases in travel on the SR-138 and in northern Los Angeles County. Both the draft NW SR-138 EIR/EIS and the Centennial Specific Plan Traffic Study addressed similar mainline segments and study intersections along the SR-138 corridor.

The NW SR-138 EIR/EIS evaluated the following long-range scenarios:

- No Build (2040) Alternative
- Build (2040) Alternative 1 – Freeway/Expressway
  - Build Alternative 1 with Antelope Acres Loop Design Option
- Build (2040) Alternative 2 – Expressway/Limited Access Conventional Highway
- Transportation System Management (TSM) Alternative

Specified sets of improvements were analyzed as part of the build alternatives and included mainline widening, connector improvements, access type and intersection control treatments. The analysis of the build alternatives with the forecasted demand concluded the following:

- One or more segments and study intersections on the SR-138 would operate at LOS E under No Build conditions, which exceeds the Caltrans LOS D threshold. Therefore, improvements are warranted.
- With the improvements analyzed as part of the Build Alternative 1, all study intersections and SR-138 mainline would operate at LOS D or better.

- With the improvements analyzed as part of the Build Alternative 2, all study intersections and SR-138 mainline would operate at LOS D or better.
- The TSM alternative would result in LOS E at study intersections and SR-138 mainline, therefore that alternative was removed from consideration.

While specified sets of improvements were analyzed as part of the build alternatives, the Transportation Analysis Report (TAR) also listed additional access types and control treatment options for the Build Alternatives. The analysis of the additional options is documented in the Supplemental Intersection Control Evaluation report (ICE Report). In the ICE Report, multiple improvement options for consideration along the corridor are reported in addition to the analyzed treatments, and the report notes that the options have been explored and can be selected for implementation at the appropriate time.

The draft NW SR-138 EIR/EIS, TAR and ICE Report do not identify a preferred alternative and Caltrans has deferred the selection of a preferred alternative to the Final EIR/EIS. Caltrans has also reserved the right to determine the specific preferred intersection control based on the traffic and safety data at the time the improvements occur.

A regional high capacity goods movement facility along the SR-58 and/or E-220 corridor between I-5 in Kern County and I-15 in San Bernardino County has been identified in regional planning analyses as a route for goods movement between the San Joaquin Valley and the I-15/I-40 interchange area. This facility will provide an effective by-pass route for truck trips between the Central Valley area and areas such as Southern California, Arizona, Nevada and Mexico. A significant byproduct of the goods movement corridor is a reduction in truck traffic along the I-5 corridor through the Tejon Pass and the Santa Clarita Valley.

### ***Projected Traffic Volumes***

As discussed under Methodology above, Year 2035 and Year 2040 (for Kern County freeways) traffic forecasts are based on The North County Sub-Area Travel Demand Forecasting Model, the Santa Clarita Valley Consolidated Traffic Model (SCVCTM), and the Centennial Traffic Model (CTM), coordinated with the 2012 SCAG RTP/SCS and the 2014 Kern COG RTP/SCS models. Projected traffic volumes are provided in the analysis below under the without project conditions.

## **5.10.4 PROJECT DESIGN FEATURES**

The following project design features (PDFs) are proposed to reduce the need to use automobiles for routine travel, to facilitate walking and other alternative modes of transportation, and to reduce length of vehicle trips that are taken by Centennial residents.

- PDF 10-1** The Project includes a Mobility Plan, included as Section 3.2 of the Specific Plan, which provides an extensive system of sidewalks, greenway trails, and community trails to serve as alternative means of transportation on the Project site. (Greenway trails and community trails would accommodate both pedestrians and bicyclists.) The Project, through the Mobility Plan, aims to:

- Reinforce and serve the Land Use Plan;
- Provide multiple modes of accessibility for internal and external trips by future residents, employees and visitors;
- Provide residents and employees with multiple opportunities for using alternative (non-auto/motorized) modes of transportation;
- Provides for 80 percent on average, but no less than 50 percent of residential units to be located within one-half mile of a Village Core or the Town Center that includes retail and service uses;
- Provide parks within a 5-minute walk (0.25 mile) of 80 percent of all residential units;
- Includes a variety of measures to reduce on-site single-occupancy automobile use by 30 percent; and
- Includes a variety of measures to reduce off-site peak hour commutes in single-occupancy automobiles by 20 percent.

As part of the Mobility Plan, the Project's Circulation Plan includes major east-west roadways, to serve the Project's east-west travel demand, to connect major on-site activity areas, and to lessen the Project's traffic demand on SR-138. The Circulation Plan sets forth requirements for roadway classifications; intersection controls; and traffic calming measures.

Each component of the Mobility Plan incorporates Transportation Demand Management (TDM) features to reduce dependence on the automobile, provide for a more efficient use of transportation resources among Project occupants, and thereby reduce pollutant emissions. The key TDM elements that are inherent in the overall Mobility Plan are:

- Sidewalks, greenway trails, and community trails that link residential, schools, shopping, and employment areas;
- Creation and ongoing operation of a Transportation Management Association (TMA) to fund and manage the operation of ongoing transportation programs, including but not limited to transit and on-demand services;
- Small- to medium-sized streets and blocks that allow for shorter walking distances to retail, parks, schools, and other destinations;
- Pedestrian environments incorporated with public streets;
- Parking behind buildings to encourage walking in retail areas along street frontage;
- Parks within 0.25 mile of 80 percent of all residences; and
- Two underpasses and one overpass over SR-138 to facilitate both pedestrian and bike access to employment areas.

- PDF 10-2** The Project strategically locates schools, parks and commercial areas with a range of service and retail uses at the village centers to facilitate pedestrian access (i.e., linked to the network of sidewalks, greenway trails and community trails); although the final school site locations are subject to final approval by the applicable school district and are subject to change.
- PDF 10-3** The Project locates higher density residential uses adjacent to commercial areas in village centers and includes a Mixed-Use Overlay District that permits residential uses in commercial areas. This land-use configuration places larger populations within commercial areas to encourage pedestrian activity and to reduce vehicle trips.
- PDF 10-4** The Project's Technology Plan, included as Section 3.9 of the Specific Plan, requires a community intranet with access for homeowners associations; interest groups; local event scheduling; schools; library facilities; carpool and transit services; other on-site entertainment and amenities. The intranet will reduce the need for people to use automobile travel to obtain information and will provide easily accessible information to facilitate telecommuting and alternate means of transportation beyond the individual automobile.

### 5.10.5 THRESHOLD CRITERIA

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact if it would:

- Threshold 10-1** Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Threshold 10-2** Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- Threshold 10-3** Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
- Threshold 10-4** Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Threshold 10-5** Result in inadequate emergency access.

**Threshold 10-6** Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

## Performance Criteria

The traffic analysis determined the potential Project impacts on freeway mainline segments,<sup>3</sup> freeway ramps, arterial roads, and rural highways. The impact criteria are based on capacity and volume. Capacity refers to the vehicle-carrying ability of a road segment, while volume is a measure of existing or forecasted traffic. The ratio between the volume and the capacity gives a volume-to-capacity (V/C) ratio, and a corresponding level of service (LOS) is defined based on the V/C ratio. The V/C methodology is specified by the Congestion Management Plan (CMP) for Los Angeles County. Caltrans utilizes the methodology described in the Highway Capacity Manual (HCM) to estimate density and LOS for freeway analysis. The HCM methods have been utilized to derive the capacities employed for the V/C calculations in order to address the preferences of both the CMP and Caltrans for the analysis.

Traffic LOS ranges from A (free flow conditions) to F (severe traffic conditions). A description of each LOS for arterial roads and freeway segments is provided in Table 5.10-7 below.

**TABLE 5.10-7  
LEVEL OF SERVICE DESCRIPTIONS**

LOS	Arterial Roads	Freeway Segments
A	Describes primarily free-flow operations at average travel speeds, usually about 90 percent of the free-flow speed for the given street class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal.	Describes free-flow operations. Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The effects of incidents or point breakdowns are easily absorbed at this level.
B	Describes reasonably unimpeded operations at average travel speeds, usually about 70 percent of the free-flow speed for the street class. The ability to maneuver within the traffic stream is only slightly restricted, and control delays at signalized intersections are not significant.	Represents reasonably free flow, and free-flow speeds are maintained. The ability to maneuver within the traffic stream is only slightly restricted, and the general level of physical and psychological comfort provided to drivers is still high. The effects of minor incidents and point breakdowns are still easily absorbed.
C	Describes stable operations; however, ability to maneuver and change lanes in midblock locations may be more restricted than at LOS B, and longer queues, adverse signal coordination, or both may contribute to lower average travel speeds of about 50 percent of the free-flow speed for the street class.	Provides for flow with speeds at or near the free-flow speed of the freeway. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver. Minor incidents may still be absorbed, but the local deterioration in service will be substantial. Queues may be expected to form behind any significant blockage.
D	Borders on a range in which small increases in flow may cause substantial increases in delay and decreases in travel speed. LOS D may be due to adverse signal progression, inappropriate signal	The level at which speeds begin to decline slightly with increasing flows and density begins to increase somewhat more quickly. Freedom to maneuver within the traffic stream is more noticeably limited, and the driver experiences reduced physical

<sup>3</sup> A freeway mainline segment is a portion of a freeway/highway between ramps that consists of a continuous roadway without stop signs, stop lights, or intersections.



**TABLE 5.10-7  
LEVEL OF SERVICE DESCRIPTIONS**

LOS	Arterial Roads	Freeway Segments
	timing, high volumes, or a combination of these factors. Average travel speeds are about 40 percent of free-flow speed.	and psychological comfort levels. Even minor incidents can be expected to create queuing, because the traffic stream has little space to absorb disruptions.
E	Characterized by significant delays and average travel speeds of 33 percent or less of the free-flow speed. Such operations are caused by a combination of adverse signal progression, high signal density, high volumes, extensive delays at critical intersections, and inappropriate signal timing.	At its highest density value, LOS E describes operation at capacity. Operations at this level are volatile, because there are virtually no usable gaps in the traffic stream. Vehicles are closely spaced, leaving little room to maneuver within the traffic stream at speeds that still exceed 49 miles per hour. Any disruption of the traffic stream, such as vehicles entering from a ramp or a vehicle changing lanes, can establish a disruption wave that propagates throughout the upstream traffic flow. At capacity, the traffic stream has no ability to dissipate even the most minor disruption, and any incident can be expected to produce a serious breakdown with extensive queuing. Maneuverability within the traffic stream is extremely limited, and the level of physical and psychological comfort afforded the driver is poor.
F	Characterized by urban street flow at extremely low speeds, typically one-third to one-fourth of the free-flow speed. Intersection congestion is likely at critical signalized locations, with high delays, high volumes, and extensive queuing.	Describes breakdowns in vehicular flow. Such conditions generally exist within queues forming behind breakdown points. LOS F operations within a queue are the result of a breakdown or bottleneck at a downstream point. LOS F is also used to describe conditions at the point of the breakdown or bottleneck and the queue discharge flow that occurs at speeds lower than the lowest speed for LOS E, as well as the operations within the queue that forms upstream. Whenever LOS F conditions exist, they have the potential to extend upstream for significant distances.
Source: Stantec 2017 (Table 1-1) from Highway Capacity Manual 2010.		

Table 5.10-8 provides the V/C ranges that correspond to LOS A through F for arterial roads and freeway segments. The V/C ranges listed for arterial roads are those used by the County of Los Angeles and are typical for local jurisdictions in the study area. The V/C ranges listed for freeway segments are based on the V/C and LOS relationships specified in the *2010 Highway Capacity Manual* (HCM 2010) for basic freeway sections with free-flow speeds of 75 miles per hour (mph).

**TABLE 5.10-8  
VOLUME/CAPACITY RATIO LEVEL OF SERVICE RANGES**

LOS	V/C Ratio Range	
	Arterial Roads and Intersections <sup>a</sup>	Freeway Segments (FFS = 75 mph) <sup>b</sup>
A	0.00-0.60	0.00-0.34
B	0.61-0.70	0.35-0.56
C	0.71-0.80	0.57-0.76
D	0.81-0.90	0.77-0.90
E	0.91-1.00	0.91-1.00
F	Above 1.00	Above 1.00

V/C Ratio: volume-to-capacity ratio; FFS: free flow speed; mph: miles per hour  
<sup>a</sup> Traffic Impact Analysis Report Guidelines  
<sup>b</sup> Highway Capacity Manual 2010  
Source: Stantec 2017 (Table 1-2).

This evaluation focuses on those parts of the day when such congestion typically occurs. The impact criteria are separated according to four fundamental components of the circulation system: freeway mainline segments, freeway ramps, arterial roads, and rural highways. Peak hour data (AM and PM) is used in all cases to establish V/C and LOS measures and to define what constitutes an adverse traffic impact. The following sections describe the impact criteria (i.e., V/C calculation methodology, LOS performance standards, and traffic impact thresholds) for the four circulation system components.

### ***Impact Criteria for Freeway Mainline Segments***

The impact analysis for freeway mainline segments is based on peak hour volumes by direction. Table 5.10-9, LOS Criteria for Basic Freeway Segments, shows the relationship between the three basic measurements for traffic (speed, density, and volume) and how they translate to LOS. Freeway mainline capacities were derived with the methodology utilized in the HCM 2010. A maximum service flow rate that corresponds to LOS E is determined based on the segment's free flow speed, and this maximum rate is adjusted to account for prevailing roadway and traffic conditions such as terrain, grade, and the proportion of trucks within the traffic stream.

**TABLE 5.10-9  
LOS CRITERIA FOR BASIC FREEWAY SEGMENTS**

Criteria	LOS				
	A	B	C	D	E
<b>FFS = 75 mph</b>					
Maximum density (pc/mi/ln)	11	18	26	35	45
Minimum speed (mi/h)	75.0	74.8	70.6	62.2	53.3
Maximum V/C	0.34	0.56	0.76	0.90	1.00
Maximum service flow rate (pc/h/ln)	820	1,310	1,750	2,110	2,400
<b>FFS = 70 mph</b>					
Maximum density (pc/mi/ln)	11	18	26	35	45
Minimum speed (mph)	70.0	70.0	68.2	61.5	53.3
Maximum V/C	0.32	0.53	0.74	0.90	1.00
Maximum service flow rate (pc/h/ln)	770	1,250	1,690	2,080	2,400
<b>FFS = 65 mph</b>					
Maximum density (pc/mi/ln)	11	18	26	35	45
Minimum speed (mph)	65.0	65.0	64.6	59.7	52.2
Maximum V/C	0.30	0.50	0.71	0.89	1.00
Maximum service flow rate (pc/h/ln)	710	1,170	1,630	2,030	2,350
<b>FFS = 60 mph</b>					
Maximum density (pc/mi/ln)	11	18	26	35	45
Minimum speed (mph)	60.0	60.0	60.0	57.6	51.1
Maximum V/C	0.29	0.47	0.68	0.88	1.00
Maximum service flow rate (pc/h/ln)	660	1,080	1,560	2,010	2,300
<b>FFS = 55 mph</b>					
Maximum density (pc/mi/ln)	11	18	26	35	45
Minimum speed (mph)	55.0	55.0	55.0	54.7	50.0
Maximum V/C	0.27	0.44	0.64	0.85	1.00
Maximum service flow rate (pc/h/ln)	600	990	1,430	1,900	2,250
LOS: level of service; FFS: free flow speed; mph: miles per hour; pc/mi/ln: passenger cars per mile per lane; V/C: volume-to-capacity ratio; pc/h/ln: passenger cars per hour per lane.					
Notes: The exact mathematical relationship between density and V/C has not always been maintained at LOS boundaries because of the use of rounded values. Density is the primary determinant of LOS. The speed criterion is the speed at maximum density for a given LOS.					
Source: Stantec 2017 (Table 1-3) from Highway Capacity Manual 2010.					

Table 5.10-10, Freeway Mainline Performance Criteria, provides the impact criteria for analyzing freeway mainline segments within the study area, as specified by Caltrans and by the Los Angeles County CMP. Caltrans's goal is to maintain no worse than LOS E in urban areas and LOS C or D in rural areas (refer to Figure 1-4 in EIR Appendix 5.10-A). However, Caltrans acknowledges that this is not always feasible for some rural areas due to constraints such as geological, structural, or right-of-way conditions. To achieve conformity in the evaluation of freeway mainline segments and acknowledging that there exist some such rural segments as described above within the study area, Caltrans has agreed that, for

evaluation of the study area for the Project, LOS E is to be uniformly utilized as the performance criterion for freeways studied for the purpose of determining significant Project impacts within the study area, the following exception:

1. LOS D for the rural areas of Interstate 5 from the Parker Road interchange in Los Angeles County to the State Route 99 interchange in Kern County, LOS E from Parker Road to State Route 138, and LOS D from State Route 138 to State Route 99 interchange are to be utilized as the performance criteria. LOS D for segments on the SR-99 and SR-14.

(Refer to Appendix 5.10-B for the referenced correspondence from Caltrans).

**TABLE 5.10-10  
FREEWAY MAINLINE PERFORMANCE CRITERIA**

<b>Performance Standard</b>
LOS D <sup>a</sup> – Rural areas unless specified otherwise.
LOS E <sup>a</sup> – Urban areas, I-5 south of Parker Road, and SR-14 from Santa Clarita to Palmdale
<sup>a</sup> or existing LOS, whichever is worse, for the purpose of determining significant Project impacts. In rural areas, Caltrans goal is to maintain conditions no worse than LOS D.
These performance standards are applicable for the Project study only, based on Caltrans evaluation of specific factual conditions, and does not constitute a statewide standard.
In rural areas, Caltrans goal is to generally maintain conditions no worse than LOS D
<b>Impact Threshold</b>
A freeway mainline segment is considered to be adversely impacted if each of the following conditions are met:
1. The segment is forecasted to operate deficiently (i.e., worse than the performance standard).
2. Compared to the V/C in the No-Project Alternative, the V/C in the With-Project Alternative increases by greater than or equal to 0.02 (the impact threshold specified in the CMP).
LOS: level of service; I: Interstate; V/C: volume-to-capacity ratio; CMP: Congestion Management Program.
Source: : Stantec 2017 (Table 1-4)

***Criteria for Freeway Ramps***

Impacts to freeway interchange ramps were evaluated for the AM and PM peak hours. The freeway ramp carrying capacities for the study area’s existing and anticipated ramp configurations are based on information in the *Highway Design Manual* (HDM) and *The Ramp Meter Design Manual*, respectively, of the Traffic Study (Appendix 5.10-A) and refinements in various planning studies for freeway interchanges. The capacities for calculating ramp V/C ratios are summarized in Table 5.10-11, Freeway Ramp Performance Criteria, together with the overall impact criteria for freeway ramps within the study area. Capacities are listed for two basic types of interchanges: freeway to arterial road and freeway to freeway. The performance standard of LOS E is consistent with the performance standard for freeway mainline segments as noted above.

**TABLE 5.10-11  
FREEWAY RAMP PERFORMANCE CRITERIA**

<b>V/C Calculation Methodology</b>
<p>LOS to be based on peak hour V/C ratios calculated using the following ramp capacities: Freeway to Arterial Road Interchanges:</p> <ol style="list-style-type: none"> <li><i>Metered On-Ramps:</i> <ul style="list-style-type: none"> <li>A maximum capacity of 900 vph for a 1-lane metered on-ramp with only 1 mixed-flow lane at the meter.</li> <li>A maximum capacity of 1,080 (20% greater than 900) vph for a 1-lane metered on-ramp with 1 mixed-flow lane at the meter plus 1 HOV preferential lane at the meter.</li> <li>A maximum capacity of 1,500 vph for a 1-lane metered on-ramp with 2 mixed-flow lanes at the meter.</li> <li>A maximum capacity of 1,800 vph for a 2-lane metered on-ramp (with mainline auxiliary lane for second lane) with 2 mixed-flow lanes at the meter.</li> </ul> </li> <li><i>Non-Metered On-Ramps and Off-Ramps:</i> <ul style="list-style-type: none"> <li>A maximum capacity of 1,500 vph for a 1-lane ramp.</li> <li>A maximum capacity of 2,250 (50% percent greater than 1,500) vph for a 2-lane on-ramp that tapers to 1 merge lane at or beyond the freeway mainline gore point and for a 2-lane off-ramp with only 1 auxiliary lane.</li> <li>A maximum capacity of 3,000 vph for a 2-lane on-ramp that does not taper to 1 merge lane and for a 2-lane off-ramp with 2 auxiliary lanes.</li> </ul> </li> <li><i>Freeway to Freeway and SR-138 to I-5 Interchanges:</i> <ul style="list-style-type: none"> <li>A maximum capacity of 2,000 vph for a 1-lane ramp.</li> <li>A maximum capacity of 4,000 vph for a 2-lane ramp.</li> </ul> </li> </ol>
<b>Performance Standard</b>
<ol style="list-style-type: none"> <li>LOS E<sup>a</sup> (peak hour ICU less than or equal to 1.00) <sup>a</sup> or existing LOS, whichever is worse.</li> </ol>
<b>Impact Threshold</b>
<p>A freeway ramp is considered to be adversely impacted if each of the following conditions are met:</p> <ol style="list-style-type: none"> <li>The ramp is forecasted to operate deficiently (i.e., worse than the performance standard)</li> <li>Compared to the V/C in the No-Project Alternative, the V/C in the With-Project Alternative increases by greater than or equal to 0.02.</li> </ol>
<p>V/C: volume-to-capacity ratio; LOS: level of service; HOV: high occupancy vehicle; vph: vehicles per hour; SR: State Route; ICU: intersection capacity utilization. Source: : Stantec 2017 (Table 1-5)</p>

### ***Criteria for Arterial Roads***

The capacity of the arterial road system is generally limited by the capacity of the system's intersections. Therefore, the peak-hour performance of intersections is the most representative measure for evaluating the arterial road system and potential impacts. The intersection capacity utilization (ICU) methodology is applied for signalized intersections. The County of Los Angeles uses the ICU method for planning analyses and is the specified methodology in the Los Angeles County CMP.

The ICU methodology adds the V/C ratios for the critical movements of an intersection. The ICU ranges that correspond to LOS A through F for arterial roads and signalized intersections are equal to the V/C ranges shown in Table 5.10-8. The ICU calculation methodology and associated impact criteria applied for the study area arterial system are based on the criteria of the applicable jurisdiction and are summarized in Table 5.10-12. LOS D (ICU not to exceed 0.90) has been utilized as the design standard for new intersections within the Project site.

**TABLE 5.10-12  
ARTERIAL INTERSECTION PERFORMANCE CRITERIA**

<b>V/C Calculation Methodology</b>		
LOS to be based on peak hour ICU values calculated using the following assumptions:		
Saturation Flow Rate: 1,600 vphpl for all lanes except dual left-turn lanes 2,880 vph (total) for dual left-turn lanes 1,750 vphpl for all lanes at City of Santa Clarita intersections		
Clearance Interval: 0.10 (ICU)		
<b>Performance Standard</b>		
<i>County of Los Angeles Intersections:</i> LOS D (peak hour ICU less than or equal to 0.90) for new (future) intersections. LOS C (peak hour ICU less than or equal to 0.80) or future No-Project conditions LOS, whichever is worse, for existing intersections.		
<i>State Highways and County of Kern Intersections:</i> LOS D or existing LOS, whichever is worse.		
<b>Impact Threshold</b>		
An intersection is considered to be adversely impacted if each of the following conditions are met:		
1. The intersection is forecasted to operate deficiently (i.e., worse than the performance standard).		
2. Compared to the ICU in the No-Project Alternative, the ICU in the With-Project Alternative increases by the following:		
<u>Pre-Project ICU*</u>	<u>Project ICU Increment</u>	<u>Applicable Jurisdiction</u>
0.71–0.80 (LOS C)	greater than or equal to 0.04	LA County Arterials Only
0.81–0.90 (LOS D)	greater than or equal to 0.02	LA County/City of Santa Clarita Arterials Only
> 0.90 (LOS E/F)	greater than or equal to 0.01	All
HOV: high occupancy vehicle; LOS: level of service; ICU: Intersection Capacity Utilization; vphpl: vehicles per hour per lane; vph: vehicles per hour.		
For LA County intersections, Project impacts are identified by comparing existing conditions to existing plus Project conditions. For cumulative conditions, cumulative impacts on SR-138 are identified by comparing existing conditions to cumulative with-Project conditions. For other locations, impacts are identified by comparing cumulative no-Project conditions to cumulative with-Project conditions.		
For Kern County, Caltrans and City of Santa Clarita intersections, Project impacts are identified by comparing existing to existing plus Project conditions. For cumulative conditions, cumulative impacts are identified by comparing cumulative no-Project conditions to cumulative with-Project conditions.		
If the LOS and net increase in ICU meets the two criteria listed above, the intersection is identified as being significantly impacted either by the Project or by a combination of cumulative and Project traffic.		
* The City of Santa Clarita utilizes the With Project ICU to determine the ICU impact threshold.		
Source: Stantec 2017 (Table 1-6).		

### ***Criteria for Rural Highways***

The SR-138, a two-lane rural highway, passes through the Project site. The HCM 2010 emphasizes average travel speeds and vehicles' abilities to use the opposing lane of traffic while passing. According to the HCM 2010 methodology, the LOS for a two-lane rural highway is heavily influenced by the traffic flows in both directions. Thus, LOS is emphasized rather than actual capacity. By contrast, the HCM 2010 methodology for assessing capacity on multi-lane rural highways considers the average flow rate across two lanes, and in this case the LOS addresses actual "capacity" rather than simply the ability to pass.

The HCM 2010 criteria for two-lane rural highways are presented in Table 5.10-13, LOS Criteria for Two-Lane Rural Highways.

**TABLE 5.10-13  
LOS CRITERIA FOR TWO-LANE RURAL HIGHWAYS**

LOS	Maximum Two-Way Service Flow Rate (pc/h) <sup>a</sup>	Percent of Time Delayed By Slow Vehicles <sup>a,b</sup>	Average Speed (mph) <sup>a</sup>	Maximum Two-Way Volume <sup>c</sup>
A	490	≤ 35	≥ 55	1,500/1,680
B	780	36-50	50-54	1,750/1,960
C	1,190	51-65	45-49	2,000/2,240
D	1,830	66-80	40-44	2,250/2,520
E	3,200	> 80	< 40	2,500/2,800

LOS: level of service; pc/h: passenger cars per hour; mph: miles per hour; HCM: Highway Capacity Manual  
<sup>a</sup> HCM Methodology (maximum directional flow = 1,700 pc/h).  
<sup>b</sup> Also referred to as “Percent of Time-Spent-Following”.  
<sup>c</sup> County guidelines, lower value is for 70/30 directional split and higher value is for 50/50 directional split.  
 Source: Stantec 2017 (Table 1-7).

For the SR-138 analysis, the HCM 2010 methodology was used to calculate LOS. As specified by Caltrans, the analysis considers the percent of time-spent-following instead of average speed. Table 5.10-14, Two-Lane Rural State Highway Performance Criteria, summarizes the overall impact criteria for analyzing two-lane State highways within the study area.

**TABLE 5.10-14  
TWO-LANE RURAL STATE HIGHWAY PERFORMANCE CRITERIA**

Performance Standard
LOS D or existing LOS, whichever is worse.
Impact Threshold
A 2-lane rural State highway is considered to be adversely impacted if each of the following conditions are met: 1. The segment is forecasted to operate deficiently (i.e., worse than the performance standard). 2. Compared to the “percent of time delayed by slow vehicles” in the No-Project scenario, the “percent of time delayed by slow vehicles” in the With-Project scenario increases by greater than or equal to 2%.
LOS – level of service Source: Stantec 2017 (Table 1-8).

The impact analysis for multi-lane rural highways is based on peak-hour volumes by direction. The HCM 2010 methodology was used for calculating the capacities used to derive peak hour V/C ratios. First, the maximum service flow rate that corresponds to LOS E is determined based on the segment’s free flow speed. Using this value, a service flow rate is calculated based on prevailing roadway and traffic conditions such as terrain, grade, and the proportion of trucks within the traffic stream. Table 5.10-15, LOS Criteria for Multiple Lane Rural Highways, shows the relationship between traffic speed, density, volume, and how each translates to LOS.

**TABLE 5.10-15  
LOS CRITERIA FOR MULTIPLE LANE RURAL HIGHWAYS**

Criteria	LOS				
	A	B	C	D	E
<b>FFS = 60 mph</b>					
Maximum density (pc/mi/ln)	11	18	26	35	40
Average speed (mi/h)	60.0	60.0	59.4	56.7	55.0
Maximum V/C ratio	0.30	0.49	0.70	0.90	1.00
Maximum service flow rate (pc/h/ln)	660	1,080	1,550	1,980	2,200
<b>FFS = 55 mph</b>					
Maximum density (pc/mi/ln)	11	18	26	35	41
Average speed (mph)	55.0	55.0	54.9	52.9	51.2
Maximum V/C ratio	0.29	0.47	0.68	0.88	1.00
Maximum service flow rate (pc/h/ln)	600	990	1,430	1,850	2,100
<b>FFS = 50 mph</b>					
Maximum density (pc/mi/ln)	11	18	26	35	43
Average speed (mph)	50.0	50.0	50.0	48.9	47.5
Maximum V/C ratio	0.28	0.45	0.65	0.86	1.00
Maximum service flow rate (pc/h/ln)	550	900	1,300	1,710	2,000
<b>FFS = 45 mph</b>					
Maximum density (pc/mi/ln)	11	18	26	35	45
Average speed (mph)	45.0	45.0	45.0	44.4	42.2
Maximum V/C ratio	0.26	0.43	0.62	0.82	1.00
Maximum service flow rate (pc/h/ln)	290	810	1,170	1,550	1,900
LOS: level of service; FFS: free flow speed; mph: miles per hour; pc: passenger cars; mi: mile; ln - lane; V/C: Volume/Capacity Ratio; h: hour.					
The exact mathematical relationship between density and V/C has not always been maintained at LOS boundaries because of the use of rounded values. Density is the primary determinant of LOS. LOS F is characterized by highly unstable and variable traffic flow. Prediction of accurate flow rate, density, and speed at LOS F is difficult.					
Source: Stantec 2017 (Table 1-9).					

Table 5.10-16, Multiple Lane Rural Highway Performance Criteria, summarizes the performance criteria specified by Caltrans for multi-lane rural highways.



**TABLE 5.10-16  
MULTIPLE LANE RURAL HIGHWAY PERFORMANCE CRITERIA**

Performance Standard
LOS D or existing LOS, whichever is worse.
Impact Threshold
A multi-lane rural highway segment is considered to be adversely impacted if each of the following conditions are met:
<ol style="list-style-type: none"> <li>1. The segment is forecasted to operate deficiently (i.e., worse than the performance standard).</li> <li>2. Compared to the V/C in the No-Project Alternative, the V/C in the With-Project Alternative increases by greater than or equal to 0.02.</li> </ol>
LOS: level of service; V/C: volume-to-capacity ratio. Source: Stantec 2017 (Table 1-10).

### 5.10.6 ENVIRONMENTAL IMPACTS

**Threshold 10-1**      **Would the project conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?**

The Project would result in additional housing, commercial and job-creating land uses and residents at the northwestern corner of Los Angeles County and would add new vehicle trips to the area's roadway circulation network. The site is located on SR-138, a State Route that currently experiences very low traffic volumes. The site is also located between the I-5 and SR-14, which provide two options for north-south travel. Project trips would be a combination of trips occurring within the Project site (internal trips) and trips occurring between the Project site and external locations (external trips).

#### **Traffic Assumptions**

For the purpose of measuring impacts to the regional highway network, the quantity and distribution of Project trips are derived using the North County sub-area model. Socioeconomic data that corresponds to the proposed Project was coded into the model, which estimates the number of vehicle trips to be generated by the Project.

Trips are estimated for the critical AM and PM peak periods, as well as each of the off-peak periods. Average daily traffic (ADT) volumes represent the sum of the peak and off-peak periods. Since the North County sub-area model is a derivative of the SCAG regional travel demand forecasting model, the trip generation estimates for the Project are consistent with SCAG's regional forecasting methodology in the 2012 RTP/SCS model.

The SCAG model utilizes traffic analysis zones (TAZs), which are geographic subunits of the overall SCAG region, to analyze traffic flow patterns and volumes. The SCAG analysis methodology uses projections of socioeconomic variables, such as housing, population, and employment to generate estimates of the number and location of trips within and to and from each TAZ. The TAZs that include the Project area are shown in Exhibit 5.10-6, SCAG Traffic Analysis Zones (TAZ). The socioeconomic data that is used by SCAG for analysis purposes in the TAZs are summarized in Table 5.10-17. The Specific Plan area represents approximately 83 percent of the total planned dwelling unit development (19,333 of 23,197 units) included in the AVAP and SCAG RTP/SCS projections for the TAZs.

**TABLE 5.10-17  
PROJECT AREA SCAG TAZ SOCIOECONOMIC DATA SUMMARY**

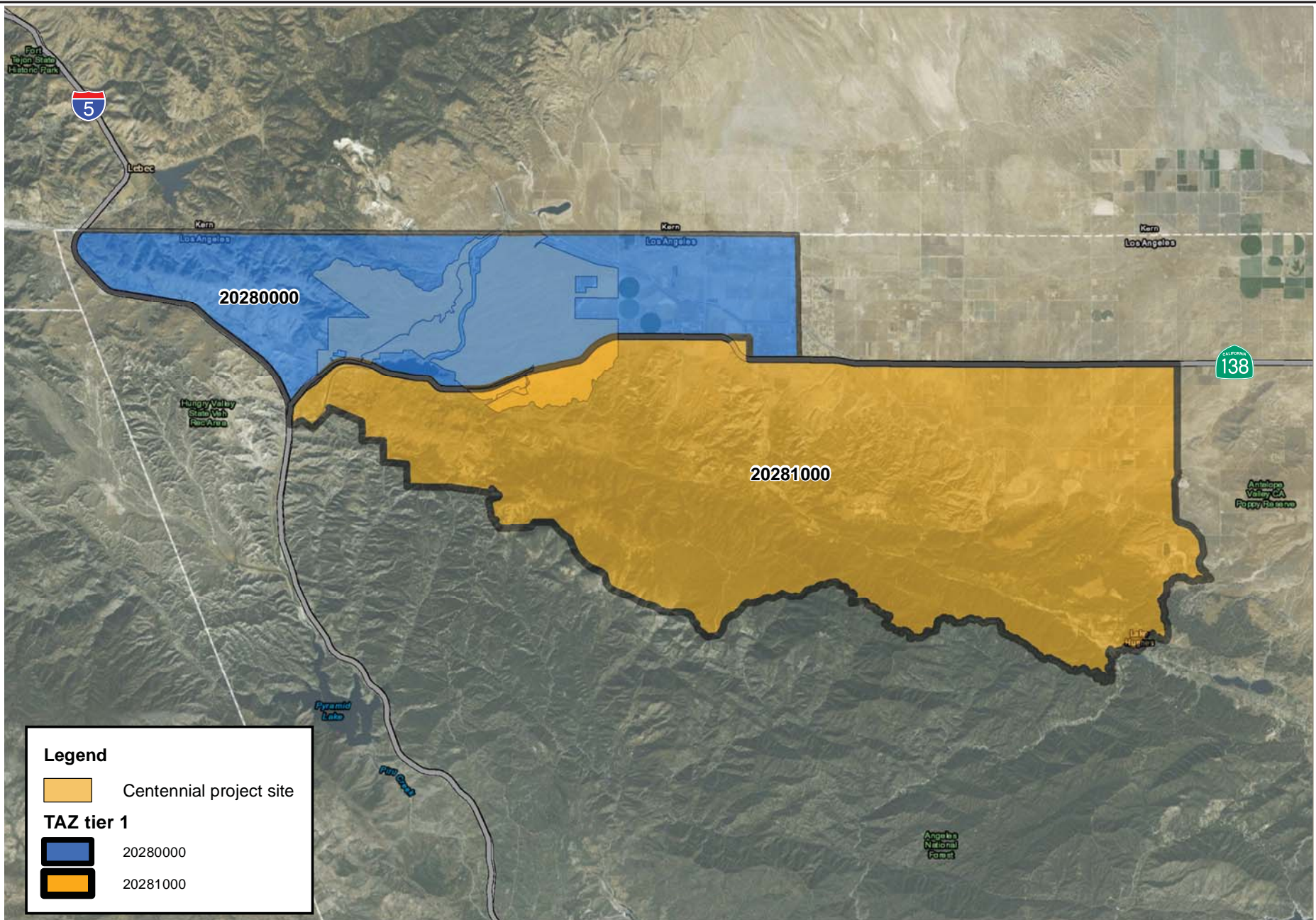
Year	Population*	Housing*	Employment*
2012	4,686 residents	1,635 units	1,156 jobs
2035	89,310 residents	23,197 units	20,361 jobs
Growth	84,624 residents	21,562 units	19,205 jobs
SCAG: Southern California Association of Governments; TAZ: Traffic Analysis Zone			
* Data represents TAZs 20280000 and 20281000 (from Antelope Valley Area Plan [AVAP])			
Source: Stantec 2017 (Table 3-1).			

The Centennial Project has been designed to balance residential and non-residential uses and to balance number of on-site jobs available with on-site housing units to encourage local trips. Because of the balanced land use plan, all jobs could be filled by workers in the community and all service needs could be met by on-site retail and other service land uses. Non-work activities such as schools, parks, library facilities, and retail have been planned on the Project site in an effort to meet the needs of residents at buildout, reducing the need to access such services by making trips external to the Project.

A portion of the Project workforce and resident population can be expected to live or work outside the Project area and would commute to jobs outside or within the Centennial Specific Plan area. A portion of the on-site residents and workers would also be expected to travel for services and amenities outside of the Project. The North County sub-area traffic model estimates the volume of external and internal trips within a geographic area, such as the Project, based on parameters such as population and employment and the relative distances between areas for which trips will be made. The traffic model used for the Project analysis was the same model used by the County and other public agencies for transportation planning studies in the region, including the 2015 AVAP and General Plan update, and is consistent with the SCAG regional model.

Table 5.10-18, Internal/External Trip Ends, shows the estimated ADT and peak hour trips for the Project and the corresponding internal and external components that produce the overall internal trip capture percentages derived by the North County sub-area traffic model. A “trip end” refers to a trip start or destination point. Each internal trip is considered to have two Project-generated trip ends because the trip has both a start and end point within the site. Each external trip is considered to have a single Project-generated trip end because only

D:\Projects\CEN\Centennial\GRAPHICS\EIR\EX\_SCAGTraffic\_20160506.ai



Source: Stantec 2016

## SCAG Traffic Analysis Zones (TAZ)

## Exhibit 5.10-6

Centennial Project



the trip termination point (for inbound trips) or start point (for outbound trips) is located in the Project site. Centennial includes schools, parks, and retail shopping areas within the Project site located and sized to meet the Project’s residential and workforce needs. Most of the trips generated by travel to and from these locations will be internal to the Project area. In addition, at buildout, the Project will include approximately 10.1 million square feet (sf) of commercial office, shopping/retail, and industrial land uses that will provide approximately 23,675 jobs, many of which would be filled by future Centennial residents. As shown in Table 5.10-18, about 140,492 (65 percent) of the average daily total of 216,400 trip ends that would be generated by the Project at buildout will be internal to and both originate and end within the site.

**TABLE 5.10-18  
INTERNAL/EXTERNAL TRIP ENDS**

		AM Peak Hour			PM Peak Hour			ADT
		IB	OB	Total	IB	OB	Total	
Trip ends	Internal	4,975	4,975	9,951	5,422	5,422	10,844	140,492
	External	2,344	4,146	6,489	4,378	2,144	6,521	75,908
	Total	7,319	9,121	16,440	9,800	7,566	17,366	216,400
	<b>Internal %</b>	<b>68%</b>	<b>55%</b>	<b>61%</b>	<b>55%</b>	<b>72%</b>	<b>62%</b>	<b>65%</b>

IB: inbound; OB: outbound.; ADT: average daily trips  
Source: Stantec 2017 (Table 3-2).

As discussed above, each internal trip has two trip ends, and each external trip has one trip end within the Project site. Table 5.10-19, Trip End and Trip Summary, summarizes the average daily total trips that would be generated by the Project at buildout and shows that 48 percent will be internal to the Project, and 52 percent would be external.

**TABLE 5.10-19  
TRIP END AND TRIP SUMMARY**

Trip Type	Trip Ends	% Of Total Trip Ends	Trips	% Of Total Trips
Internal	140,492	65	70,246	48
External	75,908	35	75,908	52
<b>Total</b>	<b>216,400</b>	<b>100</b>	<b>146,154</b>	<b>100</b>

Trip end: One end of a trip (e.g., a driveway count).  
 Trip: Occurs from a point of origin to a point of destination and involves 2 trip ends (1 at each end of the trip).  
 Internal: Both the origin and destination trip ends are on site.  
 External: One trip end (either origin or destination) on site, the other trip end (either destination or origin) off site.  
 Source: Stantec 2017 (Table 3-3).

An average single-family residential unit generates approximately nine “home-based” trips per day. On average, about two of these nine trips are directly between home and work with no stops in-between. The remaining home-based trips are between the home and a non-work activity such as school, shopping, or recreation (see Appendix 5.10-A). Most of these

services and amenities will be located within the Project site, and the Project has been designed to include all the services that generate non-work trips by residents and on-site workers. Consequently, as shown in Tables 5.10-18 and 5.10-19, nearly two-thirds of all Project-generated trip ends and half of all trips will be internal to the site.

## **Trip Distribution**

The percent of Project trips on each major roadway serving the Project site that would occur at buildout is shown in Exhibit 5.10-7. Interactions between Centennial and the outside region were derived from the North County sub-area traffic model. The results indicate that the Santa Clarita Valley area will be primarily characterized by out-commuting from Centennial. For Lancaster, Palmdale and Kern County, the amount of in- and out-commuting is generally balanced, but with a slight bias towards out-commuting to Centennial (see Appendix 5.10-A).

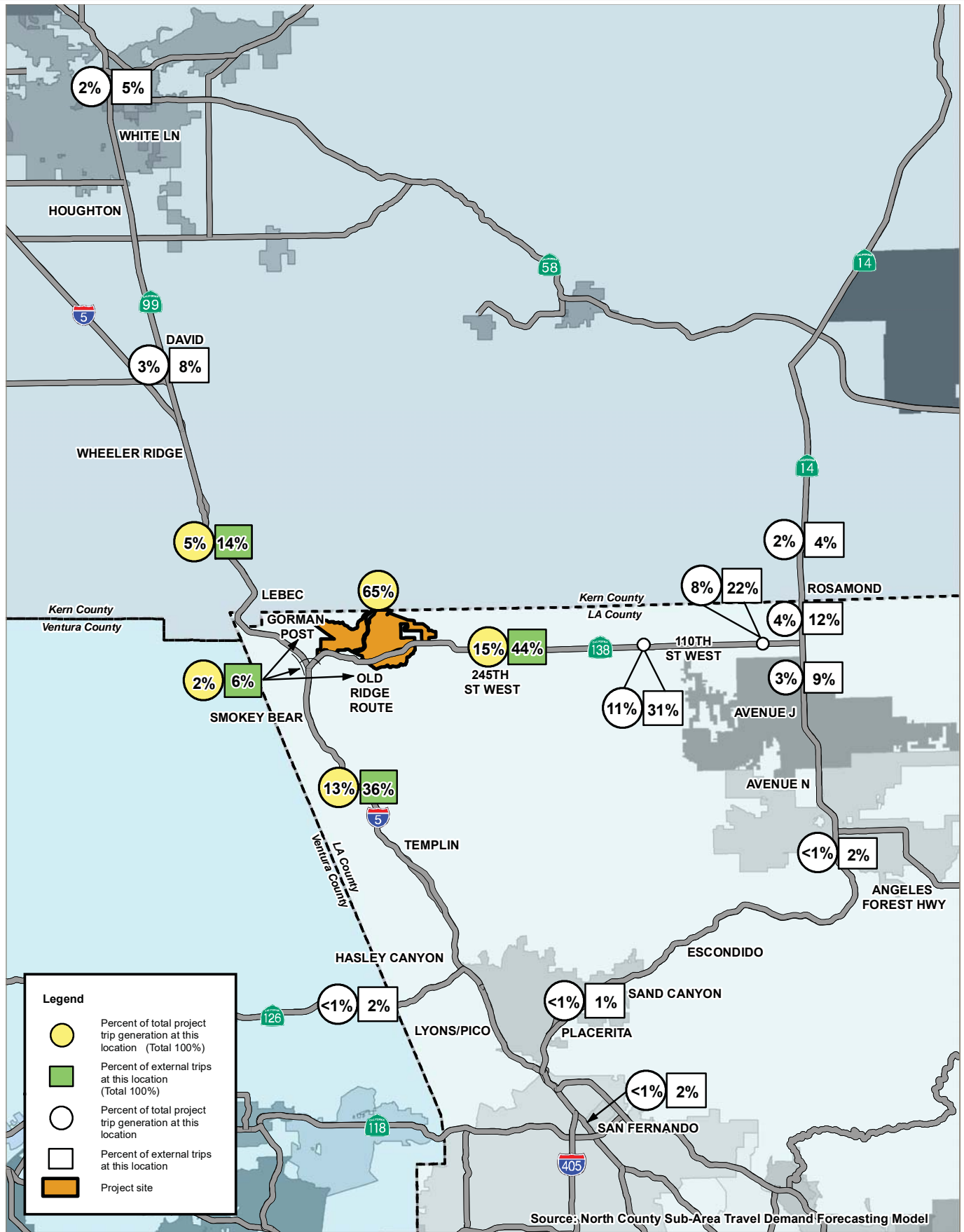
## **On-Site Impacts**

The Project would generate vehicle trips that will require an internal roadway circulation network. As described in PDF 10-1, the Project includes a Mobility Plan, which will provide an extensive system of sidewalks, greenway trails, and community trails to serve as alternative means of transportation on the Project site. It is estimated that 40 percent of the trips made on-site would be 3 miles or less in length, which is a comfortable biking distance that most people can make in less than 15 to 20 minutes, and close to 70 percent of the trips would be 4 miles or less. Also, four percent would be one mile or less in length (see Table 3-8 of Traffic Study [Appendix 5.10-A]). Centennial's planned circulation network and transit system are discussed in Section 4.5.5, Mobility Plan, of the Project Description. MM 10-29 requires that this Mobility Plan be implemented to provide an adequate on-site circulation system. The ADT volumes within the internal Project roadway system at buildout are shown in Exhibit 5.10-8, On-Site Average Daily Traffic Volumes with Proposed Project Buildout.

In addition, a number of PDFs would reduce vehicle trips. Specifically, the Project strategically locates schools, parks and commercial areas in the village centers to facilitate pedestrian access (PDF 10-2). The Project also locates the highest density residential uses adjacent to commercial areas and includes a Mixed-Use Overlay District that permits residential uses in commercial areas. This land-use configuration places larger populations within key commercial areas to encourage pedestrian activity and to reduce vehicle trips (PDF 10-3). The proposed on-site roadway system includes major east-west roadways, to serve the Project's east-west travel demand, to connect major on-site activity areas, and to lessen the Project's traffic demand on SR-138 (PDF 10-4). The Project's Technology Plan requires a community intranet to allow online access to public and shared information to facilitate telecommuting and reduce the need for automobile travel (PDF 10-4). MM 10-1 requires implementation of the community intranet.

The internal circulation system for the Project has been designed to serve the estimated future traffic volumes (using the roadway capacities included in the AVAP) and for all roadways to operate within acceptable levels of service (LOS C) within the proposed circulation system (PDFs 10-1 and 10-3). Since the internal roadways would meet





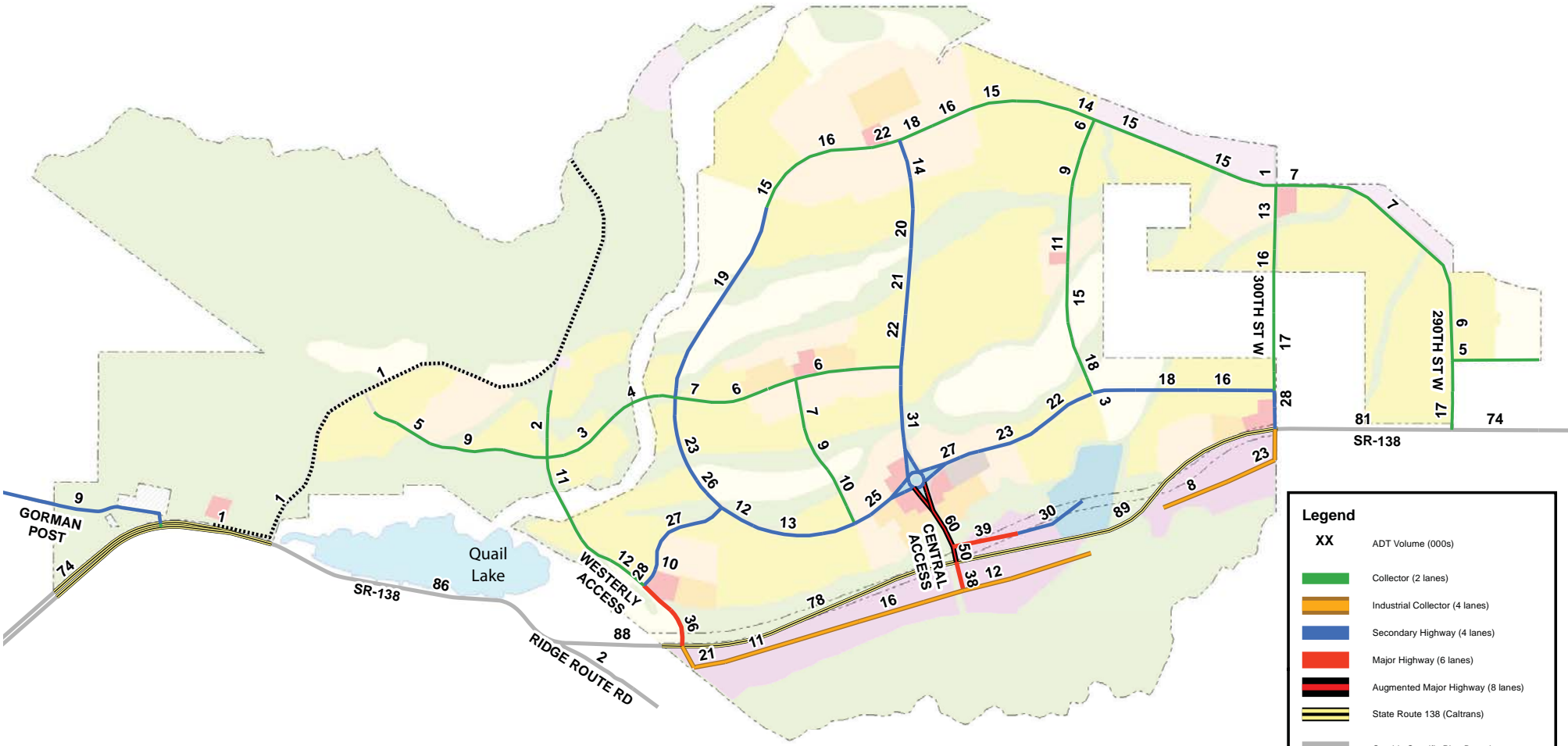
Source: Stantec 2017

## Proposed Project Trip Distribution at Buildout

## Exhibit 5.10-7

Centennial Project





**Legend**

- XX ADT Volume (000s)
- Collector (2 lanes)
- Industrial Collector (4 lanes)
- Secondary Highway (4 lanes)
- Major Highway (6 lanes)
- Augmented Major Highway (8 lanes)
- State Route 138 (Caltrans)
- Outside Specific Plan Boundary
- Private Cement Plant Road/Emergency Access
- Specific Plan Boundary

Source: Stantec 2017

# On-Site Average Daily Traffic Volumes with Proposed Project Buildout

# Exhibit 5.10-8

Centennial Project



established performance criteria and the Project includes the construction of these roadways and the internal circulation network under MM 10-29 and MM 10-30 (e.g., community trails, greenway trails, and sidewalks), impacts would be less than significant.

MM 10-2 requires the preparation of traffic studies prior to the approval of each tentative tract map to identify necessary on-site roadway network and intersection configurations required to meet applicable performance objectives.

SR-138 is a State highway adjacent to but not part of the site. As discussed in more detail in Appendix 5.10-A, Project access and SR-138 intersection conditions at buildout were analyzed to determine the intersection improvements that would be required to meet applicable performance standards. Four Project access locations along SR-138 would require the installation of traffic signals as the Project is developed. MM 10-23 requires that these intersections be signalized when monitoring indicates that traffic signals meet warrants, which define applicable thresholds for installation at each location.

As stated below, the SR-138 and all intersections along SR-138 from the I-5 to 30<sup>th</sup> Street West (off site) would be impacted by the Project. MM 10-3 requires the Project Applicant to seek to enter into a Centennial Transportation Improvement Program (CTIP) agreement with the County and Caltrans that would identify, mitigate, and fund traffic mitigation measures for the Project. If implemented, the CTIP would include specific traffic improvements, proposed scheduling, funding mechanisms, and monetary or in-kind contributions by the Project Applicant in order to ensure that traffic impacts will be mitigated to a less than significant level. The CTIP would also provide Caltrans with a private funding commitment that would assist with obtaining public funding for regional traffic improvements, including planning and obtaining matching grants for construction. These funding commitments would assist with the timely completion of improvements that would alleviate existing or anticipated congestion along SR-138 and I-5 and reduce potentially adverse air quality and greenhouse gas impacts associated with traffic congestion.

An initial estimate of the Project's equitable share of potential impacts to State facilities has been prepared in accordance with Caltrans guidelines for traffic impact studies (see Section 5.3 and Table 5-5 in the Traffic Study [Appendix 5.10-A]). Equitable share calculations would be used to identify the monetary or in-kind contributions that the Project will make to achieve the objectives of the CTIP. In the event that a CTIP is not entered into, MM 10-3, MM 10-6 through MM 10-28, and MMs 10-31 through 10-45 require that the Project Applicant contribute fair share funding towards the improvements required to mitigate for Project impacts.

MM 10-4 requires that the Project Applicant work with the County and/or Caltrans to establish a traffic mitigation fee program, assessment district or other equivalent program to mitigate vehicular trips accessing the SR-138 corridor between I-5 and SR-14. If implemented, the program would establish a fair share contribution and payment system for new development to ensure that the required improvements for SR-138 are fully funded.

The County's Construction and Encroachment Permit Requirements call for construction activities on public rights-of-way to be performed in accordance with the current Standard



Specifications for Public Works Construction (Greenbook) and Additions and Amendments to the Standard Specifications for Public Works Construction (Graybook), including Traffic Control Provisions. To avoid traffic disruption during the construction phases of each development, MM 10-5 requires that temporary traffic controls in accordance with the Greenbook and Graybook and a Transportation Management Plan be prepared and implemented during Project construction activities.

Impacts would be less than significant after compliance with the Greenbook and Graybook and the implementation of MMs 10-1 through 10-5, MM 10-29, MM 10-30, and MM 10-23.

## **Off-Site Impacts**

### ***Existing Plus Project Scenario***

Exhibit 5.10-9, Average Daily Traffic Volumes – Project Only, shows the Project-generated ADT volumes that would be distributed onto the study area roadway system.

An evaluation of the off-site impacts to SR-138 roadway segments and intersections and freeway mainline segments and ramps due to buildout of the Specific Plan under existing plus Project conditions was prepared by directly adding the traffic that would be generated by the Project to existing conditions. The purpose of this analysis is to differentiate the significant impacts due only to the Project from the significant impacts that would occur from other traffic sources. To provide a conservative analysis, the Project traffic forecasts do not reflect supplemental reductions for trip reducing measures, such as TDM measures that would be implemented by the Project (see MM 10-29 and MM 10-30). Exhibit 5.10-10, Average Daily Traffic Volumes – Existing (2014 and 2015) Plus Project, shows the existing plus Project ADT volumes on the study area roadway system.

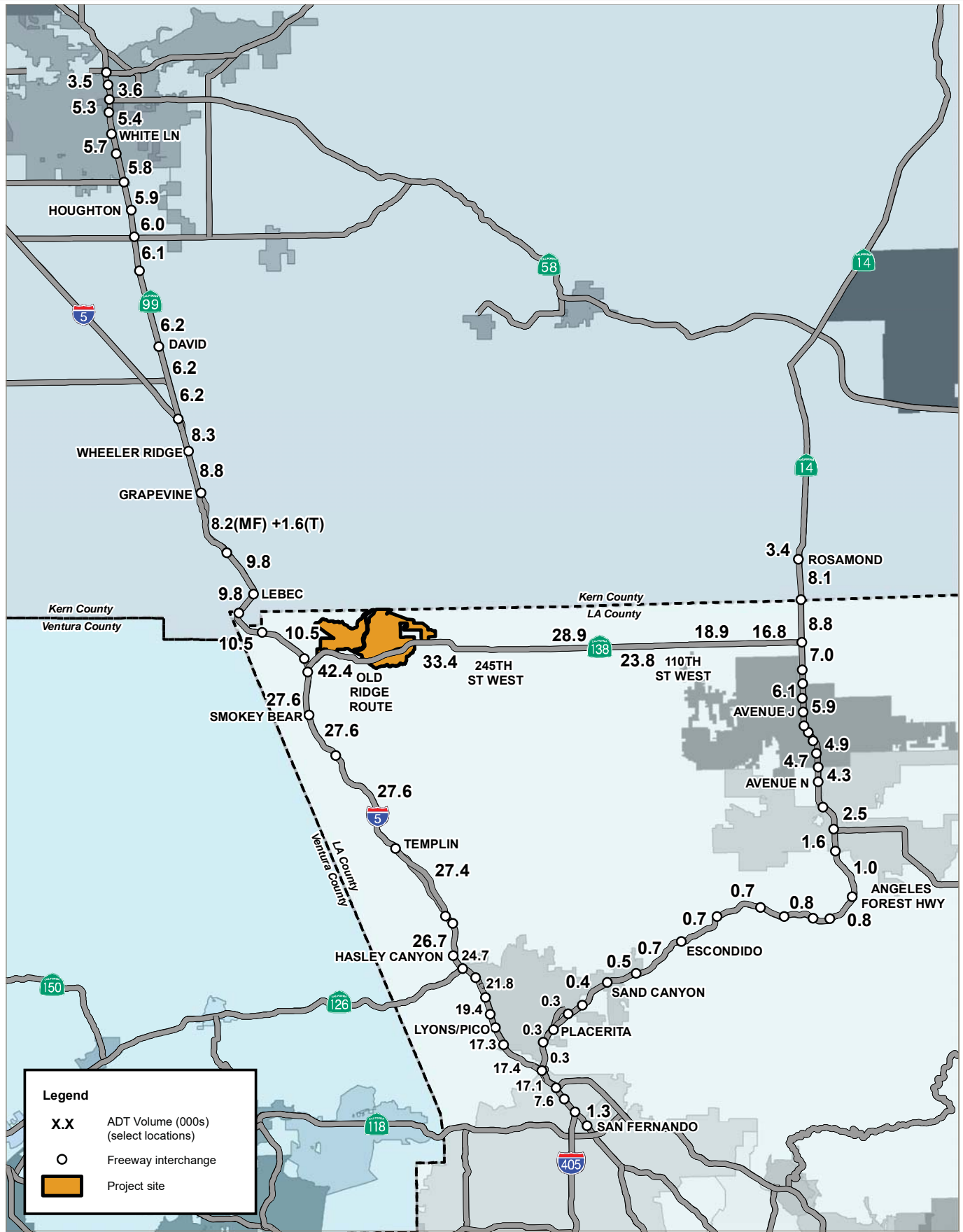
The existing plus Project analysis conservatively assumes that the existing background traffic conditions do not change, other than changes directly due to the Project, over the approximate 20-year time frame required to build the Project. The analysis does not include other approved, planned and anticipated projects that would also change traffic patterns in the study area over time.

### ***State Route 138 Highway Segments***

Using the two-lane highway methodology in the HCM 2010, the LOS for each segment of SR-138 under existing and existing plus Project conditions are provided in Table 5.10-20.

**TABLE 5.10-20  
SR-138 TWO-LANE HIGHWAY IMPACT SUMMARY – EXISTING PLUS PROJECT CONDITIONS**

	PTSF and LOS Segment Analysis							
	61. Between Gorman Post Rd and Old Ridge Route Rd	62. Between Old Ridge Route Rd and 300 <sup>th</sup> St West	63. Between 300 <sup>th</sup> St West and Three Points	64. Between Three Points and 245 <sup>th</sup> St West	65. Between 245 <sup>th</sup> St West and 190 <sup>th</sup> St West	66. Between 190 <sup>th</sup> St West and 110 <sup>th</sup> St West	67. Between 110 <sup>th</sup> St West and 60 <sup>th</sup> St West	68. Between 60 <sup>th</sup> St West and Jct SR-14 North
<b>AM Peak Hour – Eastbound</b>								
Existing (2015) Counts	28.5%/A	20.6%/A	23.1%/A	20.5%/A	20.2%/A	17.0%/A	26.2%/A	26.3%/A
Existing (2015) plus Project	<b>94.2%/E</b>	<b>93.4%/E</b>	<b>98.4%/E</b>	<b>97.8%/E</b>	<b>92.6%/E</b>	<b>85.7%/E</b>	<b>84.0%/E</b>	<b>80.1%/E</b>
<b>AM Peak Hour – Westbound</b>								
Existing (2015) Counts	46.7%/B	33.6%/A	37.8%/B	26.8%/A	25.3%/A	21.6%/A	21.5%/A	23.0%/A
Existing (2015) plus Project	<b>100.0%/F</b>	<b>100.0%/F</b>	<b>91.7%/E</b>	<b>91.1%/E</b>	<b>89.0%/E</b>	<b>84.6%/E</b>	78.0%/D	75.2%/D
<b>PM Peak Hour – Eastbound</b>								
Existing (2015) Counts	50.8%/C	37.9%/B	41.5%/B	31.2%/A	30.7%/A	27.9%/A	31.6%/A	31.2%/A
Existing (2015) plus Project	<b>100.0%/F</b>	<b>100.0%/F</b>	<b>89.3%/E</b>	<b>87.8%/E</b>	<b>85.4%/E</b>	<b>82.1%/E</b>	76.5%/D	73.4%/D
<b>PM Peak Hour – Westbound</b>								
Existing (2015) Counts	29.2%/A	22.0%/A	24.5%/A	17.4%/A	18.8%/A	18.4%/A	19.2%/A	26.4%/A
Existing (2015) plus Project	<b>94.2%/E</b>	<b>93.1%/E</b>	<b>100.0%/F</b>	<b>100.0%/F</b>	<b>99.0%/E</b>	<b>95.0%/E</b>	<b>89.1%/E</b>	<b>88.1%/E</b>
SR: State Route; PTSF: Percent Time-Spent-Following; LOS: level of service; Jct: junction; pc/hr: passenger cars per hour Bold = Significant Impact (see Section 5.10.5 for criteria) LOS Ranges A = 0–35 PTSF B = 36–50 PTSF C = 51–65 PTSF D = 66–80 PTSF E > 80 PTSF LOS F occurs when the total volume exceeds 3,200 pc/hr, or when the highest directional volume exceeds 1,700 pc/hr. Source: Stantec 2017 (Table 4-1).								



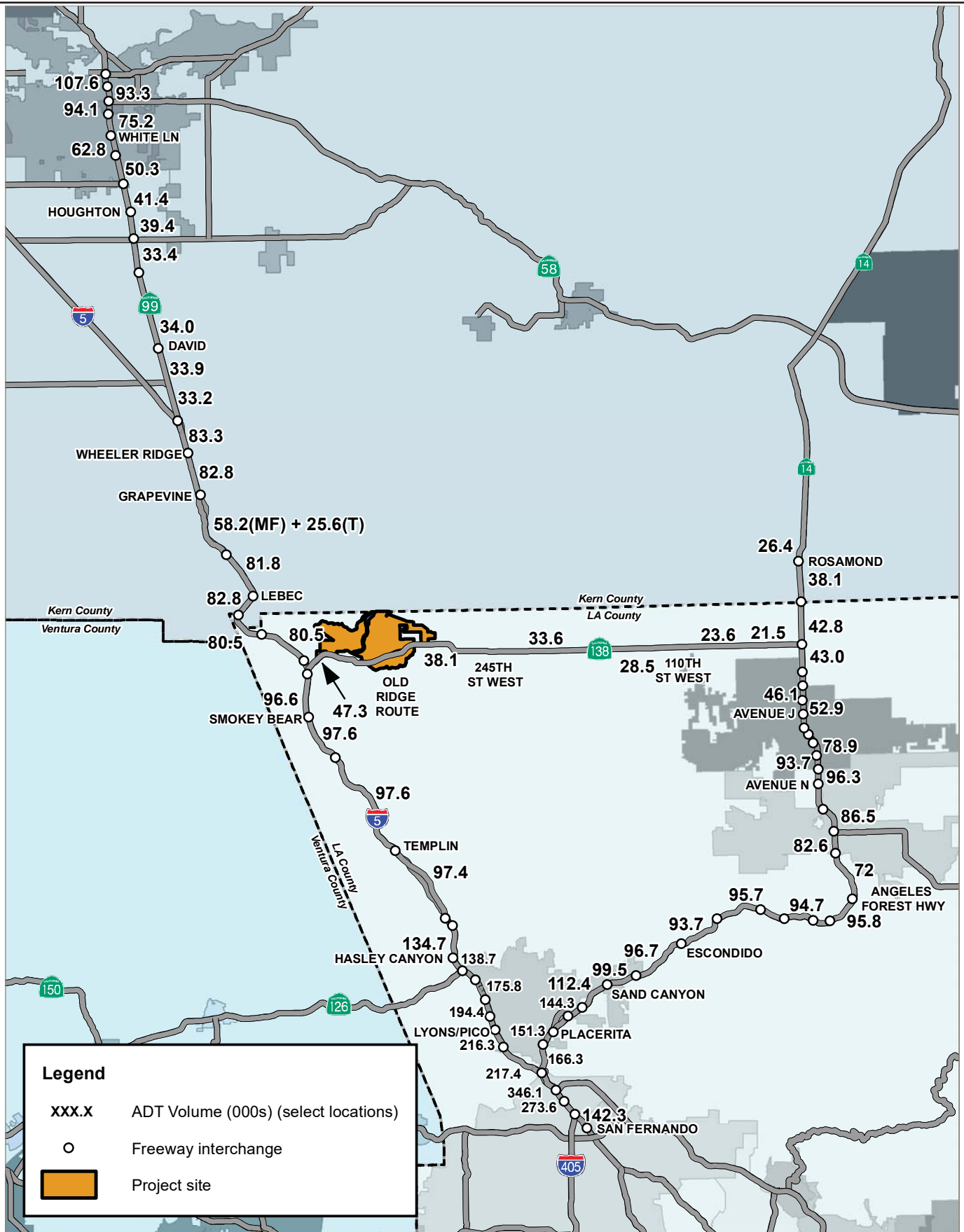
Source: Stantec 2017

### Average Daily Traffic Volumes – Project Only

### Exhibit 5.10-9

Centennial Project





Source: Stantec 2017

### Average Daily Traffic Volumes - Existing (2014 and 2015) Plus Project

Exhibit 5.10-10

Centennial Project



As shown, eight segments of SR-138 from Gorman Post Road to SR-14 would be significantly impacted by the Project under existing plus Project conditions:

61. **Between Gorman Post Road and Old Ridge Route Road:** eastbound (EB) morning peak hour (AM), EB PM (afternoon peak hour), WB AM, WB PM
62. **Between Old Ridge Route Road and 300th St West:** EB AM, EB PM, westbound (WB) AM, WB PM
63. **Between 300th St West and Three Points Road:** EB AM, EB PM, WB AM, WB PM
64. **Between Three Points Road and 245th St West:** EB AM, EB PM, WB AM, WB PM
65. **Between 245th Street West and 190th St West:** EB AM, EB PM, WB AM, WB PM
66. **Between 190th St West and 110th Street West:** EB AM, EB PM, WB AM, WB PM
67. **Between 110th St West and 60th Street West:** EB AM, WB PM
68. **Between 60<sup>th</sup> St West and SR-14:** EB AM, WB PM

The addition of one lane in each direction on SR-138 from Gorman Post Road to 190<sup>th</sup> Street, with right-of-way reserved for a six-lane expressway between I-5 and 300th Street West, would provide adequate capacity and mitigate Project impacts to the eight SR-138 segments under existing plus Project conditions to less than significant levels (see Table 4-11 and Table 4-12 of the Traffic Study [Appendix 5.10-A]). The Project is required to contribute to funding for SR-138 improvements under an approved CTIP, in conjunction with an approved traffic mitigation fee program or by making fair share contributions in accordance with MM 10-23, MMs 10-3 through 10-20, and MM 10-27.

### ***Freeway Mainline Segments***

The peak hour V/C ratios on freeway mainline segments with and without Project traffic is provided in Table 5.10-21.

*This page intentionally left blank*

**TABLE 5.10-21  
FREEWAY/EXPRESSWAY VOLUME AND CAPACITY SUMMARY - EXISTING (2014 AND 2015) PLUS PROJECT WITH EXISTING LANES**

Location	ADT Volume	Northbound/Eastbound							Southbound/Westbound							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
<b>I-5</b>																	
1 Btw SR-99 and Laval/Wheeler		4M							4M								
2015 Count	75,000		2,050	8,200	1,561	0.19	2,158	0.26		2,050	8,200	1,461	0.18	1,884	0.23	LOS D	
Project Traffic	8,300				168		206				489			251			
2015 + Full Project	83,300		2,050	8,200	1,729	0.21	2,364	0.29		2,050	8,200	1,950	0.24	2,135	0.26		
Project V/C						0.02		0.03					0.06		0.03		
2 Btw Laval/Wheeler and Grapevine		4M							4M								
2015 Count	74,000		2,050	8,200	1,570	0.19	2,051	0.25		2,050	8,200	1,422	0.17	1,780	0.22	LOS D	
Project Traffic	8,800				198		256				509			301			
2015 + Full Project	82,800		2,050	8,200	1,768	0.22	2,307	0.28		2,050	8,200	1,931	0.24	2,081	0.25		
Project V/C						0.03		0.03					0.07		0.03		
3 Btw Grapevine and Fort Tejon Rd (MF)		2M							2M								
2015 Count	57,000		2,206	4,412	1,013	0.23	1,362	0.31		2,070	4,140	880	0.21	1,038	0.25	LOS D	
Project Traffic	8,200				139		204				387			267			
2015 + Full Project	58,200		2,206	4,412	1,152	0.26	1,566	0.35		2,070	4,140	1,267	0.31	1,305	0.32		
Project V/C						0.03		0.04					0.10		0.07		
3a Btw Grapevine and Fort Tejon Rd (MF + Truck lane)		2T							2T								
2015 Count	24,000		1,025	2,050	528	0.26	673	0.33		1,025	2,050	518	0.25	744	0.36	LOS D	
Project Traffic	1,600				89		102				151			94			
2015 + Full Project	25,600		1,025	2,050	617	0.30	775	0.38		1,025	2,050	669	0.33	838	0.41		
Project V/C						0.04		0.05					0.08		0.05		
4 Btw Fort Tejon Rd and Lebec Rd		4M							4M								
2014 Count	72,000		1,839	7,355	1,390	0.19	2,426	0.33		2,036	8,143	1,346	0.17	2,304	0.28	LOS D	
Project Traffic	9,800				228		306				539			361			
2014 + Full Project	81,800		1,839	7,355	1,618	0.22	2,732	0.37		2,036	8,143	1,885	0.23	2,665	0.33		
Project V/C						0.03		0.04					0.06		0.05		
5 Btw Lebec Rd and Frazier Mtn Park		4M							4M								
2014 Count	73,000		1,839	7,355	1,409	0.19	2,460	0.33		2,036	8,143	1,365	0.17	2,336	0.29	LOS D	
Project Traffic	9,800				228		306				539			361			
2014 + Full Project	82,800		1,839	7,355	1,637	0.22	2,766	0.38		2,036	8,143	1,904	0.23	2,697	0.33		
Project V/C						0.03		0.05					0.06		0.04		
6 Btw Frazier Mtn Park and Gorman Rd		4M							4M								
2014 Count	70,000		2,036	8,143	1,351	0.17	2,359	0.29		1,401	5,606	1,309	0.23	2,240	0.40	LOS D	
Project Traffic	10,500				245		330				583			402			
2014 + Full Project	80,500		2,036	8,143	1,596	0.20	2,689	0.33		1,401	5,606	1,892	0.34	2,642	0.47		
Project V/C						0.03		0.04					0.11		0.07		
7 Btw Gorman Rd and N Jct SR-138		4M							4M								
2014 Count	70,000		1,849	7,398	1,351	0.18	2,359	0.32		2,042	8,169	1,309	0.16	2,240	0.27	LOS D	
Project Traffic	10,500				245		330				583			402			
2014 + Full Project	80,500		1,849	7,398	1,596	0.22	2,689	0.36		2,042	8,169	1,892	0.23	2,642	0.32		
Project V/C						0.04		0.04					0.07		0.05		
8 Btw N Jct SR-138 and Quail Lake Rd		4M							4M								
2014 Count	67,000		1,849	7,398	1,293	0.17	2,258	0.31		2,042	8,169	1,253	0.15	2,144	0.26	LOS D	
Project Traffic	0				0		0				0			0			
2014 + Full Project	67,000		1,849	7,398	1,293	0.17	2,258	0.31		2,042	8,169	1,253	0.15	2,144	0.26		
Project V/C						0.00		0.00					0.00		0.00		

**TABLE 5.10-21  
FREEWAY/EXPRESSWAY VOLUME AND CAPACITY SUMMARY - EXISTING (2014 AND 2015) PLUS PROJECT WITH EXISTING LANES**

Location	ADT Volume	Northbound/Eastbound							Southbound/Westbound							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
9 Btw Quail Lake Rd and S Jct SR-138		4M							4M								
2014 Count	67,000		1,375	5,500	1,293	0.24	2,258	0.41		1,375	5,500	1,253	0.23	2,144	0.39	LOS D	
Project Traffic	1,700				0		476				17		0				
2015 + Full Project	68,700		1,375	5,500	1,293	0.24	2,734	0.50		1,375	5,500	1,270	0.23	2,144	0.39		
Project V/C						0.00		0.09				0.00		0.00			
10 Btw S Jct SR-138 and Smokey Bear Rd		4M							4M								
2014 Count	69,000		1,375	5,500	1,332	0.24	2,325	0.42		1,375	5,500	1,290	0.23	2,208	0.40	LOS D	
Project Traffic	27,600				370		1,702				2,019		678				
2014 + Full Project	96,600		1,375	5,500	1,702	0.31	4,027	0.73		1,375	5,500	3,309	0.60	2,886	0.52		
Project V/C						0.07		0.31				0.37		0.12			
11 Btw Smokey Bear Rd and Vista Del Lago Rd		4M							4M								
2014 Count	70,000		1,489	5,957	1,351	0.23	2,359	0.40		1,489	5,957	1,309	0.22	2,240	0.38	LOS D	
Project Traffic	27,600				370		1,701				2,018		678				
2014 + Full Project	97,600		1,489	5,957	1,721	0.29	4,060	0.68		1,489	5,957	3,327	0.56	2,918	0.49		
Project V/C						0.06		0.28				0.34		0.11			
12 Btw Vista Del Lago Rd and Templin Hwy		4M							4M								
2014 Count	70,000		1,489	5,957	1,351	0.23	2,359	0.40		1,489	5,957	1,309	0.22	2,240	0.38	LOS D	
Project Traffic	27,600				370		1,701				2,018		678				
2014 + Full Project	97,600		1,489	5,957	1,721	0.29	4,060	0.68		1,489	5,957	3,327	0.56	2,918	0.49		
Project V/C						0.06		0.28				0.34		0.11			
13 Btw Templin Hwy and Lake Hughes Rd		4M							4M								
2014	70,000		1,489	5,957	1,351	0.23	2,359	0.40		1,489	5,957	1,309	0.22	2,240	0.38	LOS D	
Project Traffic	27,400				366		1,693				2,010		673				
2014 + Full Project	97,400		1,489	5,957	1,717	0.29	4,052	0.68		1,489	5,957	3,319	0.56	2,913	0.49		
Project V/C						0.06		0.28				0.34		0.11			
14 Btw Lake Hughes Rd and Parker Rd		4M							4M								
2014 Count	73,000		1,856	7,422	1,504	0.20	1,949	0.26		1,856	7,422	1,854	0.25	2,519	0.34	LOS E	
Project Traffic	26,700				357		1,639				1,948		658				
2014 + Full Project	99,700		1,856	7,422	1,861	0.25	3,588	0.48		1,856	7,422	3,802	0.51	3,177	0.43		
Project V/C						0.05		0.22				0.26		0.09			
15 Btw Parker Rd and Hasley Cyn Rd		4M							4M								
2014 Count	108,000		1,856	7,422	2,225	0.30	2,884	0.39		1,856	7,422	2,743	0.37	3,726	0.50	LOS E	
Project Traffic	26,700				357		1,638				1,947		657				
2014 + Full Project	134,700		1,856	7,422	2,582	0.35	4,522	0.61		1,856	7,422	4,690	0.63	4,383	0.59		
Project V/C						0.05		0.22				0.26		0.09			
16 Btw Hasley Cyn Rd and N Jct SR-126 (NB)		4M (+1A)							4M (+1A)								
2014 Count	114,000		1,856	8,422	2,348	0.28	3,044	0.36		1,856	8,422	2,896	0.34	3,933	0.47	LOS E	
Project Traffic	24,700				309		1,497				1,766		582				
2014 + Full Project	138,700		1,856	8,422	2,657	0.32	4,541	0.54		1,856	8,422	4,662	0.55	4,515	0.54		
Project IV/C						0.04		0.18				0.21		0.07			
17 Btw N Jct SR-126 and Rye Cyn Rd		4M							4M								
2014 Count	130,000		1,867	7,470	2,678	0.36	3,471	0.46		1,867	7,470	3,302	0.44	4,485	0.60	LOS E	
Project Traffic	21,800				272		1,230				1,626		560				
2014 + Full Project	151,800		1,867	7,470	2,950	0.39	4,701	0.63		1,867	7,470	4,928	0.66	5,045	0.68		
Project V/C						0.03		0.17				0.22		0.08			
18 Btw Rye Cyn Rd and Magic Mountain Pkwy		4M							4M								
2014 Count	154,000		1,918	7,670	3,172	0.41	4,112	0.54		1,918	7,670	3,912	0.51	5,313	0.69	LOS E	
Project Traffic	21,800				277		1,260				1,354		457				
2014 + Full Project	175,800		1,918	7,670	3,449	0.45	5,372	0.70		1,918	7,670	5,266	0.69	5,770	0.75		
ProjectV/C						0.04		0.16				0.18		0.06			



**TABLE 5.10-21  
FREEWAY/EXPRESSWAY VOLUME AND CAPACITY SUMMARY - EXISTING (2014 AND 2015) PLUS PROJECT WITH EXISTING LANES**

Location	ADT Volume	Northbound/Eastbound							Southbound/Westbound							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
19 Btw Magic Mountain Pkwy and Valencia Blvd		4M							4M								
2014 Count	165,000		1,918	7,670	3,399	0.44	4,406	0.57		1,918	7,670	4,191	0.55	5,693	0.74		
Project Traffic	20,200				257		1,186					1,231		455			
2014 + Full Project	185,200		1,918	7,670	3,656	0.48	5,592	0.73		1,918	7,670	5,422	0.71	6,148	0.80		
Project V/C						0.04		0.16					0.16		0.06		
20 Btw Valencia Blvd and McBean Pkwy		4M							4M								
2014 Count	175,000		1,918	7,670	3,605	0.47	4,673	0.61		1,918	7,670	4,445	0.58	6,038	0.79		
Project Traffic	19,400				267		1,139					1,163		433			
2014 + Full Project	194,400		1,918	7,670	3,872	0.50	5,812	0.76		1,918	7,670	5,608	0.73	6,471	0.84		
Project V/C						0.03		0.15					0.15		0.05		
21 Btw McBean Pkwy and Lyons Ave/Pico Cyn Rd		4M							4M								
2014 Count	186,000		1,990	7,960	3,832	0.48	4,966	0.62		1,990	7,960	4,724	0.59	6,417	0.81		
Project Traffic	18,500				231		1,050					1,090		440			
2014 + Full Project	204,500		1,990	7,960	4,063	0.51	6,016	0.76		1,990	7,960	5,814	0.73	6,857	0.86		
Project V/C						0.03		0.14					0.14		0.05		
22 Btw Lyons Ave and Calgrove Blvd		4M							4M (+1T)								
2014 Count	199,000		1,990	7,960	4,099	0.52	5,313	0.67		1,990	9,560	5,055	0.53	6,866	0.72		
Project Traffic	17,300				243		1,081					1,056		424			
2014 + Full Project	216,300		1,990	7,960	4,342	0.55	6,394	0.80		1,990	9,560	6,111	0.64	7,290	0.76		
Project V/C						0.03		0.13					0.11		0.04		
23 Btw Calgrove Blvd and SR-14		4M (+1T[C])							4M (+2T[C])								
2014 Count	200,000		1,990	9,160	4,120	0.45	5,340	0.58		1,990	10,360	5,080	0.49	6,900	0.67		
Project Traffic	17,400				218		1,003					1,077		448			
2014 + Full Project	217,400		1,990	9,160	4,338	0.47	6,343	0.69		1,990	10,360	6,157	0.59	7,348	0.71		
Project V/C						0.02		0.11					0.10		0.04		
24 Btw SR-14 and SR-210		3M (+1H+3A[F]+2T)							4M (+1H+2A[F]+2T)								
2014 Count	329,000		1,997	16,791	7,863	0.47	12,930	0.77		1,997	16,788	14,213	0.85	9,409	0.56		
Project Traffic	17,100				216		845					1,006		487			
2014 + Full Project	346,100		1,997	16,791	8,079	0.48	13,775	0.82		1,997	16,788	15,219	0.91	9,896	0.59		
Project V/C						0.01		0.05					0.06		0.03		
25 Btw SR-210 and Roxford St		4M (+1H+1A[F])							5M (+1H)								
2014 Count	266,000		2,212	12,449	6,357	0.51	10,454	0.84		2,212	12,661	11,491	0.91	7,608	0.60		
Project Traffic	7,600				97		378					309		216			
2014 + Full Project	273,600		2,212	12,449	6,454	0.52	10,832	0.87		2,212	12,661	11,941	0.94	7,825	0.62		
Project V/C						0.01		0.03					0.03		0.02		
26 Btw Roxford St and I-405		5M (+1H+1A[F])							5M (+1H+1A[F])								
2014 Count	283,000		2,212	14,661	6,764	0.46	11,122	0.76		2,212	14,661	12,226	0.83	8,094	0.55		
Project Traffic	3,900				50		195					232		112			
2014 + Full Project	286,900		2,212	14,661	6,814	0.46	11,317	0.77		2,212	14,661	12,457	0.85	8,206	0.56		
Project V/C						0.00		0.01					0.02		0.01		
27 Btw I-405 and San Fernando Mission Blvd		3M (+1H)							3M (+1H)								
2014 Count	141,000		2,190	8,171	3,370	0.41	5,541	0.68		2,190	8,171	6,091	0.75	4,033	0.49		
Project Traffic	1,300				17		65					77		37			
2014 + Full Project	142,300		2,190	8,171	3,386	0.41	5,606	0.69		2,190	8,171	6,168	0.75	4,070	0.50		
Project V/C						0.00		0.01					0.01		0.00		

**TABLE 5.10-21  
FREEWAY/EXPRESSWAY VOLUME AND CAPACITY SUMMARY - EXISTING (2014 AND 2015) PLUS PROJECT WITH EXISTING LANES**

Location	ADT Volume	Northbound/Eastbound							Southbound/Westbound							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
<b>SR-14</b>																	
28 Btw Dawn Rd and Rosamond Blvd		2M							2M								
2014 Count	23,000		2,332	4,665	1,083	0.23	849	0.18		2,332	4,665	499	0.11	1,323	0.28	LOS D	
Project Traffic	3,400				68		103					167		133			
2014 + Full Project	26,400		2,332	4,665	1,151	0.25	952	0.20		2,332	4,665	666	0.14	1,456	0.31		
Project V/C						0.02		0.02					0.03		0.03		
29 Btw Rosamond Blvd and Ave A		2M							2M								
2014 Count	30,000		2,339	4,679	1,413	0.30	1,107	0.24		2,339	4,679	651	0.14	1,725	0.37	LOS D	
Project Traffic	8,100				172		280					401		367			
2014 + Full Project	38,100		2,339	4,679	1,585	0.34	1,387	0.30		2,339	4,679	1,052	0.22	2,092	0.45		
Project V/C						0.04		0.06					0.08		0.08		
30 Ave A and N Jct SR-138/Ave D		2M							2M								
2014 Count	34,000		2,339	4,679	1,129	0.24	1,261	0.27		2,339	4,679	1,244	0.27	1,567	0.34	LOS D	
Project Traffic	8,800				191		300					439		406			
2014 + Full Project	42,800		2,339	4,679	1,320	0.28	1,561	0.33		2,339	4,679	1,683	0.36	1,973	0.42		
Project V/C						0.04		0.06					0.09		0.08		
31 Btw Jct SR-138/Ave D and Ave F		2M							2M								
2014 Count	36,000		2,332	4,665	1,195	0.26	1,336	0.29		2,332	4,665	1,318	0.28	1,660	0.36	LOS D	
Project Traffic	7,000				165		550					460		166			
2014 + Full Project	43,000		2,332	4,665	1,360	0.29	1,886	0.40		2,332	4,665	1,778	0.38	1,826	0.39		
Project V/C						0.03		0.11					0.10		0.03		
32 Btw Ave F and Ave G		2M							2M								
2014 Count	38,000		2,332	4,665	1,262	0.27	1,410	0.30		2,332	4,665	1,391	0.30	1,752	0.38	LOS D	
Project Traffic	7,000				165		547					459		164			
2014 + Full Project	45,000		2,332	4,665	1,427	0.31	1,957	0.42		2,332	4,665	1,850	0.40	1,916	0.41		
Project V/C						0.04		0.12					0.10		0.03		
33 Btw Ave G and Ave H		2M							2M								
2014 Count	38,000		2,332	4,665	1,262	0.27	1,410	0.30		2,332	4,665	1,391	0.30	1,752	0.38	LOS D	
Project Traffic	6,500				158		511					412		154			
2014 + Full Project	44,500		2,332	4,665	1,420	0.30	1,921	0.41		2,332	4,665	1,803	0.39	1,906	0.41		
Project V/C						0.03		0.11					0.09		0.03		
34 Btw Ave H and Ave I		2M							2M								
2014 Count	40,000		2,332	4,665	1,328	0.28	1,484	0.32		2,332	4,665	1,464	0.31	1,844	0.40	LOS E	
Project Traffic	6,100				150		483					380		143			
2014 + Full Project	46,100		2,332	4,665	1,478	0.32	1,967	0.42		2,332	4,665	1,844	0.40	1,987	0.43		
Project V/C						0.04		0.10					0.09		0.03		
35 Btw Ave I and Ave J		3M							3M								
2014 Count	47,000		2,332	6,997	1,560	0.22	1,744	0.25		2,332	6,997	1,720	0.25	2,167	0.31	LOS E	
Project Traffic	5,900				150		481					340		142			
2014 + Full Project	52,900		2,332	6,997	1,710	0.24	2,225	0.32		2,332	6,997	2,060	0.29	2,309	0.33		
Project V/C						0.02		0.07					0.04		0.02		
36 Btw Ave J and 20th St W		3M							3M								
2014 Count	42,000		2,339	7,016	1,394	0.20	1,558	0.22		2,339	7,016	1,537	0.22	1,936	0.28	LOS E	
Project Traffic	5,300				141		444					281		130			
2014 + Full Project	47,300		2,339	7,016	1,535	0.22	2,002	0.29		2,339	7,016	1,818	0.26	2,066	0.29		
Project V/C						0.02		0.07					0.04		0.01		

**TABLE 5.10-21  
FREEWAY/EXPRESSWAY VOLUME AND CAPACITY SUMMARY - EXISTING (2014 AND 2015) PLUS PROJECT WITH EXISTING LANES**

Location	ADT Volume	Northbound/Eastbound							Southbound/Westbound							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
37 Btw 20th St W and Ave K 2014 Count Project Traffic 2014 + Full Project Project V/C	59,000	3M	2,339	7,016	1,959	0.28	2,189	0.31	3M	2,339	7,016	2,159	0.31	2,720	0.39	LOS E	
	5,300				141		444					281		130			
	64,300				2,100	0.30	2,633	0.38				2,440	0.35	2,850	0.41		
					0.02	0.07		0.04				0.02					
38 Btw Ave K and Ave L 2014 Count Project Traffic 2014 + Full Project Project V/C	74,000	3M	2,339	7,016	2,457	0.35	2,745	0.39	3M	2,339	7,016	2,708	0.39	3,411	0.49	LOS E	
	4,900				135		413					238		121			
	78,900				2,592	0.37	3,158	0.45				2,946	0.42	3,532	0.50		
					0.02	0.06		0.03				0.01					
39 Btw Ave L and Ave M 2014 Count Project Traffic 2014 + Full Project Project V/C	89,000	3M	2,339	7,016	2,955	0.42	3,302	0.47	3M	2,339	7,016	3,257	0.46	4,103	0.58	LOS E	
	4,700				130		397					217		115			
	93,700				3,085	0.44	3,699	0.53				3,474	0.50	4,218	0.60		
					0.02	0.06		0.04				0.02					
40 Btw Ave M and Ave N 2014 Count Project Traffic 2014 + Full Project Project V/C	92,000	3M	2,339	7,016	3,054	0.44	3,413	0.49	3M	2,339	7,016	3,367	0.48	4,241	0.60	LOS E	
	4,300				127		374					187		108			
	96,300				3,181	0.45	3,787	0.54				3,554	0.51	4,349	0.62		
					0.01	0.05		0.03				0.02					
41 Btw Ave N and 10th St W 2014 Count Project Traffic 2014 + Full Project Project V/C	87,000	3M	2,339	7,016	2,888	0.41	3,228	0.46	3M	2,339	7,016	3,184	0.45	4,011	0.57	LOS E	
	4,100				124		365					157		106			
	91,100				3,012	0.43	3,593	0.51				3,341	0.48	4,117	0.59		
					0.02	0.05		0.03				0.02					
42 Btw 10th St W and Rancho Vista Blvd 2014 Count Project Traffic 2014 + Full Project Project V/C	87,000	3M	2,225	6,675	2,888	0.43	3,228	0.48	3M	2,225	6,675	3,184	0.48	4,011	0.60	LOS E	
	3,800				62		267					99		53			
	90,800				2,950	0.44	3,495	0.52				3,283	0.49	4,064	0.61		
					0.01	0.04		0.01				0.01					
43 Btw Rancho Vista Blvd and S Jct SR-138 2014 Count Project Traffic 2014 + Full Project Project V/C	84,000	3M	2,225	6,675	2,789	0.42	3,116	0.47	3M	2,225	6,675	3,074	0.46	3,872	0.58	LOS E	
	2,500				62		249					99		48			
	86,500				2,851	0.43	3,365	0.50				3,173	0.48	3,920	0.59		
					0.01	0.03		0.02				0.01					
44 Btw S Jct SR-138 and Ave S 2014 Count Project Traffic 2014 + Full Project Project V/C	81,000	2M (+1H)	2,225	6,050	2,689	0.44	3,005	0.50	3M (+1H)	2,225	8,275	2,965	0.36	3,734	0.45	LOS E	
	1,600				17		212					47		19			
	82,600				2,706	0.45	3,217	0.53				3,012	0.36	3,753	0.45		
					0.01	0.03		0.00				0.00					
45 Btw Ave S and Pearblossom/Sierra Hwy 2014 Count Project Traffic 2014 + Full Project Project V/C	71,000	2M (+1H)	2,225	6,050	2,357	0.39	2,634	0.44	3M (+1H)	2,225	8,275	2,599	0.31	3,273	0.40	LOS E	
	1,000				6		178					5		2			
	72,000				2,363	0.39	2,812	0.46				2,604	0.31	3,275	0.40		
					0.00	0.02		0.00				0.00					

**TABLE 5.10-21  
FREEWAY/EXPRESSWAY VOLUME AND CAPACITY SUMMARY - EXISTING (2014 AND 2015) PLUS PROJECT WITH EXISTING LANES**

Location	ADT Volume	Northbound/Eastbound							Southbound/Westbound							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
46 Btw Pearblossom/Sierra Hwy and Angeles Forest		2M (+1H)							3M (+1H)								
2014 Count	83,000		2,225	6,050	2,756	0.46	3,079	0.51		2,225	8,275	3,038	0.37	3,826	0.46	LOS E	
Project Traffic	800				4		178				5		2				
2014 + Full Project	83,800		2,225	6,050	2,760	0.46	3,257	0.54	2,225	8,275	3,043	0.37	3,828	0.46			
Project V/C						0.00	0.03					0.00	0.00				
47 Btw Angeles Forest Hwy and Soledad		3M (+1H)							2M (+1H)								
2014 Count	95,000		2,225	8,275	3,154	0.38	3,525	0.43		2,225	6,050	3,477	0.57	4,380	0.72	LOS E	
Project Traffic	800				5		178				5		1				
2014 + Full Project	95,800		2,225	8,275	3,159	0.38	3,703	0.45	2,225	6,050	3,482	0.58	4,381	0.72			
Project V/C						0.00	0.02					0.01	0.00				
48 Btw Soledad and Santiago Rd		2M (+1H)							2M (+1H)								
2014 Count	95,000		2,236	6,071	3,154	0.52	3,525	0.58		2,236	6,071	3,477	0.57	4,380	0.72	LOS E	
Project Traffic	800				5		178				5		1				
2014 + Full Project	95,800		2,236	6,071	3,159	0.52	3,703	0.61	2,236	6,071	3,482	0.57	4,381	0.72			
Project V/C						0.00	0.03					0.00	0.00				
49 Btw Santiago Rd and Crown Valley Rd		2M (+1H)							2M (+1H)								
2014 Count	94,000		2,236	6,071	3,121	0.51	3,487	0.57		2,236	6,071	3,440	0.57	4,333	0.71	LOS E	
Project Traffic	700				4		176				2		0				
2014 + Full Project	94,700		2,236	6,071	3,125	0.51	3,663	0.60	2,236	6,071	3,442	0.57	4,333	0.71			
Project V/C						0.00	0.03					0.00	0.00				
50 Btw Crown Valley Rd and Ward Rd		2M (+1H)							2M (+1H)								
2014 Count	95,000		2,236	6,071	3,154	0.52	3,525	0.58		2,236	6,071	3,477	0.57	4,380	0.72	LOS E	
Project Traffic	700				4		174				0		0				
2014 + Full Project	95,700		2,236	6,071	3,158	0.52	3,699	0.61	2,236	6,071	3,477	0.57	4,380	0.72			
Project V/C						0.00	0.03					0.00	0.00				
51 Btw Ward Rd and Escondido Cyn Rd		3M (+1H)							2M (+1H)								
2014 Count	93,000		2,189	8,167	3,088	0.38	3,450	0.42		2,189	5,978	3,404	0.57	4,287	0.72	LOS E	
Project Traffic	700				4		182				0		0				
2014 + Full Project	93,700		2,189	8,167	3,092	0.38	3,632	0.44	2,189	5,978	3,404	0.57	4,287	0.72			
Project V/C						0.00	0.02					0.00	0.00				
52 Btw Escondido Cyn Rd and Agua Dulce Cyn Rd		3M (+1H)							2M (+1H)								
2014 Count	93,000		2,236	8,307	1,776	0.21	4,669	0.56		2,236	6,071	4,994	0.82	2,613	0.43	LOS E	
Project Traffic	700				2		176				0		0				
2014 + Full Project	93,700		2,236	8,307	1,778	0.21	4,845	0.58	2,236	6,071	4,994	0.82	2,613	0.43			
Project V/C						0.00	0.02					0.00	0.00				
53 Btw Agua Dulce Cyn Rd and Soledad Rd		3M (+1H)							2M (+1H)								
2014 Count	96,000		2,236	8,307	1,834	0.22	4,819	0.58		2,236	6,071	5,155	0.85	2,698	0.44	LOS E	
Project Traffic	700				3		172				0		0				
2014 + Full Project	96,700		2,236	8,307	1,837	0.22	4,991	0.60	2,236	6,071	5,155	0.85	2,698	0.44			
Project V/C						0.00	0.02					0.00	0.00				
54 Btw Shadow Pines/Soledad Rd and Sand Cyn Rd		2M (+1H)							2M (+1H)								
2014 Count	99,000		2,236	6,071	1,891	0.31	4,970	0.82		2,236	6,071	5,316	0.88	2,782	0.46	LOS E	
Project Traffic	500				2		103				0		0				
2014 + Full Project	99,500		2,236	6,071	1,893	0.31	5,073	0.84	2,236	6,071	5,316	0.88	2,782	0.46			
Project V/C						0.00	0.02					0.00	0.00				

**TABLE 5.10-21  
FREEWAY/EXPRESSWAY VOLUME AND CAPACITY SUMMARY - EXISTING (2014 AND 2015) PLUS PROJECT WITH EXISTING LANES**

Location	ADT Volume	Northbound/Eastbound							Southbound/Westbound							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
55 Btw Sand Cyn Rd and Via Princessa		3M (+1H)							3M (+1H)								
2014 Count	112,000		2,215	8,246	2,139	0.26	5,622	0.68		2,215	8,246	6,014	0.73	3,147	0.38	LOS E	
Project Traffic	400				0		119				0		0				
2014 + Full Project	112,400		2,215	8,246	2,139	0.26	5,741	0.70		2,215	8,246	6,014	0.73	3,147	0.38		
Project V/C						0.00	0.02					0.00		0.00			
56 Btw Via Princessa and Golden Valley Rd		3M (+1H+1A)							3M (+1H+1A)								
2014 Count	144,000		2,215	9,246	2,750	0.30	7,229	0.78		2,215	9,246	7,733	0.84	4,046	0.44	LOS E	
Project Traffic	300				0		92				0		0				
2014 + Full Project	144,300		2,215	9,246	2,750	0.30	7,321	0.79		2,215	9,246	7,733	0.84	4,046	0.44		
Project V/C						0.00	0.01					0.00		0.00			
57 Btw Golden Valley Rd and Placerita Cyn Rd		3M (+1H)							3M (+1H)								
2014 Count	144,000		2,215	8,246	2,750	0.33	7,229	0.88		2,215	8,246	7,733	0.94	4,046	0.49	LOS E	
Project Traffic	300				0		83				0		0				
2014 + Full Project	144,300		2,215	8,246	2,750	0.33	7,312	0.89		2,215	8,246	7,733	0.94	4,046	0.49		
Project V/C						0.00	0.01					0.00		0.00			
58 Btw Placerita Cyn Rd and San Fernando Rd		3M (+1H)							3M (+1H)								
2014 Count	151,000		2,215	8,246	2,884	0.35	7,580	0.92		2,215	8,246	8,109	0.98	4,243	0.51	LOS E	
Project Traffic	300				0		78				0		0				
2014 + Full Project	151,300		2,215	8,246	2,884	0.35	7,658	0.93		2,215	8,246	8,109	0.98	4,243	0.51		
Project V/C						0.00	0.01					0.00		0.00			
59 Btw San Fernando Rd//Newhall Ave and Jct I-5		5M (+1H)							5M (+1H)								
2014 Count	166,000		2,215	12,676	3,171	0.25	8,333	0.66		2,215	12,676	8,914	0.70	4,665	0.37	LOS E	
Project Traffic	300				0		74				1		0				
2014 + Full Project	166,300		2,215	12,676	3,171	0.25	8,407	0.66		2,215	12,676	8,915	0.70	4,665	0.37		
Project V/C	0					0.00	0.0					0.00		0.00			
<b>SR-138</b>																	
60 Btw Jct I-5 and Gorman Post Rd		2M							2M								
2015 Count	4,500		1,904	3,808	73	0.02	154	0.04		1,904	3,808	122	0.03	87	0.02	LOS D	
Project Traffic	40,300				1,148		2,585					2,471		1,056			
2015 + Full Project	44,800		1,904	3,808	1,221	0.32	2,739	0.72		1,904	3,808	2,593	0.68	1,143	0.30		
Project V/C						0.30	0.68					0.65		0.28			
61 Btw Gorman Post Rd and Old Ridge Route		1M							1M								
2015 Count	4,900		1,904	1,904	73	0.04	154	0.08		1,904	1,904	122	0.06	87	0.05	LOS D	
Project Traffic	42,400				1,255		2,818					2,671		1,239			
2015 + Full Project	47,300		1,904	1,904	1,328	0.70	2,972	1.56		1,904	1,904	2,793	1.47	1,326	0.70		Yes
Project V/C						0.66	1.48					1.41		0.65			
62 Btw Old Ridge Route Rd and 300th St		1M							1M								
2015 Count	4,700		1,904	1,904	73	0.04	154	0.08		1,904	1,904	122	0.06	87	0.05	LOS D	
Project Traffic	43,500				1,285		2,858					2,729		1,253			
2015 + Full Project	48,200		1,904	1,904	1,358	0.71	3,012	1.58		1,904	1,904	2,851	1.50	1,340	0.70		Yes
Project V/C						0.67	1.50					1.44		0.65			
63 Btw 300th St and Three Points		1M							1M								
2015 Count	4,700		1,904	1,904	73	0.04	152	0.08		1,904	1,904	122	0.06	87	0.05	LOS D	
Project Traffic	33,400				1,706		907					1,104		2,136			
2015 + Full Project	38,100		1,904	1,904	1,779	0.93	1,059	0.56		1,904	1,904	1,226	0.64	2,223	1.17		Yes
Project V/C						0.89	0.48					0.58		1.12			

**TABLE 5.10-21  
FREEWAY/EXPRESSWAY VOLUME AND CAPACITY SUMMARY - EXISTING (2014 AND 2015) PLUS PROJECT WITH EXISTING LANES**

Location	ADT Volume	Northbound/Eastbound							Southbound/Westbound							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
64 Btw 3 points and 245th St 2015 Count Project Traffic 2015 + Full Project Project V/C	4,700	1M	1,904	1,904	92	0.05	151	0.08	1M	1,904	1,904	122	0.06	81	0.04	LOS D	
	33,400				1,706		907					1,104		2,136			
	38,100				1,798	<b>0.94</b>	1,058	0.56				1,226	0.64	2,217	<b>1.16</b>		
					0.89		0.48					0.58		1.12			Yes
65 Btw 245th St West and 190th St West 2015 Count Project Traffic 2015 + Full Project Project V/C	4,700	1M	1,904	1,904	89	0.05	147	0.08	1M	1,904	1,904	113	0.06	87	0.05	LOS D	
	28,900				1,304		809					1,018		1,875			
	33,600				1,393	0.73	956	0.50				1,131	0.59	1,962	<b>1.03</b>		
					0.68		0.42					0.53		0.98			Yes
66 Btw 190th St West and 110th St West 2015 Count Project Traffic 2015 + Full Project Project V/C	4,700	1M	1,962	1,962	82	0.04	149	0.08	1M	1,962	1,962	106	0.05	95	0.05	LOS D	
	23,800				959		696					890		1,559			
	28,500				1,041	0.53	845	0.43				996	0.51	1,654	0.84		
					0.49		0.35					0.46		0.79			
67 Btw 110th St West and 60th St West 2015 Count Project Traffic 2015 + Full Project Project V/C	4,700	1M	1,962	1,962	139	0.07	180	0.09	1M	1,962	1,962	113	0.06	105	0.05	LOS D	
	18,900				862		534					681		1,163			
	23,600				1,001	0.51	714	0.36				794	0.40	1,268	0.65		
					0.44		0.27					0.34		0.60			
68 Btw 60th St West and Jct SR-14 North 2015 Count Project Traffic 2015 + Full Project Project V/C	4,700	1M	1,962	1,962	141	0.07	177	0.09	1M	1,962	1,962	123	0.06	148	0.08	LOS D	
	16,800				729		482					615		1,044			
	21,500				870	0.44	659	0.34				738	0.38	1,192	0.61		
					0.37		0.25					0.32		0.53			
<b>SR-99</b>																	
70 Btw Jct SR-58 W and California 2015 Count Project Traffic 2015 + Full Project Project V/C	104,110	4M	2,246	8,985	3,848	0.43	6,276	0.70	4M	2,246	8,985	4,004	0.45	6,694	0.75	LOS E	
	3,500				84		102					187		144			
	107,610				3,932	0.44	6,378	0.71				4,191	0.47	6,838	0.76		
					0.01		0.01					0.02		0.01			
71 Btw California and Jct SR-58 E 2015 Count Project Traffic 2015 + Full Project Project V/C	89,700	4M	2,246	8,985	3,392	0.38	5,263	0.59	4M	2,246	8,985	3,390	0.38	6,895	0.77	LOS E	
	3,600				86		105					192		147			
	93,300				3,478	0.39	5,368	0.60				3,582	0.40	7,042	0.78		
					0.01		0.01					0.02		0.01			
72 Btw Jct SR-58 E and Ming Ave 2015 Count Project Traffic 2015 + Full Project Project V/C	88,820	5M	2,246	10,107	3,406	0.34	5,478	0.54	5M	2,246	10,107	3,217	0.32	5,663	0.56	LOS E	
	5,300				117		161					300		180			
	94,120				3,523	0.35	5,639	0.56				3,517	0.35	5,843	0.58		
					0.01		0.02					0.03		0.02			
73 Btw Ming Ave and White Lane 2015 Count Project Traffic 2015 + Full Project Project V/C	69,755	4M	2,246	8,985	2,614	0.29	4,435	0.49	4M	2,296	9,186	2,394	0.26	4,508	0.49	LOS E	
	5,400				119		165					308		185			
	75,155				2,733	0.30	4,600	0.51				2,702	0.29	4,693	0.51		
					0.01		0.02					0.03		0.02			

**TABLE 5.10-21  
FREEWAY/EXPRESSWAY VOLUME AND CAPACITY SUMMARY - EXISTING (2014 AND 2015) PLUS PROJECT WITH EXISTING LANES**

Location	ADT Volume	Northbound/Eastbound							Southbound/Westbound							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
74 Btw White Lane and Panama Lane		4M							4M								
2015 Count	57,090		2,296	9,186	2,165	0.24	3,616	0.39		2,296	9,186	2,072	0.23	3,565	0.39	LOS E	
Project Traffic	5,700				123		173				323		193				
2015 + Full Project	62,790		2,296	9,186	2,288	0.25	3,789	0.41		2,296	9,186	2,395	0.26	3,758	0.41		
Project V/C						0.01		0.02					0.03		0.02		
75 Btw Panama Lane and Jct SR-119 W		4M							4M								
2015 Count	44,450		2,296	9,186	1,622	0.18	2,890	0.31		2,296	9,186	1,797	0.20	2,581	0.28	LOS E	
Project Traffic	5,800				126		179				328		199				
2015 + Full Project	50,250		2,296	9,186	1,748	0.19	3,069	0.33		2,296	9,186	2,125	0.23	2,780	0.30		
Project V/C						0.01		0.02					0.03		0.02		
76 Btw Jct SR-119 W and Houghton Rd		3M							3M								
2015 Count	35,470		2,296	6,889	1,229	0.18	2,345	0.34		2,141	6,422	1,533	0.24	1,987	0.31	LOS D	
Project Traffic	5,900				128		182				331		201				
2015 + Full Project	41,370		2,296	6,889	1,357	0.20	2,527	0.37		2,141	6,422	1,864	0.29	2,188	0.34		
Project V/C						0.02		0.03					0.05		0.03		
77 Btw Houghton Rd and Jct SR-233 E		3M							3M								
2015 Count	33,360		2,141	6,422	1,158	0.18	2,176	0.34		2,141	6,422	1,473	0.23	1,865	0.29	LOS D	
Project Traffic	6,000				129		185				343		205				
2015 + Full Project	39,360		2,141	6,422	1,287	0.20	2,361	0.37		2,141	6,422	1,816	0.28	2,070	0.32		
Project V/C						0.02		0.03					0.05		0.03		
78 Btw Jct SR-223 E and Old U.S. 99*		3M							3M								
2015 Count	27,270		2,141	6,422	945	0.15	1,788	0.28		2,133	6,400	1,233	0.19	1,488	0.23	LOS D	
Project Traffic	6,100				131		187				347		208				
2015 + Full Project	33,370		2,141	6,422	1,076	0.17	1,975	0.31		2,133	6,400	1,580	0.25	1,696	0.27		
Project V/C						0.02		0.03					0.06		0.04		
<b>SR-99</b>																	
79 Btw Old U.S. 99 and Herring Rd		3M							3M								
2015 Count	28,585		2,133	6,400	987	0.15	1,860	0.29		2,133	6,400	1,284	0.20	1,586	0.25	LOS D	
Project Traffic	6,200				131		187				347		208				
2015 + Full Project	34,785		2,133	6,400	1,118	0.17	2,047	0.32		2,133	6,400	1,631	0.25	1,794	0.28		
Project V/C						0.02		0.03					0.05		0.03		
80 Btw Herring Rd and Sandrini Rd.		3M							3M								
2015 Count	27,775		2,133	6,400	960	0.15	1,805	0.28		2,133	6,400	1,253	0.20	1,537	0.24	LOS D	
Project Traffic	6,200				131		188				348		208				
2015 + Full Project	33,975		2,133	6,400	1,091	0.17	1,993	0.31		2,133	6,400	1,601	0.25	1,745	0.27		
Project V/C						0.02		0.03					0.05		0.03		
81 Btw Sandrini Rd and David Rd		3M							3M								
2015 Count	27,775		2,133	6,400	960	0.15	1,805	0.28		2,133	6,400	1,253	0.20	1,537	0.24	LOS D	
Project Traffic	6,200				131		188				348		208				
2015 + Full Project	33,975		2,133	6,400	1,091	0.17	1,993	0.31		2,133	6,400	1,601	0.25	1,745	0.27		
Project V/C						0.02		0.03					0.05		0.03		
82 Btw David Rd and Valpredo		3M							3M								
2015 Count	27,740		2,133	6,400	959	0.15	1,803	0.28		2,133	6,400	1,251	0.20	1,535	0.24	LOS D	
Project Traffic	6,200				131		188				349		209				
2015 + Full Project	33,940		2,133	6,400	1,090	0.17	1,991	0.31		2,133	6,400	1,600	0.25	1,744	0.27		
Project V/C						0.02		0.03					0.05		0.03		

**TABLE 5.10-21  
FREEWAY/EXPRESSWAY VOLUME AND CAPACITY SUMMARY - EXISTING (2014 AND 2015) PLUS PROJECT WITH EXISTING LANES**

Location	ADT Volume	Northbound/Eastbound							Southbound/Westbound							LOS Threshold	Project Impact?	
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C			
83 Btw Valpredo and Jct SR-166 W		3M							3M									
2015 Count	27,740		2,133	6,400	959	0.15	1,803	0.28		2,096	6,288	1,251	0.20	1,535	0.24		LOS D	
Project Traffic	6,200				131		188					349		209				
2015 + Full Project	33,940		2,133	6,400	1,090	0.17	1,991	0.31		2,096	6,288	1,600	0.25	1,744	0.28			
Project V/C						0.02		0.03					0.05		0.04			
84 Btw Jct SR-166 W and Jct I-5		3M							3M									
2015 Count	26,965		2,096	6,288	934	0.15	1,733	0.28		2,054	6,162	1,219	0.20	1,507	0.24		LOS D	
Project Traffic	6,200				131		188					349		209				
2015 + Full Project	33,165		2,096	6,288	1,065	0.17	1,921	0.31		2,054	6,162	1,568	0.25	1,716	0.28			
Project V/C						0.02		0.03					0.05		0.04			

Notes:

**Boldface text** denotes LOS exceeds the performance standard

ADT: annual average daily traffic

Cap: capacity

L: Lanes

V/C - volume-to-capacity ratio

Vol: Volume

Btw: between

SR: State Route

M: Mixed flow lane

MF: Mixed flow lanes

T: Truck lane

Jct: junction

SR: State Route

I: Interstate

Source: Stantec 2017 (Table 4-2).

LOS	Freeway Segment V/C Ranges
A	0.00-0.30
B	0.31-0.56
C	0.57-0.76
D	0.77-0.90
E	0.91-1.00
F	Above 1.00

Existing volumes represent 2014 conditions for freeway segments located in LA County (i.e., SR-138, SR-14 and I-5) and Kern County freeway segments on the I-5 from Fort Tejon Interchange to the LA/Kern County line.

Existing volumes represent 2015 conditions for freeway segments located in Kern County (i.e., SR-99 and I-5 from the Grapevine Grade to SR-99).



As shown, the Project would not cause a significant adverse impact on the I-5, SR-99, and SR-14 freeways under existing plus Project conditions.

***Freeway Interchange Ramps***

The peak hour traffic volumes at freeway interchange ramps for existing plus Project conditions are provided in Table 5.10-22.

**TABLE 5.10-22  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY – EXISTING (2014 AND 2015) PLUS PROJECT**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
<b>I-5</b>																
SR-99 NB Off Ramp								SR-99 SB On Ramp								
Existing	20,600	2	4,000	980	0.25	1,280	0.32	Existing	21,400	2	4,000	1,000	0.25	1,020	0.26	
Project Traffic	2,217			131		188		Project Traffic	3,964			349		209		
Existing Plus Project	22,817	2	4,000	1,111	0.28	1,468	0.37	Existing Plus Project	25,364	2	4,000	1,349	0.34	1,229	0.31	
Project V/C					0.03		0.05	Project V/C					0.09		0.05	
Laval/Wheeler West NB Off Ramp								Laval/Wheeler Ridge West SB On Ramp								
Existing	1,450	1	1,500	50	0.03	80	0.05	Existing	6,200	1	1,500	270	0.18	330	0.22	
Project Traffic	500			15		25		Project Traffic	1,000			20		50		
Existing Plus Project	1,950	1	1,500	65	0.04	105	0.07	Existing Plus Project	7,200	1	1,500	290	0.19	380	0.25	
Project V/C					0.01		0.02	Project V/C					0.01		0.03	
Laval/Wheeler East NB Off Ramp								(not applicable)								
Existing	3,850	1	1,500	170	0.11	260	0.17									
Project Traffic	500			15		25										
Existing Plus Project	4,350	1	1,500	185	0.12	285	0.19									
Project V/C					0.01		0.02									

**TABLE 5.10-22  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY – EXISTING (2014 AND 2015) PLUS PROJECT**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
Grapevine NB Off Ramp								Grapevine SB On Ramp								
Existing	1,750	1	1,500	50	0.03	40	0.03	Existing	1,200	1	1,500	40	0.03	50	0.03	
Project Traffic	1,000			30		50		Project Traffic	1,000			30		60		
Existing Plus Project	2,750	1	1,500	80	0.05	90	0.06	Existing Plus Project	2,200	1	1,500	70	0.05	110	0.07	
Project V/C					0.02		0.03	Project V/C					0.02		0.04	
Fort Tejon Rd NB-Off Ramp								Fort Tejon Rd SB-On Ramp								
Existing	140	1	1,500	10	0.01	10	0.01	Existing	230	1	1,500	10	0.01	20	0.01	
Project Traffic	96			5		5		Project Traffic	96			5		5		
Existing Plus Project	236	1	1,500	15	0.01	15	0.01	Existing Plus Project	326	1	1,500	15	0.01	25	0.02	
Project V/C					0.00		0.00	Project V/C					0.00		0.01	
Lebec NB Off-Ramp								Lebec SB-On Ramp								
Existing	690	1	1,500	30	0.02	50	0.03	Existing	320	1	1,500	10	0.01	20	0.01	
Project Traffic	96			5		5		Project Traffic	96			5		5		
Existing Plus Project	786	1	1,500	35	0.02	55	0.04	Existing Plus Project	416	1	1,500	15	0.01	25	0.02	
Project V/C					0.00		0.01	Project V/C					0.00		0.01	
Frazier NB Off-Ramp								Frazier SB On-Ramp								
Existing	3,350	1	1,500	130	0.09	220	0.15	Existing	4,200	1	1,500	160	0.11	280	0.19	
Project Traffic	236			17		24		Project Traffic	458			42		41		
Existing Plus Project	3,586	1	1,500	147	0.10	244	0.16	Existing Plus Project	4,658	1	1,500	202	0.13	321	0.21	
Project V/C					0.01		0.01	Project V/C					0.02		0.02	

**TABLE 5.10-22  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY – EXISTING (2014 AND 2015) PLUS PROJECT**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
Gorman Rd NB Off-Ramp								Gorman Rd SB On-Ramp								
Existing	2,900	1	1,500	110	0.07	190	0.13	Existing	1,250	1	1,500	50	0.03	80	0.05	
Project Traffic	386			10		30		Project Traffic	482			30		20		
Existing Plus Project	3,286		1,500	120	0.08	220	0.15	Existing Plus Project	1,732	1	1,500	80	0.05	100	0.07	
Project V/C					0.01		0.02	Project V/C					0.02		0.02	
WB Rte SR-138 NB On-Ramp								SR-SB Off-Ramp								
Existing	1,650	2*	1,500	60	0.04	110	0.07	Existing	1,350	2*	1,500	50	0.03	90	0.06	
Project Traffic	3,832			245		330		Project Traffic	6,682			583		402		
Existing Plus Project	5,482	2*	1,500	305	0.20	440	0.29	Existing Plus Project	8,032	2*	1,500	633	0.42	492	0.33	
Project V/C					0.16		0.22	Project V/C					0.39		0.27	
EB SR-138 NB Off-Ramp								WB SR-138 SB On-Ramp								
Existing	750	2*	1,500	30	0.02	50	0.03	Existing	740	2*	1,500	30	0.02	50	0.03	
Project Traffic	11,672			370		1,226		Project Traffic	14,167			2,002		678		
Existing Plus Project	12,422	2*	1,500	400	0.27	1,276	0.85	Existing Plus Project	14,907	2*	1,500	2,032	1.35	728	0.49	Yes
Project V/C					0.25		0.82	Project V/C					1.33		0.45	
Templin Hwy NB On-Ramp								Templin Hwy SB Off-Ramp								
Existing	140	1	1,500	10	0.01	10	0.01	Existing	140	1	1,500	10	0.01	10	0.01	
Project Traffic	69			3		8		Project Traffic	70			7		4		
Existing Plus Project	209	1	1,500	13	0.01	18	0.01	Existing Plus Project	210	1	1,500	17	0.01	14	0.01	
Project V/C					0.00		0.00	Project V/C					0.00		0.00	

**TABLE 5.10-22  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY – EXISTING (2014 AND 2015) PLUS PROJECT**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
Lake Hughes Rd NB On-Ramp								Lake Hughes Rd SB Off-Ramp								
Existing	6,700	1	1,500	250	0.17	440	0.29	Existing	3,850	1	1,500	150	0.10	250	0.17	
Project Traffic	371			9		53		Project Traffic	369			61		14		
Existing Plus Project	7,071	1	1,500	259	0.17	493	0.33	Existing Plus Project	4,219	1	1,500	211	0.14	264	0.18	
Project V/C					0.00		0.04	Project V/C					0.04		0.01	
Hasley Cyn Rd NB On-Ramp								Hasley Cyn Rd SB-Off Ramp								
Existing	870	1	1,500	40	0.03	50	0.03	Existing	1,250	1	1,500	60	0.04	80	0.05	
Project Traffic	1,385			60		191		Project Traffic	1,099			180		75		
Existing Plus Project	2,255	1	1,500	100	0.07	241	0.16	Existing Plus Project	2,349	1	1,500	240	0.16	155	0.10	
Project V/C					0.04		0.13	Project V/C					0.12		0.05	
WB SR-126 NB On-Ramp								WB SR-126 SB Off-Ramp								
Existing	5,100	1	1,500	240	0.16	310	0.21	Existing	7,700	1	1,500	350	0.23	470	0.31	
Project Traffic	827			12		157		Project Traffic	930			139		21		
Existing Plus Project	5,927	1	1,500	252	0.17	467	0.31	Existing Plus Project	8,630	1	1,500	489	0.33	491	0.33	
Project V/C					0.01		0.10	Project V/C					0.10		0.02	
(not applicable)								Rye Canyon Rd SB Off-Ramp								
								Existing	1,650	1	1,500	80	0.05	100	0.07	
								Project Traffic	1,070			191		45		
								Existing Plus Project	2,720	1	1,500	271	0.18	145	0.10	
								Project V/C					0.13		0.03	

**TABLE 5.10-22  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY – EXISTING (2014 AND 2015) PLUS PROJECT**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
Magic Mountain Pkwy NB On-Ramp								Magic Mountain Pkwy SB Off-Ramp								
Existing	4,500	2	2,250	210	0.09	280	0.12	Existing	3,950	2	2,250	180	0.08	240	0.11	
Project Traffic	727			22		76		Project Traffic	1,095			201		30		
Existing Plus Project	5,227	2	2,250	232	0.10	356	0.16	Existing Plus Project	5,045	2	2,250	381	0.17	270	0.12	
Project V/C					0.01		0.04	Project V/C					0.09		0.01	
Valencia Blvd NB On-Ramp								Valencia Blvd SB Off-Ramp								
Existing	2,150	2	2,250	100	0.04	130	0.06	Existing	2,850	2	2,250	130	0.06	170	0.08	
Project Traffic	144			1		19		Project Traffic	131			24		7		
Existing Plus Project	2,294	2	2,250	101	0.04	149	0.07	Existing Plus Project	2,981	2	2,250	154	0.07	177	0.08	
Project V/C					0.00		0.01	Project V/C					0.01		0.00	
WB McBean Pkwy NB On-Ramp								McBean Pkwy SB Off-Ramp								
Existing	2,550	1	1,500	70	0.05	90	0.06	Existing	3,500	1	1,500	160	0.11	210	0.14	
Project Traffic	458			12		66		Project Traffic	544			106		19		
Existing Plus Project	3,008	1	1,500	82	0.05	156	0.10	Existing Plus Project	4,044	1	1,500	266	0.18	229	0.15	
Project V/C					0.00		0.04	Project V/C					0.07		0.01	
Pico Cyn/Lyons NB On-Ramp								Lyons Ave SB Off-Ramp								
Existing	9,400	1	1,500	430	0.29	580	0.39	Existing	4,400	1	1,500	200	0.13	270	0.18	
Project Traffic	56			2		7		Project Traffic	93			14		7		
Existing Plus Project	9,456	1	1,500	432	0.29	587	0.39	Existing Plus Project	4,493	1	1,500	214	0.14	277	0.18	
Project V/C					0.00		0.00	Project V/C					0.01		0.00	

**TABLE 5.10-22  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY – EXISTING (2014 AND 2015) PLUS PROJECT**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
Calgrove Blvd NB On-Ramp								Calgrove Blvd SB Off-Ramp								
Existing	2,650	1	1,500	120	0.08	160	0.11	Existing	2,100	1	1,500	100	0.07	130	0.09	
Project Traffic	245			10		38		Project Traffic	31			9		5		
Existing Plus Project	2,895	1	1,500	130	0.09	198	0.13	Existing Plus Project	2,131	1	1,500	109	0.07	135	0.09	
Project V/C					0.01		0.02	Project V/C					0.00		0.00	
SB SR-14 NB On-Ramp								NB SR-14 SB Off-Ramp								
Existing	5,200	1	2,000	240	0.12	320	0.16	Existing	5,900	1	2,000	270	0.14	360	0.18	
Project Traffic	1,491			2		158		Project Traffic	708			71		5		
Existing Plus Project	6,691	1	2,000	242	0.12	478	0.24	Existing Plus Project	6,608	1	2,000	341	0.17	365	0.18	
Project V/C					0.00		0.08	Project V/C					0.03		0.00	
WB SR-210 NB On-Ramp								EB SR-210 SB Off-Ramp								
Existing	28,472	2	4,000	1,910	0.48	1,930	0.48	Existing	30,274	2	4,000	2,030	0.51	2,060	0.52	
Project Traffic	5,070			147		537		Project Traffic	7,680			697		339		
Existing Plus Project	33,542	2	4,000	2,057	0.51	2,467	0.62	Existing Plus Project	37,954	2	4,000	2,727	0.68	2,399	0.60	
Project V/C					0.03		0.14	Project V/C					0.17		0.08	
Roxford St NB On-Ramp								Roxford St SB Off-Ramp								
Existing	4,050	1	1,500	270	0.18	270	0.18	Existing	3,000	1	1,500	200	0.13	200	0.13	
Project Traffic	1,349			33		149		Project Traffic	1,646			150		72		
Existing Plus Project	5,399	1	1,500	303	0.20	419	0.28	Existing Plus Project	4,646	1	1,500	350	0.23	272	0.18	
Project V/C					0.02		0.10	Project V/C					0.10		0.05	

**TABLE 5.10-22  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY – EXISTING (2014 AND 2015) PLUS PROJECT**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
I-405 NB On-Ramp								I-405 SB Off-Ramp								
Existing	62,000	3	6,000	4,150	0.69	4,210	0.70	Existing	65,000	3	6,000	4,360	0.73	4,410	0.74	
Project Traffic	964			24		106		Project Traffic	1,164			106		51		
Existing Plus Project	62,964	3	6,000	4,174	0.70	4,316	0.72	Existing Plus Project	66,164	3	6,000	4,466	0.74	4,461	0.74	
Project V/C					0.01		0.02	Project V/C					0.01		0.00	
<b>SR-14</b>																
Rosamond Blvd NB Off-Ramp								WB Rosamond Blvd SB On-Ramp								
Existing	6,750	1	1,500	460	0.31	640	0.43	Existing	3,622	1	1,500	250	0.17	340	0.23	
Project Traffic	1,844			104		177		Project Traffic	1,492			124		124		
Existing Plus Project	8,594	1	1,500	564	0.38	817	0.54	Existing Plus Project	5,114	1	1,500	374	0.25	464	0.31	
Project V/C					0.07		0.11	Project V/C					0.08		0.08	
(not applicable)								EB Rosamond SB On-Ramp								
								Existing	3,211	1	1,500	220	0.15	300	0.20	
								Project Traffic	1,322			109		109		
								Existing Plus Project		1	1,500	329	0.22	409	0.27	
								Project V/C					0.07		0.07	



**TABLE 5.10-22  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY - EXISTING (2014 AND 2015) PLUS PROJECT**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
Jct SR-138/Ave D NB Off-Ramp								Ave Jct SR-138/D SB On-Ramp								
Existing	1,600	1	1,500	110	0.07	130	0.09	Existing	1,540	1	1,500	110	0.07	130	0.09	
Project Traffic	4,065			165		551		Project Traffic	2,949			460		166		
Existing Plus Project	5,665	1	1,500	275	0.18	681	0.45	Existing Plus Project	4,489	1	1,500	570	0.38	296	0.20	
Project V/C					0.11		0.36	Project V/C					0.31		0.11	
WB Jct SR-138/Ave D NB On-Ramp								(not applicable)								
Existing	250	1	1,500	20	0.01	20	0.01									
Project Traffic	1,430			68		127										
Existing Plus Project	1,680	1	1,500	88	0.06	147	0.10									
Project V/C					0.05		0.09									
<b>I-5</b>																
EB Jct SR-138/Ave D NB On-Ramp								Jct SR-138/Ave D SB Off-Ramp								
Existing	340	1	1,500	20	0.01	30	0.02	Existing	510	1	1,500	40	0.03	40	0.03	
Project Traffic	1,945			123		173		Project Traffic	5,460			439		407		
Existing Plus Project	2,285	1	1,500	143	0.10	203	0.14	Existing Plus Project	5,970	1	1,500	479	0.32	447	0.30	
Project V/C					0.09		0.12	Project V/C					0.29		0.27	

**TABLE 5.10-22  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY – EXISTING (2014 AND 2015) PLUS PROJECT**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
WB Ave H NB On-Ramp								Ave H SB Off-Ramp								
Existing	1,600	1	1,500	110	0.07	130	0.09	Existing	1,900	1	1,500	130	0.09	160	0.11	
Project Traffic	231			4		14		Project Traffic	195			32		11		
Existing Plus Project	1,831	1	1,500	114	0.08	144	0.10	Existing Plus Project	2,095	1	1,500	162	0.11	171	0.11	
Project V/C					0.01		0.01	Project V/C					0.02		0.00	
EB Ave H NB On-Ramp								(not applicable)								
Existing	300	1	1,500	20	0.01	20	0.01									
Project Traffic	111			4		13										
Existing Plus Project	411	1	1,500	24	0.02	33	0.02									
Project V/C					0.01		0.01									
Ave I NB On-Ramp								Ave I SB Off-Ramp								
Existing	3,500	1	1,500	240	0.16	290	0.19	Existing	2,700	1	1,500	190	0.13	220	0.15	
Project Traffic	13			0		2		Project Traffic	140			40		1		
Existing Plus Project	3,513	1	1,500	240	0.16	292	0.19	Existing Plus Project	2,840	1	1,500	230	0.15	221	0.15	
Project V/C					0.00		0.00	Project V/C					0.02		0.00	
Ave J NB On-Ramp								Ave J SB Off-Ramp								
Existing	2,700	1	1,500	190	0.13	220	0.15	Existing	3,200	1	1,500	220	0.15	270	0.18	
Project Traffic	301			9		37		Project Traffic	464			59		12		
Existing Plus Project	3,001	1	1,500	199	0.13	257	0.17	Existing Plus Project	3,664	1	1,500	279	0.19	282	0.19	
Project V/C					0.00		0.02	Project V/C					0.04		0.01	

**TABLE 5.10-22  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY – EXISTING (2014 AND 2015) PLUS PROJECT**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
EB Ave K NB On-Ramp								Ave K SB Off-Ramp								
Existing	1,350	1	1,500	90	0.06	110	0.07	Existing	3,250	1	1,500	230	0.15	270	0.18	
Project Traffic	72			2		9		Project Traffic	219			43		9		
Existing Plus Project	1,422	1	1,500	92	0.06	119	0.08	Existing Plus Project	3,469	1	1,500	273	0.18	279	0.19	
Project V/C					0.00		0.01	Project V/C					0.03		0.01	
WB Ave K NB On-Ramp								(not applicable)								
Existing	2,850	1	1,500	200	0.13	240	0.16									
Project Traffic	180			4		26										
Existing Plus Project	3,030	1	1,500	204	0.14	266	0.18									
Project V/C					0.01		0.02									
<b>SR-14</b>																
EB Ave L NB On-Ramp								Ave L SB Off-Ramp								
Existing	1,050	1	1,500	70	0.05	90	0.06	Existing	3,950	1	1,500	280	0.19	330	0.22	
Project Traffic	59			3		6		Project Traffic	113			21		6		
Existing Plus Project	1,109	1	1,500	73	0.05	96	0.06	Existing Plus Project	4,063	1	1,500	301	0.20	336	0.22	
Project V/C					0.00		0.00	Project V/C					0.01		0.00	
WB Ave L NB On-Ramp								(not applicable)								
Existing	3,450	1	1,500	240	0.16	290	0.19									
Project Traffic	78			2		10										
Existing Plus Project	3,528	1	1,500	242	0.16	300	0.20									
Project V/C					0.00		0.01									

**TABLE 5.10-22  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY – EXISTING (2014 AND 2015) PLUS PROJECT**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
EB Jct SR-138/ Palmdale Blvd NB On-Ramp								Jct SR-138/ Palmdale Blvd SB Off-Ramp								
Existing	2,450	1	1,500	170	0.11	200	0.13	Existing	9,400	1	1,500	660	0.44	780	0.52	
Project Traffic	275			23		19		Project Traffic	529			52		29		
Existing Plus Project	2,725	1	1,500	193	0.13	219	0.15	Existing Plus Project	9,929	1	1,500	712	0.47	809	0.54	
Project V/C					0.02		0.02	Project V/C					0.03		0.02	
WB Jct SR- 138/Palmdale Blvd NB On-Ramp								(not applicable)								
Existing	7,500	1	1,500	520	0.35	620	0.41									
Project Traffic	187			22		18										
Existing Plus Project	7,687	1	1,500	542	0.36	638	0.43									
Project V/C					0.01		0.02									
Golden Valley Rd NB Off-Ramp								Golden Valley Rd SB On- Ramp								
Existing	5,500	1	1,500	400	0.27	430	0.29	Existing	5,000	1	1,500	360	0.24	390	0.26	
Project Traffic	59			0		9		Project Traffic	0			0		0		
Existing Plus Project	5,559	1	1,500	400	0.27	439	0.29	Existing Plus Project	5,000	1	1,500	360	0.24	390	0.26	
Project V/C					0.00		0.01	Project V/C					0.00		0.00	

**TABLE 5.10-22  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY – EXISTING (2014 AND 2015) PLUS PROJECT**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
San Fernando Rd NB Off-Ramp								San Fernando Rd SB On-Ramp								
Existing	10,200	1	1,500	740	0.49	800	0.53	Existing	11,500	1	1,500	840	0.56	900	0.60	
Project Traffic	78			0		12		Project Traffic	0			0		0		
Existing Plus Project	10,278	1	1,500	740	0.49	812	0.54	Existing Plus Project	11,500	1	1,500	840	0.56	900	0.60	
Project V/C					0.00		0.01	Project V/C					0.00		0.00	

V/C: volume-to-capacity ratio; ADT: average daily trips; Vol: volume; SR: State Route; NB: northbound; SB: southbound; EB: eastbound; WB: westbound  
 \* Connector ramps with no auxiliary lane at freeway mainline  
**Boldface type** denotes exceeds performance threshold  
 Source: Stantec 2017 (Table 4-3).

Table 5.10-22 shows that no significant impact to freeway interchange ramps would occur under existing plus Project conditions. However, the connector ramp from westbound SR-138 to southbound I-5 is forecasted to have more than 1,500 vehicles per hour, which would result in the need for an auxiliary lane at the point where the connector ramps meet the I-5 mainline. The connector ramp currently has two lanes that tapers to a single lane at the connection with I-5, and no mainline auxiliary lane is provided. The Project is required to contribute to funding for this improvement under an approved CTIP, in conjunction with an approved traffic mitigation fee program, or by making fair share contributions in accordance with MM 10-23, MM 10-3, MM 10-4, MM 10-21, and MMs 10-32 through 10-35. The ramp improvement would reduce potential existing plus Project impacts at this location to less than significant levels.

### ***Arterial Roadway Intersections***

An ICU analysis was conducted for intersections along the SR-138, select intersections in Kern County (per the request of Caltrans and the County of Kern Department of Public Works), and I-5 ramp-arterial intersections in the Castaic area and Santa Clarita Valley (per the request of the Los Angeles County Department of Public Works) under Existing Plus Project Conditions. The resulting ICU values and LOS are summarized in Table 5.10-23. To provide a conservative assessment of potential Project impacts, no future roadway improvements are assumed in the analysis. Impacts are identified based on the performance criteria of the jurisdiction in which each intersection is located.

**TABLE 5.10-23  
ICU AND LOS SUMMARY – EXISTING (2014 AND 2015) PLUS PROJECT CONDITIONS**

Intersection	Jurisdiction	Intersection Control	Existing				Existing Plus Project				ICU Difference	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM	PM
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS		
1. Westerly Access and SR-138	LA County/Caltrans	N/A	N/A	N/A	N/A	N/A	1.34	F	2.21	F	N/A	N/A
2. Central Access and SR-138	LA County/Caltrans	N/A	N/A	N/A	N/A	N/A	1.81	F	1.94	F	N/A	N/A
3. 300 <sup>th</sup> St W and SR-138 <sup>1</sup>	LA County/Caltrans	North leg stop	0.17	A	0.20	A	1.36	F	1.63	F	<b>1.19</b>	<b>1.43</b>
4. 290 <sup>th</sup> St W and SR-138	LA County/Caltrans	No control	0.18	A	0.20	A	1.51	F	1.95	F	<b>1.33</b>	<b>1.75</b>
5. Margalo Dr and SR-138	LA County/Caltrans	No control	0.18	A	0.20	A	1.28	F	1.50	F	<b>1.10</b>	<b>1.30</b>
6. Three Points Road and SR-138	LA County/Caltrans	North/South legs stop	0.19	A	0.21	A	1.22	F	1.41	F	<b>1.03</b>	<b>1.20</b>
7. 245 <sup>th</sup> St W and SR-138	LA County/Caltrans	South leg stop	0.17	A	0.19	A	1.28	F	1.44	F	<b>1.11</b>	<b>1.25</b>
8. 230 <sup>th</sup> St W and SR-138	LA County/Caltrans	No Control	0.16	A	0.19	A	0.97	E	1.32	F	<b>0.81</b>	<b>1.13</b>
9. 190 <sup>th</sup> St W and SR-138	LA County/Caltrans	North/South legs stop	0.17	A	0.19	A	1.06	F	1.35	F	<b>0.89</b>	<b>1.16</b>
10. 170 <sup>th</sup> St W and SR-138	LA County/Caltrans	North/South legs stop	0.20	A	0.20	A	0.77	C	1.13	F	<b>0.57</b>	<b>0.93</b>
11 110 <sup>th</sup> St W and SR-138	LA County/Caltrans	North/South legs stop	0.17	A	0.21	A	0.90	D	1.22	F	<b>0.73</b>	<b>1.01</b>
12. 90 <sup>th</sup> St W and SR-138	LA County/Caltrans	North/South legs stop	0.20	A	0.25	A	0.73	C	0.93	E	0.53	<b>0.68</b>
13. 60 <sup>th</sup> St W and SR-138 <sup>1</sup>	LA County/Caltrans	North/South legs stop	0.22	A	0.25	A	0.80	C	0.94	E	<b>0.58</b>	<b>0.69</b>
14. 30 <sup>th</sup> St W and SR-138	LA County/Caltrans	North/South legs stop	0.20	A	0.21	A	0.65	B	0.84	D	0.45	<b>0.63</b>
15. SR-14 SB Ramps and SR-138	Caltrans	North leg stop	0.18	A	0.19	A	0.56	A	0.85	D	0.38	0.66
16. SR-14 NB Ramps and SR-138	Caltrans	South let stop	0.18	A	0.20	A	0.33	A	0.58	A	0.15	0.38

**TABLE 5.10-23  
ICU AND LOS SUMMARY – EXISTING (2014 AND 2015) PLUS PROJECT CONDITIONS**

Intersection	Jurisdiction	Intersection Control	Existing				Existing Plus Project				ICU Difference	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM	PM
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS		
17. 90 <sup>th</sup> St W/Willow Springs and Rosamond <sup>2</sup>	Kern County	4-way stop	0.16	A	0.22	A	0.24	A	0.31	A	0.08	0.09
18. Willow Springs and Oak Creek <sup>2</sup>	Kern County	East leg stop	0.21	A	0.22	A	0.28	A	0.29	A	0.07	0.07
19. Willow Springs and Highline <sup>2</sup>	Kern County	West leg stop	0.21	A	0.30	A	0.27	A	0.38	A	0.06	0.08
20. Bear Mountain Blvd/SR-223 and Wheeler Ridge Rd <sup>2</sup>	Kern County /Caltrans	4-way stop	0.32	A	0.46	A	0.34	A	0.47	A	0.02	0.01
21. The Old Road and I-5 SB Ramps	LA County/Caltrans	4-way stop	0.41	A	0.39	A	0.42	A	0.40	A	0.01	0.01
22. I-5 NB Ramps and Lake Hughes	LA County/Caltrans	South leg stop	0.31	A	0.41	A	0.31	A	0.43	A	0.00	0.02
23. I-5 SB On Ramp and Parker	LA County/Caltrans	No control	0.60	A	0.52	A	0.60	A	0.52	A	0.00	0.00
24. I-5 NB Off Ramp and Parker	LA County/Caltrans	South leg stop	0.46	A	0.55	A	0.46	A	0.55	A	0.00	0.00
25. I-5 NB Ramps and Hasley Canyon	LA County/Caltrans	Roundabout	11.5*	B	11.9*	B	11.5*	B	12.3*	B	0.0	0.4
26. I-5 SB Ramps and Sedona/Old Road	LA County/Caltrans	Signal	0.71	C	0.55	A	0.76	C	0.61	B	<b>0.05</b>	0.06
27. The Old Road and Hasley Canyon	LA County	Roundabout	8.7*	A	9.5*	A	10.1*	B	9.9*	A	1.4	0.4
28. I-5 NB Ramps and SR-126	Caltrans	Signal	0.66	B	0.64	B	0.66	B	0.64	B	0.00	0.00
29. I-5 SB Ramps and SR-126	Caltrans	Signal	0.75	C	0.48	A	0.75	C	0.48	A	0.00	0.00
30. The Old Road and I-5 SB Ramps	LA County/Caltrans	Signal	0.70	B	0.85	D	0.72	C	0.86	D	0.02	0.01
31. I-5 SB Ramps and Magic Mountain	LA County/Caltrans	Signal	0.44	A	0.40	A	0.51	A	0.41	A	0.07	0.01



**TABLE 5.10-23  
ICU AND LOS SUMMARY – EXISTING (2014 AND 2015) PLUS PROJECT CONDITIONS**

Intersection	Jurisdiction	Intersection Control	Existing				Existing Plus Project				ICU Difference	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM	PM
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS		
32. I-5 NB Ramps and Magic Mountain	City Santa Clarita/ Caltrans	Signal	0.52	A	0.45	A	0.53	A	0.46	A	0.01	0.01
33. I-5 SB Ramps and Valencia	LA County/ Caltrans	Signal	0.41	A	0.39	A	0.41	A	0.39	A	0.00	0.00
34. I-5 NB Ramps and Valencia	City Santa Clarita/ Caltrans	Signal	0.55	A	0.48	A	0.55	A	0.48	A	0.00	0.00
35. I-5 SB Ramps and McBean	LA County/ Caltrans	Signal	0.43	A	0.55	A	0.46	A	0.56	A	0.03	0.01
36. I-5 NB Ramps and McBean	City Santa Clarita/ Caltrans	Signal	0.44	A	0.53	A	0.46	A	0.54	A	0.02	0.01
37. I-5 SB/Marriott and Pico/Lyons	LA County/ Caltrans	Signal	0.43	A	0.63	B	0.44	A	0.63	B	0.01	0.00
38. I-5 NB On/Off and Lyons Ave	City Santa Clarita/ Caltrans	Signal	0.55	A	0.63	B	0.55	A	0.64	B	0.00	0.01
39. I-5 SB Ramps and Calgrove	City Santa Clarita/ Caltrans	North leg stop	0.46	A	0.57	A	0.47	A	0.57	A	0.01	0.00
40. I-5 NB Ramps and Calgrove	City Santa Clarita/ Caltrans	South leg stop	0.53	A	0.46	A	0.53	A	0.46	A	0.00	0.00

ICU: intersection capacity utilization; LOS: level of service; SR: State Route; N/A: not applicable; I: Interstate; NB: northbound; SB: southbound  
**Boldface type** denotes significant impact.  
Performance Criteria is outlined in Table 5.10-12 (Table 1-6 in Traffic Study).  
\* This location is a roundabout; therefore, the LOS shown is based on average delay (sec/veh)  
<sup>1</sup> denotes Los Angeles CMP route and cross street  
<sup>2</sup> denotes Kern County CMP principal arterial  
Source: Stantec 2017 (Table 4-4).

As shown in Table 5.10-23, several intersections along the SR-138 would be impacted by the Project under existing plus Project conditions. Improvements that will mitigate these impacts to less than significant levels include the following:

- 1. Westerly Access and SR-138** Widen SR-138 to a four-lane highway from westerly Project entrance to 290th Street West, with auxiliary lanes between intersections, resulting in three through lanes in the WB and EB directions. Construct intersection to include two northbound (NB) left-turn lanes, three NB through lanes and one NB right-turn lane. In the SB direction, construct two left-turn lanes, three through lanes and one free-flow right-turn lane. In the EB direction, construct three left-turn lanes and one right-turn lane. In the WB direction, construct two left-turn lanes and a free-flow right-turn lane. Install traffic signal. Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-7 and Traffic Study MM-2)
- 2. Central Access and SR-138** Widen SR-138 to a four-lane highway from the westerly Project entrance to 290th Street West, with auxiliary lanes between intersections, resulting in three through lanes in the WB and EB directions. In the NB and southbound (SB) directions, construct two left-turn lanes, three through lanes and one right-turn lane. In the EB direction, construct two left-turn lanes and one right-turn lane. In the WB direction, construct two left-turn lanes and a free-flow right-turn lane. Install a traffic signal and include SB and NB right-turn overlap phasing. Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-8 and Traffic Study MM-3)
- 3. 300th St W and SR-138** Widen SR-138 to a four-lane highway from westerly Project entrance to 290th Street West, with auxiliary lanes between intersections, resulting in three through lanes in the WB and EB directions. Construct two left-turn lanes and one right-turn lane in the EB direction and two left-turn lanes and dual right-turn lanes in the WB direction. In the NB direction, construct two left-turn lanes, three through lanes, and one right-turn lane. In the SB direction, construct two left-turn lanes, three through lanes and one free-flow right-turn lane. Install traffic

signal and include WB right-turn overlap phasing. Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-9 and Traffic Study MM-4)

**4. 290th St W and SR-138**

Widen SR-138 to a four-lane highway from westerly Project entrance to 290th Street West, with auxiliary lanes between intersections, resulting in three through lanes in the WB and EB directions. Additional intersection improvements include two EB left-turn lanes, one WB right-turn lane, two SB left-turn and two SB right-turn lanes. Install traffic signal. Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-10 and Traffic Study MM-5)

**5. Margalo Dr and SR-138**

Widen SR-138 to a four-lane highway from 290th Street West to 190th Street West, with roadway augmentation at intersection, approximately  $\frac{1}{4}$  mile in length for the west and east legs resulting in three through lanes in the WB and EB directions. Additional intersection improvements include one EB left-turn lane and one WB right-turn lane. Install traffic signal. Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-11 and Traffic Study MM-6)

**6. Three Points Rd and SR-138**

Widen SR-138 to a four-lane highway from 290th Street West to 190th Street West with roadway augmentation at intersection, approximately  $\frac{1}{4}$  mile in length for the west and east legs resulting in three through lanes in the WB and EB directions. Additional improvements include adding one NB left-turn lane and one SB left-turn lane. Or contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-12 and Traffic Study MM-7)

**7. 245th St W and SR-138**

Widen SR-138 to a four-lane highway from 290th Street West to 190th Street West with roadway augmentation

at intersection, approximately  $\frac{1}{4}$  mile in length for the west and east legs resulting in three through lanes in the WB and EB directions. Additional improvements include adding one NB left-turn lane and one SB left-turn lane and one dedicated EB right-turn lane. Install traffic signal. Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-13 and Traffic Study MM-8)

**8. 230th St W and SR-138**

Widen SR-138 to a four-lane highway from 290th Street West to 190th Street West. Additional improvements include one SB left-turn lane, one SB right-turn lane and one EB left-turn lane. Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-14 and Traffic Study MM-9)

**9. 190th St W and SR-138**

Widen SR-138 to a four-lane highway from 290th Street West to 190th Street West with roadway augmentation at intersection, approximately  $\frac{1}{4}$  mile in length for the west and east legs resulting in three through lanes in the WB and EB directions. Additional improvements include adding one EB left-turn lane, one WB left-turn lane, one NB left-turn lane and one SB left-turn lane and one dedicated EB right-turn lane. Install traffic signal. Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-15 and Traffic Study MM-10)

**10. 170th St W and SR-138**

Roadway augmentation at intersection, approximately  $\frac{1}{4}$  mile in length for the east and west legs, resulting in two through lanes in the WB and EB directions at the intersection. Additional improvements include one EB left-turn lane, one WB left-turn lane, one NB left-turn lane and one SB left-turn lane. Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-16 and Traffic Study MM-11)

**11. 110th St W and SR-138**

Roadway augmentation at intersection, approximately ¼ mile in length for the east and west legs, resulting in two through lanes in the WB and EB directions at the intersection. Additional improvements include one EB left-turn lane, one WB left-turn lane, two NB left-turn lanes, one SB left-turn lane and two SB right-turn lanes. Install traffic signal. Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-17 and Traffic Study MM-12)

**12. 90th St W and SR-138**

Roadway augmentation at intersection, approximately ¼ mile in length for the east and west legs, resulting in two through lanes in the WB and EB directions at the intersection. Additional improvements include one EB left-turn lane, one WB left-turn lane, one NB left-turn lane, and one SB left-turn lane. Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-18 and Traffic Study MM-13)

**13. 60th St W and SR-138**

Roadway augmentation at intersection, approximately ¼ mile in length for the east and west legs, resulting in two through lanes in the WB and EB directions at the intersection. Additional improvements include one EB left-turn lane, one WB left-turn lane, one NB left-turn lane, and one SB left-turn lane. Install traffic signal. Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-19 and Traffic Study MM-14)

**14. 30th St W and SR-138**

Roadway augmentation at intersection, approximately ¼ mile in length for the east and west legs, resulting in two through lanes in the WB and EB directions at the intersection. Additional improvements include adding one EB left-turn lane and one WB left-turn lane. Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-20 and Traffic Study MM-15)

In addition, the Project would impact the I-5 SB Ramps and Sedona/The Old Road intersection under existing plus Project conditions. The following improvement that will mitigate this impact to a less than significant level:

1. **I-5 SB Ramps and Sedona/The Old Road** Addition of a second southbound left-turn lane from The Old Road to the I-5 Southbound On-Ramp. (MM 10-22 and Traffic Study MM-34)

The Project is required to contribute to funding for these improvements under an approved CTIP, in conjunction with an approved traffic mitigation fee program, or by making fair share contributions in accordance with MM 10-23, MM 10-3, MM 10-6, MMs 10-7 through 10-20, and MM 10-27 (SR-138) and MM 10-22 (SR-138 and I-5 SB Ramps and Sedona/The Old Road intersections). These improvements would reduce potential existing plus Project impacts at the intersections to less than significant levels.

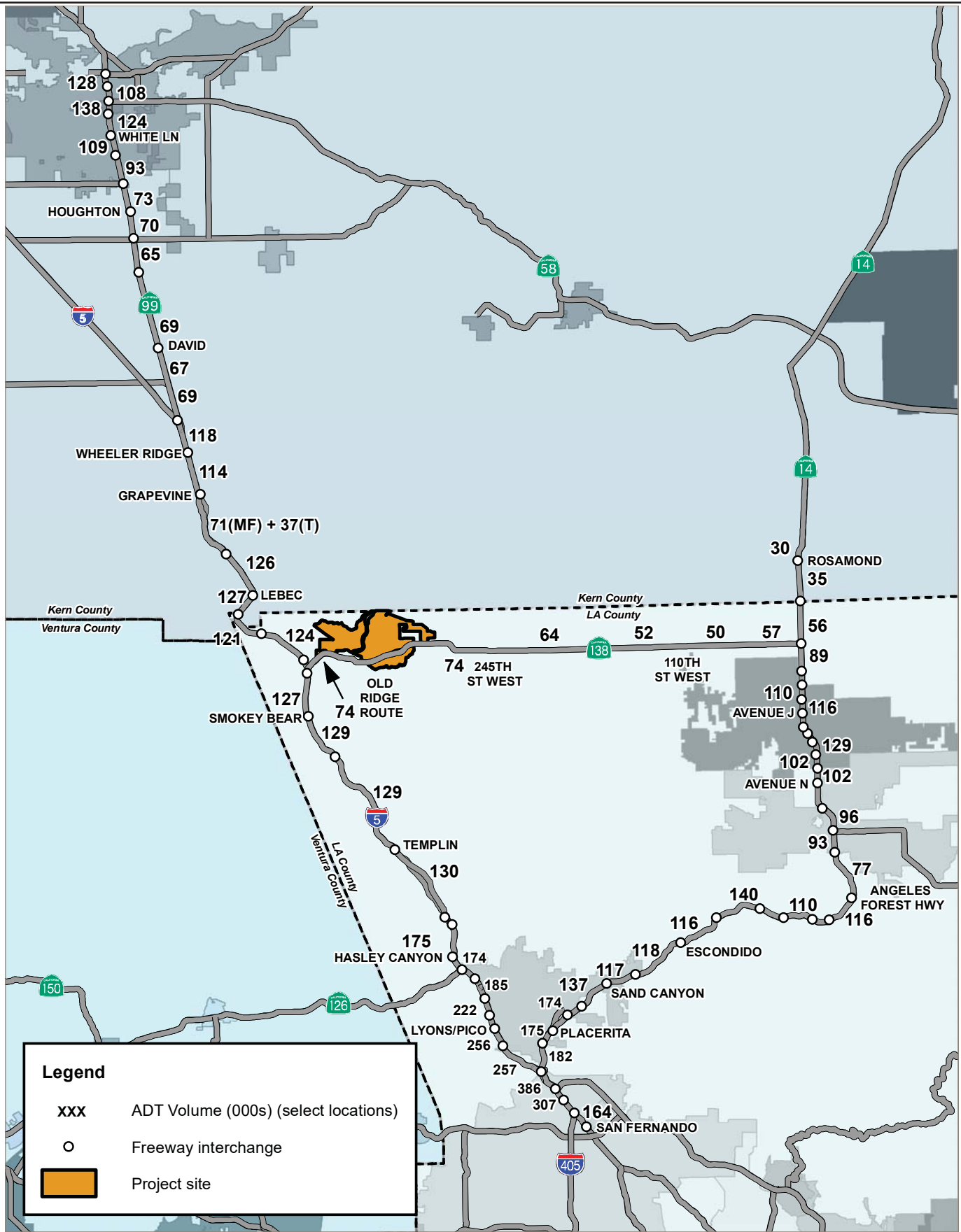
### ***Cumulative Plus Project Scenario***

Potential future Project impacts were evaluated by using the most current forecasts of traffic conditions in 2035 for locations in Los Angeles County south of the Fort Tejon/I-5 interchange (SCAG 2012 RTP/SCS model) and 2040 for I-5 and SR-99 locations north of the Fort Tejon/I-5 interchange (Kern COG 2014 RTP/SCS model). The amount of traffic that would be generated under future conditions in developed areas outside the Project site would not change with or without the Project. Future vehicle trips without the Project would be distributed throughout the region in response to future employment areas and residential areas. As discussed above, this distribution would be affected by the development of the Project because a proportion of Project residents would be expected to commute to external work sites or other amenities, and a proportion of residents in other locations, such as Lancaster, Palmdale and the Santa Clarita Valley, would likely travel to Centennial for work and other purposes. Under cumulative conditions, the Project would result in a net increase or net decrease in traffic volumes depending on the forecasted changes in internal and external trips.

Cumulative traffic volumes with the Project for representative locations within the study area are illustrated in Exhibit 5.9-11, Average Daily Traffic Volumes – Cumulative (2035 and 2040) with Project. These forecasts are based on the long-range assumptions for regional growth in the AVAP, the SCAG RTP/SCS model, the Kern COG 2014 RTP/SCS model and from the buildout of the Project site. To provide a conservative assessment, the cumulative with Project traffic analysis does not reflect supplemental reductions for trip reducing measures, such as the TDM measures that the Project is required to implement under MM 10-30.

### ***State Route 138 Highway Segments***

Forecasted traffic volumes for SR-138 in 2035, with and without Project traffic are listed in Table 5.10-24. The analysis shows that traffic on the existing two-lane highway is forecasted to exceed available capacity in several locations under cumulative conditions with and without the proposed Project.



Source: Stantec 2017

Average Daily Traffic Volumes – Cumulative (2035 and 2040) with Project Exhibit 5.10-11

Centennial Project



**TABLE 5.10-24**  
**SR-138 CUMULATIVE (2035) CONDITIONS TWO-LANE HIGHWAY IMPACT ANALYSIS**

Location	ADT	AM Peak Hour						PM Peak Hour						
		EB	V/C	LOS	WB	V/C	LOS	EB	V/C	LOS	WB	V/C	LOS	
60	Btw Jct I-5 and Gorman Post Rd													
Existing	4,500	73	0.04	A	122	0.07	A	154	0.09	A	87	0.05	A	
2035 No Project	43,000	1,400	0.37	A	2,110	0.55	A	2,000	0.53	A	1,870	0.49	A	
2035 With Project	74,000	2,610	0.69	C	3,950	1.04	F	3,970	<b>1.04</b>	F	2,870	0.75	C	
Project Traffic & V/C	31,000	1,210	0.32		1,840	0.48		1,970	0.52		1,000	0.26		
61	Btw Gorman Post Rd and Old Ridge Route Rd													
Existing	4,900	73	0.04	A	122	0.07	A	154	0.09	A	87	0.05	A	
2035 No Project	45,000	1,480	0.78	D	2,190	1.29	F	2,080	1.22	F	1,940	1.14	F	
2035 With Project	86,000	2,870	1.51	F	4,620	2.43	F	4,820	2.53	F	3,200	1.68	F	
Project Traffic & V/C	41,000	1,390	0.73		2,430	1.28		2,740	1.44		1,260	0.66		
62	Btw Old Ridge Route Rd and 300th St West													
Existing	4,700	73	0.04	A	122	0.07	A	154	0.09	A	87	0.05	A	
2035 No Project	43,000	1,360	0.80	D	2,140	1.26	F	2,040	1.20	F	1,860	1.09	F	
2035 With Project	89,000	2,920	1.53	F	4,720	2.48	F	4,910	2.58	F	3,240	1.70	F	
Project Traffic & V/C	46,000	1,560	0.82		2,580	1.35		2,870	1.51		1,380	0.72		
63	Btw 300th St West and 245th St West													
Existing	4,700	73	0.04	A	122	0.07	A	152	0.09	A	87	0.05	A	
2035 No Project	38,000	1,260	0.74	C	1,930	1.14	F	1,760	1.04	F	1,670	0.98	E	
2035 With Project	74,000	3,560	1.87	E	2,990	1.57	F	2,990	1.57	F	3,940	2.07	F	
Project Traffic & V/C	38,000	2,300	1.21		1,060	0.56		1,230	0.65		2,270	1.19		
65	Btw 245th St West and 190th St West													
Existing	4,700	89	0.05	A	113	0.07	A	147	0.09	A	87	0.05	A	
2035 No Project	39,000	1,490	0.88	D	1,850	1.09	F	1,660	0.98	E	1,900	1.12	F	
2035 With Project	64,000	2,660	1.40	F	2,540	1.33	F	2,430	1.28	F	3,160	1.66	F	
Project Traffic & V/C	25,000	1,170	0.61		690	0.36		770	0.40		1,260	0.66		
66	Btw 190th St West and 110th St West													
Existing	4,700	82	0.05	A	106	0.06	A	149	0.09	A	95	0.06	A	
2035 No Project	39,000	1,480	0.87	D	1,850	1.09	F	1,660	0.98	E	1,880	1.11	F	
2035 With Project	52,000	2,060	1.21	F	2,090	1.23	F	1,860	1.09	F	2,530	1.49	F	
Project Traffic & V/C	13,000	580	0.34		240	0.14		200	0.12		650	0.38		
67	Btw 110th St West and 60th St West													
Existing	4,700	139	0.08	A	113	0.07	A	180	0.11	A	105	0.06	A	
2035 No Project	38,000	1,690	0.99	E	1,590	0.94	E	1,460	0.86	D	1,980	1.16	F	
2035 With Project	50,000	2,270	1.34	F	1,860	1.09	F	1,720	1.01	F	2,570	1.51	F	
Project Traffic & V/C	12,000	580	0.34		270	0.16		260	0.15		590	0.35		



**TABLE 5.10-24**  
**SR-138 CUMULATIVE (2035) CONDITIONS TWO-LANE HIGHWAY IMPACT ANALYSIS**

Location	ADT	AM Peak Hour						PM Peak Hour						
		EB	V/C	LOS	WB	V/C	LOS	EB	V/C	LOS	WB	V/C	LOS	
68 Btw 60th St West and Jct SR-14 North														
Existing	4,700	141	0.08	A	123	0.07	A	177	0.10	A	148	0.09	A	
2035 No Project	46,000	1,910	1.12	F	1850	1.09	F	1,770	1.04	F	2,280	1.34	F	
2035 With Project	57,000	2,420	1.42	<b>F</b>	2060	1.21	<b>F</b>	2,000	1.18	<b>F</b>	2,810	1.65	<b>F</b>	
Project Traffic & V/C	11,000	510	0.30		210	0.12		230	0.14		530	0.31		

ADT: average daily trips; EB: eastbound; V/C: volume-to-capacity ratio; LOS: level of service; WB: westbound; Btw: between; Jct: junction; I: Interstate  
**Bold** denotes LOS does not meet the performance standard and therefore exceeds impact threshold.  
Source: Stantec 2017 (Table 4-5).

As shown, all segments on the SR-138 from I-5 to SR-14 are forecasted to exceed available capacity based on the current highway configuration. The following segments of SR-138 would be significantly impacted by the Project under cumulative with Project conditions:

- 60. **Between Jct I-5 and Gorman Post Road: WB AM, EB PM**
- 61. **Between Gorman Post Road and Old Ridge Route Road: EB AM and PM, WB AM and PM**
- 62. **Between Old Ridge Route Road and 300th St West: EB AM and PM, WB AM and PM**
- 63. **Between 300th St West and 245th St West: EB AM and PM, WB AM and PM**
- 65. **Between 245th Street West and 170th St West: EB AM and PM, WB AM and PM**
- 66. **Between 170th St West and 110th St West: EB AM and PM, WB AM and PM**
- 67. **Between 110th St West and 60th St West: EB AM and PM, WB AM and PM**
- 68. **Between 60<sup>th</sup> St West and Jct SR-14 North: EB AM and PM, WB AM and PM**

As discussed above, improvements to SR-138 will be required under future conditions regardless of whether the Project is developed as proposed. To address these future transportation requirements, Caltrans and Metro are considering the implementation of the Northwest 138 Corridor Improvement Project under which SR-138 would be upgraded to a limited access expressway consistent with the analysis by the County for the AVAP. An EIR for the Northwest 138 Corridor Improvement Project is being prepared for public review and comment by Caltrans and Metro. All SR-138 highway segments would operate within acceptable performance criteria under cumulative with Project conditions if SR-138 is improved to include (a) the upgrade of SR-138 to a six-lane expressway from I-5 to 300th Street West; (b) the upgrade of SR-138 to a four-lane expressway from 300th Street West to SR-14 with one auxiliary lane in each direction from 300th Street West to 245th Street; (c) the upgrade of SR-138 to a limited access facility with grade-separated interchanges; (d) Kern COG RTP/SCS improvement projects on SR-58 between I-5 in Kern County and I-15 in San Bernardino County, which could include development of a high capacity goods

movement facility along the SR-58 and/or E-220<sup>4</sup> corridors; and (e) the inside and outside shoulders of I-5 between the Fort Tejon and Grapevine Road interchanges and between the SR-138 and Lake Hughes Road interchanges are strengthened and widened (see Table 4-11 of the Traffic Study [Appendix 5.10-A]). With these improvements, all potential impacts to SR-138 highway segments under cumulative with Project conditions would be less than significant (see Table 4-14 of the Traffic Study [Appendix 5.10-A]).

MM 10-3 and MM 10-4 require the Project Applicant to seek to enter into a CTIP and transportation mitigation fee program that would fully mitigate for all impacts to SR-138 highway segments under cumulative plus Project conditions or to contribute fair share funding for the required improvements. MMs 10-6 through 10-21, MM 10-23, MM 10-27, and MMs 10-32 through 10-35 require fair share funding mitigation for impacts to SR-138 segments, intersections and I-5 ramps. MM 10-23 requires that the Project dedicate right-of-way along the segment of the SR-138 that runs adjacent to the Project site to ensure that sufficient land is reserved for future rights-of-way that would be used to widen and realign SR-138 at these locations. MM 10-24 requires fair share funding toward the widening of SR-138, including the addition of an auxiliary lane in each direction (six lanes total) from I-5 to 300th Street West and from 300th Street West to 245th Street West. Compliance with these mitigation measures or the fair share contributions towards the improvements described above would reduce potential cumulative plus Project impacts to SR-138 highway segments to less than significant levels.

### ***Freeway Mainline Segments***

Forecasted traffic volumes for freeway mainline segments in 2035 and 2040, with and without Project traffic are listed in Table 5.10-25. The table shows that, 7 freeway segments on the I-5, and 5 segments on the SR-14, would operate over the LOS performance standard. However, the Project would only contribute to a significant impact under the applicable criteria on 6 mainline segments on the I-5.

---

<sup>4</sup> The E-220 corridor is the High-Desert Corridor, which runs from SR-14 in Los Angeles County to I-15 in San Bernardino County.

*This page intentionally left blank*

**TABLE 5.10-25  
 FREEWAY VOLUME AND CAPACITY SUMMARY – CUMULATIVE (2035 AND 2040) CONDITIONS WITH AND WITHOUT THE PROJECT**

Location	ADT Volume	NORTHBOUND/EASTBOUND							SOUTHBOUND/WESTBOUND							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
<b>I-5</b>																	
1 Btw SR-99 and Laval/Wheeler		4M							4M								
2015 Count	75,000		2,050	8,200	1,561	0.19	2,158	0.26		2,050	8,200	1,461	0.18	1,884	0.23	LOS D	
2040 Without Project	110,250		2,050	8,200	5,120	0.62	6,570	0.80		2,050	8,200	4,540	0.55	6,170	0.75	LOS D	
2040 With Project	118,250		2,050	8,200	5,420	0.66	6,730	0.82		2,050	8,200	4,810	0.59	6,690	0.82	LOS D	
Project Traffic & V/C	8,000				300	0.04	160	0.02				270	0.04	520	0.07	LOS D	
2 Btw Laval/Wheeler and Grapevine		4M							4M								
2015 Count	74,000		2,050	8,200	1,570	0.19	2,051	0.25		2,050	8,200	1,422	0.17	1,780	0.22	LOS D	
2040 Without Project	105,450		2,050	8,200	5,090	0.62	6,250	0.76		2,050	8,200	4,580	0.56	5,560	0.68	LOS D	
2040 With Project	114,450		2,050	8,200	5,420	0.66	6,450	0.79		2,050	8,200	4,880	0.60	6,140	0.75	LOS D	
Project Traffic & V/C	9,000				330	0.04	200	0.03				300	0.04	580	0.07	LOS D	
3 Btw Grapevine and Fort Tejon Rd (MF)		2M							2M								
2015 Count	50,000		2,206	4,412	1,013	0.23	1,362	0.31		2,070	4,140	880	0.21	1,238	0.30	LOS D	
2040 Without Project	63,400		2,206	4,412	3,260	0.74	5,310	1.20		2,070	4,140	3,310	0.80	4,250	1.03	LOS D	
2040 With Project	70,800		2,206	4,412	3,500	0.79	5,500	1.25		2,070	4,140	3,520	0.85	4,650	1.12	LOS D	
Project Traffic & V/C	7,400				240	0.05	190	0.05				210	0.05	400	0.09	Yes	
3a Btw Grapevine and Fort Tejon Rd (MF + Truck lane)		2T							2T								
2015 Count	24,000		1,025	2,050	528	0.26	673	0.33		1,025	2,050	518	0.25	744	0.36	LOS D	
2040 Without Project	33,900		1,025	2,050	900	0.44	990	0.48		1,025	2,050	950	0.46	930	0.45	LOS D	
2040 With Project	36,500		1,025	2,050	1,020	0.50	1,050	0.51		1,025	2,050	1,060	0.52	1,160	0.57	LOS D	
Project Traffic & V/C	2,600				120	0.06	60	0.03				110	0.06	230	0.12	LOS D	
4 Btw Fort Tejon Rd and Lebec Rd		4M							4M								
2014 Count	72,000		1,839	7,355	1,390	0.19	2,426	0.33		2,036	8,143	1,346	0.17	2,304	0.28	LOS D	
2035 Without Project	116,000		1,839	7,355	2,780	0.38	4,390	0.60		2,036	8,143	3,080	0.38	3,380	0.42	LOS D	
2035 With Project	126,000		1,839	7,355	3,140	0.43	4,640	0.63		2,036	8,143	3,400	0.42	4,010	0.49	LOS D	
Project Traffic & V/C	10,000				360	0.05	250	0.03				320	0.04	630	0.07	LOS D	
5 Btw Lebec Rd and Frazier Mtn Park		4M							4M								
2014 Count	73,000		1,839	7,355	1,409	0.19	2,460	0.33		2,036	8,143	1,365	0.17	2,336	0.29	LOS D	
2035 Without Project	117,000		1,839	7,355	2,800	0.38	4,420	0.60		2,036	8,143	3,100	0.38	3,420	0.42	LOS D	
2035 With Project	127,000		1,839	7,355	3,160	0.43	4,670	0.63		2,036	8,143	3,420	0.42	4,050	0.50	LOS D	
Project Traffic & V/C	10,000				360	0.05	250	0.03				320	0.04	630	0.08	LOS D	
6 Btw Frazier Mtn Park and Gorman Rd		4M							4M								
2014 Count	70,000		2,036	8,143	1,351	0.17	2,359	0.29		1,401	5,606	1,309	0.23	2,240	0.40	LOS D	
2035 Without Project	117,000		2,036	8,143	2,840	0.35	4,400	0.54		1,401	5,606	3,100	0.55	3,340	0.60	LOS D	
2035 With Project	121,000		2,036	8,143	3,020	0.37	4,400	0.54		1,401	5,606	3,250	0.58	3,750	0.67	LOS D	
Project Traffic & V/C	4,000				180	0.02	0	0.00				150	0.03	410	0.07	LOS D	
7 Btw Gorman Rd and N Jct SR-138		4M							4M								
2014 Count	70,000		1,849	7,398	1,351	0.18	2,359	0.32		2,042	8,169	1,309	0.16	2,240	0.27	LOS D	
2035 Without Project	117,000		1,849	7,398	2,840	0.38	4,400	0.59		2,042	8,169	3,100	0.38	3,340	0.41	LOS D	
2035 With Project	124,000		1,849	7,398	2,990	0.40	4,790	0.65		2,042	8,169	3,510	0.43	3,720	0.46	LOS D	
Project Traffic & V/C	7,000				150	0.02	390	0.06				410	0.05	380	0.05	LOS D	
8 Btw N Jct SR-138 and Quail Lake Rd		4M							4M								
2014 Count	67,000		1,849	7,398	1,293	0.17	2,258	0.31		2,042	8,169	1,253	0.15	2,144	0.26	LOS D	
2035 Without Project	90,000		1,849	7,398	1,680	0.23	3,050	0.41		2,042	8,169	2,080	0.25	2,420	0.30	LOS D	
2035 With Project	93,000		1,849	7,398	1,900	0.26	3,380	0.46		2,042	8,169	2,200	0.27	2,590	0.32	LOS D	
Project Traffic & V/C	3,000				220	0.03	330	0.05				120	0.02	170	0.02	LOS D	

**TABLE 5.10-25  
FREEWAY VOLUME AND CAPACITY SUMMARY – CUMULATIVE (2035 AND 2040) CONDITIONS WITH AND WITHOUT THE PROJECT**

Location	ADT Volume	NORTHBOUND/EASTBOUND							SOUTHBOUND/WESTBOUND							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
9 Btw Quail Lake Rd and S Jct SR-138	2014 Count	4M	1,375	5,500	1,293	0.24	2,258	0.41	4M	1,375	5,500	1,253	0.23	2,144	0.39	LOS D	
	2035 Without Project		1,375	5,500	1,680	0.31	3,050	0.55		1,375	5,500	2,080	0.38	2,420	0.44		
	2035 With Project		1,375	5,500	1,900	0.35	3,830	0.70		1,375	5,500	2,200	0.40	2,590	0.47		
	Project Traffic & V/C				220	0.04	780	0.15				120	0.02	170	0.03		
10 Btw S Jct SR-138 and Smokey Bear Rd	2014 Count	4M	1,375	5,500	1,332	0.24	2,325	0.42	4M	1,375	5,500	1,290	0.23	2,208	0.40	LOS D	
	2035 Without Project		1,375	5,500	2,010	0.37	4,040	0.73		1,375	5,500	2,880	0.52	2,930	0.53		
	2035 With Project		1,375	5,500	2,390	0.43	5,410	0.98		1,375	5,500	4,290	0.78	3,470	0.63		Yes
	Project Traffic & V/C				380	0.06	1,370	0.25				1,410	0.26	540	0.10		
11 Btw Smokey Bear Rd and Vista Del Lago Rd	2014 Count	4M	1,489	5,957	1,351	0.23	2,359	0.40	4M	1,489	5,957	1,309	0.22	2,240	0.38	LOS D	
	2035 Without Project		1,489	5,957	2,330	0.39	4,150	0.70		1,489	5,957	2,980	0.50	3,230	0.54		
	2035 With Project		1,489	5,957	2,490	0.42	5,500	0.92		1,489	5,957	4,390	0.74	3,610	0.61		Yes
	Project Traffic & V/C				160	0.03	1,350	0.22				1,410	0.24	380	0.07		
12 Btw Vista Del Lago Rd and Templin Hwy	2014 Count	4M	1,489	5,957	1,351	0.23	2,359	0.40	4M	1,489	5,957	1,309	0.22	2,240	0.38	LOS D	
	2035 Without Project		1,489	5,957	2,330	0.39	4,150	0.70		1,489	5,957	2,980	0.50	3,230	0.54		
	2035 With Project		1,489	5,957	2,490	0.42	5,500	0.92		1,489	5,957	4,390	0.74	3,610	0.61		Yes
	Project Traffic & V/C				160	0.03	1,350	0.22				1,410	0.24	380	0.07		
13 Btw Templin Hwy and Lake Hughes Rd	2014 Count	4M	1,489	5,957	1,351	0.23	2,359	0.40	4M	1,489	5,957	1,309	0.22	2,240	0.38	LOS D	
	2035 Without Project		1,489	5,957	2,410	0.40	4,160	0.70		1,489	5,957	2,930	0.49	3,300	0.55		
	2035 With Project		1,489	5,957	2,530	0.42	5,500	0.92		1,489	5,957	4,350	0.73	3,640	0.61		Yes
	Project Traffic & V/C				120	0.02	1,340	0.22				1,420	0.24	340	0.06		
14 Btw Lake Hughes Rd and Parker Rd	2014 Count	4M	1,856	7,422	1,504	0.20	1,949	0.26	4M	1,856	7,422	1,854	0.25	2,519	0.34	LOS E	
	2035 Without Project	4M (+ 1A)	1,856	8,422	5,440	0.65	7,070	0.84	4M (+ 1A)	1,856	8,422	7,230	0.86	4,940	0.59		
	2035 With Project	4M (+ 1A)	1,856	8,422	5,510	0.65	8,320	0.99	4M (+ 1A)	1,856	8,422	8,550	1.02	5,250	0.62		Yes
	Project Traffic & V/C				70	0.00	1,250	0.15				1,320	0.16	310	0.03		
15 Btw Parker Rd and Hasley Cyn Rd	2014 Count	4M	1,856	7,422	2,225	0.30	2,884	0.39	4M	1,856	7,422	2,743	0.37	3,726	0.50	LOS E	
	2035 Without Project	4M (+ 1H)	1,856	9,022	5,570	0.62	6,090	0.68	4M (+ 1H)	1,856	9,022	6,090	0.68	5,070	0.56		
	2035 With Project	4M (+ 1H)	1,856	9,022	5,510	0.61	7,270	0.81	4M (+ 1H)	1,856	9,022	7,430	0.82	5,350	0.59		
	Project Traffic & V/C				(60)	(0.01)	1,180	0.13				1,340	0.14	280	0.03		
16 Btw Hasley Cyn Rd and N Jct SR-126 (NB)	2014 Count	4M (+1A)	1,856	8,422	2,348	0.28	3,044	0.36	4M (+1A)	1,856	8,422	2,896	0.34	3,933	0.47	LOS E	
	2035 Without Project	4M (+ 1H + 1A)	1,856	10,022	5,340	0.53	6,200	0.62	4M (+ 1H)	1,856	9,022	6,090	0.68	5,090	0.56		
	2035 With Project	4M (+ 1H + 1A)	1,856	10,022	5,330	0.53	7,040	0.70	4M (+ 1H)	1,856	9,022	7,230	0.80	5,350	0.59		
	Project Traffic & V/C				(10)	0.00	840	0.08				1,140	0.12	260	0.03		
17 Btw N Jct SR-126 and Rye Cyn Rd	2014 Count	4M	1,867	7,470	2,678	0.36	3,471	0.46	4M	1,867	7,470	3,302	0.44	4,485	0.60	LOS E	
	2035 Without Project	4M (+ 1H)	1,867	9,070	4,860	0.54	6,130	0.68	4M (+ 1H + 1A)	1,867	10,070	6,050	0.60	5,620	0.56		
	2035 With Project	4M (+ 1H)	1,867	9,070	4,760	0.52	6,680	0.74	4M (+ 1H + 1A)	1,867	10,070	7,000	0.70	5,780	0.57		
	Project Traffic & V/C				(100)	(0.02)	550	0.06				950	0.10	160	0.01		
18 Btw Rye Cyn Rd and Magic Mountain Pkwy	2014 Count	4M	1,918	7,670	3,172	0.41	4,112	0.54	4M	1,918	7,670	3,912	0.51	5,313	0.69	LOS E	
	2035 Without Project	4M (+ 1H)	1,918	9,270	4,800	0.52	6,150	0.66	4M (+ 1H + 1A)	1,918	10,270	6,280	0.61	5,430	0.53		
	2035 With Project	4M (+ 1H)	1,918	9,270	4,760	0.51	6,680	0.72	4M (+ 1H + 1A)	1,918	10,270	7,010	0.68	5,610	0.55		
	Project Traffic & V/C				(40)	(0.01)	530	0.06				730	0.07	180	0.02		

**TABLE 5.10-25  
FREEWAY VOLUME AND CAPACITY SUMMARY – CUMULATIVE (2035 AND 2040) CONDITIONS WITH AND WITHOUT THE PROJECT**

Location	ADT Volume	NORTHBOUND/EASTBOUND							SOUTHBOUND/WESTBOUND							LOS Threshold	Project Impact?	
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C			
19 Btw Magic Mountain Pkwy and Valencia Blvd																		
2014 Count	165,000	4M	1,918	7,670	3,399	0.44	4,406	0.57	4M	1,918	7,670	4,191	0.55	5,693	0.74	LOS E		
2035 Without Project	191,000	4M (+ 1H + 1A)	1,918	10,270	5,760	0.56	6,790	0.66	4M (+ 1H)	1,918	9,270	6,430	0.69	5,830	0.63			
2035 With Project	198,000	4M (+ 1H + 1A)	1,918	10,270	5,760	0.56	7,210	0.70	4M (+ 1H)	1,918	9,270	6,950	0.75	5,950	0.64			
Project Traffic & V/C	7,000				0	0.00	420	0.04				520	0.06	120	0.01			
20 Btw Valencia Blvd and McBean Pkwy																		
2014 Count	175,000	4M	1,918	7,670	3,605	0.47	4,673	0.61	4M	1,918	7,670	4,445	0.58	6,038	0.79	LOS E		
2035 Without Project	217,000	4M (+ 1H)	1,918	9,270	6,620	0.71	8,160	0.88	4M (+ 1H + 1A)	1,918	10,270	7,900	0.77	6,770	0.66			
2035 With Project	222,000	4M (+ 1H)	1,918	9,270	6,620	0.71	8,520	0.92	4M (+ 1H + 1A)	1,918	10,270	8,270	0.81	6,830	0.67			
Project Traffic & V/C	5,000				0	0.00	360	0.04				370	0.04	60	0.01			
21 Btw McBean Pkwy and Lyons Ave/Pico Cyn Rd																		
2014 Count	186,000	4M	1,990	7,960	3,832	0.48	4,966	0.62	4M	1,990	7,960	4,724	0.59	6,417	0.81	LOS E		
2035 Without Project	222,000	4M (+ 1H)	1,990	9,560	6,690	0.70	8,640	0.90	4M (+ 1H)	1,990	9,560	9,040	0.95	6,840	0.72			
2035 With Project	226,000	4M (+ 1H)	1,990	9,560	6,700	0.70	8,870	0.93	4M (+ 1H)	1,990	9,560	9,240	0.97	6,900	0.72			
Project Traffic & V/C	4,000				10	0.00	230	0.03				200	0.02	60	0.00			
22 Btw Lyons Ave and Calgrove Blvd																		
2014 Count	199,000	4M	1,990	7,960	4,099	0.52	5,313	0.67	4M (+1T)	1,990	9,560	5,055	0.53	6,866	0.72	LOS E		
2035 Without Project	253,000	4M (+ 1H + 1A)	1,990	10,560	7,010	0.66	10,090	0.96	4M (+ 1H + 1T)	1,990	11,160	9,120	0.82	6,930	0.62			
2035 With Project	256,000	4M (+ 1H + 1A)	1,990	10,560	7,000	0.66	10,300	0.98	4M (+ 1H + 1T)	1,990	11,160	9,310	0.83	6,920	0.62			
Project Traffic & V/C	3,000				(10)	0.00	210	0.02				190	0.01	(10)	0.00			
23 Btw Calgrove Blvd and SR-14																		
2014 Count	200,000	4M (+1T[C])	1,990	9,160	4,120	0.45	5,340	0.58	4M (+2T[C])	1,990	10,360	5,080	0.49	6,900	0.67	LOS E		
2035 Without Project	253,900	4M (+ 1H + 1T(C))	1,990	10,760	5,900	0.55	9,250	0.86	4M (+ 1H + 2T[C])	1,990	11,960	9,760	0.82	7,060	0.59			
2035 With Project	257,000	4M (+ 1H + 1T(C))	1,990	10,760	5,870	0.55	9,420	0.88	4M (+ 1H + 2T[C])	1,990	11,960	9,940	0.83	7,060	0.59			
Project Traffic & V/C	3,100				(30)	0.00	170	0.02				180	0.01	0	0.00			
24 Btw SR-14 and SR-210																		
2014 Count	329,000	3M (+1H+3A[F]+2T)	1,997	16,791	7,863	0.47	12,930	0.77	4M (+1H+2A[F]+2T)	1,997	16,788	14,213	0.85	9,409	0.56	LOS E		
2035 Without Project	384,500		1,997	16,791	9,240	0.55	15,090	0.90		1,997	16,788	16,580	0.99	11,030	0.66			
2035 With Project	386,000		1,997	16,791	9,220	0.55	15,160	0.90		1,997	16,788	16,660	0.99	11,030	0.66			
Project Traffic & V/C	1,500				(20)	0.00	70	0.00				80	0.00	0	0.00			
25 Btw SR-210 and Roxford St																		
2014 Count	266,000	4M (+1H+1A[F])	2,212	12,449	6,357	0.51	10,454	0.84	5M (+1H)	2,212	12,661	11,491	0.91	7,608	0.60	LOS E		
2035 Without Project	306,300		2,212	12,449	7,340	0.59	12,030	0.97		2,212	12,661	13,210	1.04	8,770	0.69			
2035 With Project	307,000		2,212	12,449	7,330	0.59	12,060	0.97		2,212	12,661	13,250	1.05	8,770	0.69			
Project Traffic & V/C	700				(10)	0.00	30	0.00				40	0.01	0	0.00			
26 Btw Roxford St and I-405																		
2014 Count	283,000	5M (+1H+1A[F])	2,212	14,661	6,764	0.46	11,122	0.76	5M (+1H+1A[F])	2,212	14,661	12,226	0.83	8,094	0.55	LOS E		
2035 Without Project	320,700		2,212	14,661	7,680	0.52	12,600	0.86		2,212	14,661	13,850	0.94	9,180	0.63			
2035 With Project	321,000		2,212	14,661	7,670	0.52	12,620	0.86		2,212	14,661	13,870	0.95	9,180	0.63			
Project Traffic & V/C	300				(10)	0.00	20	0.00				20	0.01	0	0.00			

**TABLE 5.10-25  
FREEWAY VOLUME AND CAPACITY SUMMARY – CUMULATIVE (2035 AND 2040) CONDITIONS WITH AND WITHOUT THE PROJECT**

Location	ADT Volume	NORTHBOUND/EASTBOUND							SOUTHBOUND/WESTBOUND							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
27 Btw I-405 and San Fernando Mission Blvd		3M (+1H)							3M (+1H)								
2014 Count	141,000		2,190	8,171	3,370	0.41	5,541	0.68		2,190	8,171	6,091	0.75	4,033	0.49		
2035 Without Project	163,900		2,190	8,171	3,920	0.48	6,440	0.79		2,190	8,171	7,080	0.87	4,690	0.57	LOS E	
2035 With Project	164,000		2,190	8,171	3,920	0.48	6,450	0.79		2,190	8,171	7,090	0.87	4,690	0.57		
Project Traffic & V/C	100				0	0.00	10	0.00				10	0.00	0	0.00		
<b>SR-14</b>																	
28 Btw Dawn Rd and Rosamond Blvd		2M							2M								
2014 Count	23,000		2,332	4,665	1,083	0.23	849	0.18		2,332	4,665	499	0.11	1,323	0.28		
2035 Without Project	29,000		2,332	4,665	1,180	0.25	1,120	0.24		2,332	4,665	690	0.15	1,420	0.30	LOS D	
2035 With Project	30,000		2,332	4,665	1,350	0.29	1,100	0.24		2,332	4,665	620	0.13	1,550	0.33		
Project Traffic & V/C	1,000				170	0.04	(20)	0.00				(70)	(0.02)	130	0.03		
29 Btw Rosamond Blvd and Ave A		2M							2M								
2014 Count	30,000		2,339	4,679	1,413	0.30	1,107	0.24		2,339	4,679	651	0.14	1,725	0.37		
2035 Without Project	30,000		2,339	4,679	1,420	0.30	1,200	0.26		2,339	4,679	690	0.15	1,600	0.34	LOS D	
2035 With Project	35,000		2,339	4,679	1,720	0.37	1,340	0.29		2,339	4,679	730	0.16	1,870	0.40		
Project Traffic & V/C	5,000				300	0.07	140	0.03				40	0.01	270	0.06		
30 Ave A and N Jct SR-138/Ave D		2M							2M								
2014 Count	34,000		2,339	4,679	1,129	0.24	1,261	0.27		2,339	4,679	1,244	0.27	1,567	0.34		
2035 Without Project	51,000		2,339	4,679	1,810	0.39	2,040	0.44		2,339	4,679	1,840	0.39	2,230	0.48	LOS D	
2035 With Project	56,000		2,339	4,679	2,120	0.45	2,130	0.46		2,339	4,679	1,960	0.42	2,350	0.50		
Project Traffic & V/C	5,000				310	0.06	90	0.02				120	0.03	120	0.02		
31 Btw Jct SR-138/Ave D and Ave F		2M							2M								
2014 Count	36,000		2,332	4,665	1,195	0.26	1,336	0.29		2,332	4,665	1,318	0.28	1,660	0.36		
2035 Without Project	88,000		2,332	4,665	3,550	0.76	3,640	0.78		2,332	4,665	3,290	0.71	3,830	0.82	LOS D	
2035 With Project	89,000		2,332	4,665	3,590	0.77	3,780	0.81		2,332	4,665	3,410	0.73	3,780	0.81		
Project Traffic & V/C	1,000				40	0.01	140	0.03				120	0.02	(50)	(0.01)		
32 Btw Ave F and Ave G		2M							2M								
2014 Count	38,000		2,332	4,665	1,262	0.27	1,410	0.30		2,332	4,665	1,391	0.30	1,752	0.38		
2035 Without Project	104,000		2,332	4,665	4,240	0.91	3,860	0.83		2,332	4,665	3,610	0.77	4,590	0.98	LOS D	
2035 With Project	104,000		2,332	4,665	4,300	0.92	3,930	0.84		2,332	4,665	3,740	0.80	4,520	0.97		
Project Traffic & V/C	0				60	0.01	70	0.01				130	0.03	(70)	(0.01)		
33 Btw Ave G and Ave H		2M							2M								
2014 Count	38,000		2,332	4,665	1,262	0.27	1,410	0.30		2,332	4,665	1,391	0.30	1,752	0.38		
2035 Without Project	109,000		2,332	4,665	4,470	0.96	3,850	0.83		2,332	4,665	3,780	0.81	4,690	1.01	LOS D	
2035 With Project	109,000		2,332	4,665	4,450	0.95	3,910	0.84		2,332	4,665	3,860	0.83	4,660	1.00		
Project Traffic & V/C	0				(20)	(0.01)	60	0.01				80	0.02	(30)	(0.01)		
34 Btw Ave H and Ave I		2M							2M								
2014 Count	40,000		2,332	4,665	1,328	0.28	1,484	0.32		2,332	4,665	1,464	0.31	1,844	0.40		
2035 Without Project	109,000		2,332	4,665	4,390	0.94	3,940	0.84		2,332	4,665	3,840	0.82	4,630	0.99	LOS E	
2035 With Project	110,000		2,332	4,665	4,410	0.95	4,120	0.88		2,332	4,665	3,930	0.84	4,590	0.98		
Project Traffic & V/C	1,000				20	0.01	180	0.04				90	0.02	(40)	(0.01)		
35 Btw Ave I and Ave J		3M							3M								
2014 Count	47,000		2,332	6,997	1,560	0.22	1,744	0.25		2,332	6,997	1,720	0.25	2,167	0.31		
2035 Without Project	115,000		2,332	6,997	4,660	0.67	4,310	0.62		2,332	6,997	3,870	0.55	5,020	0.72	LOS E	
2035 With Project	116,000		2,332	6,997	4,670	0.67	4,460	0.64		2,332	6,997	4,000	0.57	4,950	0.71		
Project Traffic & V/C	1,000				10	0.00	150	0.02				130	0.02	(70)	(0.01)		

**TABLE 5.10-25  
 FREEWAY VOLUME AND CAPACITY SUMMARY - CUMULATIVE (2035 AND 2040) CONDITIONS WITH AND WITHOUT THE PROJECT**

Location	ADT Volume	NORTHBOUND/EASTBOUND							SOUTHBOUND/WESTBOUND							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
36 Btw Ave J and 20th St W		3M							3M								
2014 Count	42,000		2,339	7,016	1,394	0.20	1,558	0.22		2,339	7,016	1,537	0.22	1,936	0.28		
2035 Without Project	100,000		2,339	7,016	4,150	0.59	3,800	0.54		2,339	7,016	3,410	0.49	4,500	0.64	LOS E	
2035 With Project	101,000		2,339	7,016	4,170	0.59	4,000	0.57		2,339	7,016	3,550	0.51	4,430	0.63		
Project Traffic & V/C	1,000				20	0.00	200	0.03				140	0.02	(70)	(0.01)		
37 Btw 20th St W and Ave K		3M							3M								
2014 Count	59,000		2,339	7,016	1,959	0.28	2,189	0.31		2,339	7,016	2,159	0.31	2,720	0.39		
2035 Without Project	119,000		2,339	7,016	4,770	0.68	4,480	0.64		2,339	7,016	4,080	0.58	5,310	0.76	LOS E	
2035 With Project	120,000		2,339	7,016	4,780	0.68	4,680	0.67		2,339	7,016	4,210	0.60	5,240	0.75		
Project Traffic & V/C	1,000				10	0.00	200	0.03				130	0.02	(70)	(0.01)		
38 Btw Ave K and Ave L		3M							3M								
2014 Count	74,000		2,339	7,016	2,457	0.35	2,745	0.39		2,339	7,016	2,708	0.39	3,411	0.49		
2035 Without Project	128,000		2,339	7,016	5,020	0.72	4,720	0.67		2,339	7,016	4,360	0.62	5,780	0.82	LOS E	
2035 With Project	129,000		2,339	7,016	5,040	0.72	4,930	0.70		2,339	7,016	4,490	0.64	5,710	0.81		
Project Traffic & V/C	1,000				20	0.00	210	0.03				130	0.02	(70)	(0.01)		
39 Btw Ave L and Ave M		3M							3M								
2014 Count	89,000		2,339	7,016	2,955	0.42	3,302	0.47		2,339	7,016	3,257	0.46	4,103	0.58		
2035 Without Project	101,000		2,339	7,016	3,960	0.56	3,420	0.49		2,339	7,016	3,600	0.51	4,660	0.66	LOS E	
2035 With Project	102,000		2,339	7,016	3,940	0.56	3,530	0.50		2,339	7,016	3,680	0.52	4,600	0.66		
Project Traffic & V/C	1,000				(20)	0.00	110	0.01				80	0.01	(60)	0.00		
40 Btw Ave M and Ave N		3M							3M								
2014 Count	92,000		2,339	7,016	3,054	0.44	3,413	0.49		2,339	7,016	3,367	0.48	4,241	0.60		
2035 Without Project	101,000		2,339	7,016	3,970	0.57	3,250	0.46		2,339	7,016	3,540	0.50	4,830	0.69	LOS E	
2035 With Project	102,000		2,339	7,016	3,960	0.56	3,460	0.49		2,339	7,016	3,600	0.51	4,770	0.68		
Project Traffic & V/C	1,000				(10)	(0.01)	210	0.03				60	0.01	(60)	(0.01)		
41 Btw Ave N and 10th St W		3M							3M								
2014 Count	87,000		2,339	7,016	2,888	0.41	3,228	0.46		2,339	7,016	3,184	0.45	4,011	0.57		
2035 Without Project	100,000		2,339	7,016	4,140	0.59	3,210	0.46		2,339	7,016	3,300	0.47	4,810	0.69	LOS E	
2035 With Project	100,000		2,339	7,016	4,150	0.59	3,310	0.47		2,339	7,016	3,330	0.47	4,760	0.68		
Project Traffic & V/C	0				10	0.00	100	0.01				30	0.00	(50)	(0.01)		
42 Btw 10th St W and Rancho Vista Blvd		3M							3M								
2014 Count	87,000		2,225	6,675	2,888	0.43	3,228	0.48		2,225	6,675	3,184	0.48	4,011	0.60		
2035 Without Project	95,000		2,225	6,675	4,030	0.60	2,990	0.45		2,225	6,675	3,180	0.48	4,600	0.69	LOS E	
2035 With Project	95,000		2,225	6,675	4,030	0.60	3,260	0.49		2,225	6,675	3,220	0.48	4,570	0.68		
Project Traffic & V/C	0				0	0.00	270	0.04				40	0.00	(30)	(0.01)		
43 Btw Rancho Vista Blvd and S Jct SR-138		3M							3M								
2014 Count	84,000		2,225	6,675	2,789	0.42	3,116	0.47		2,225	6,675	3,074	0.46	3,872	0.58		
2035 Without Project	96,000		2,225	6,675	4,080	0.61	2,900	0.43		2,225	6,675	3,160	0.47	4,680	0.70	LOS E	
2035 With Project	96,000		2,225	6,675	4,080	0.61	3,180	0.48		2,225	6,675	3,190	0.48	4,630	0.69		
Project Traffic & V/C	0				0	0.00	280	(0.05)				30	0.01	(50)	(0.01)		
44 Btw S Jct SR-138 and Ave S		2M (+1H)							3M (+1H)								
2014 Count	81,000		2,225	6,050	2,689	0.44	3,005	0.50		2,225	8,275	2,965	0.36	3,734	0.45		
2035 Without Project	97,000		2,225	6,050	3,500	0.58	3,710	0.61		2,225	8,275	3,390	0.41	4,590	0.55	LOS E	
2035 With Project	93,000		2,225	6,050	3,600	0.60	3,570	0.59		2,225	8,275	3,310	0.40	4,650	0.56		
Project Traffic & V/C	(4,000)				100	0.02	(140)	(0.02)				(80)	(0.01)	60	0.01		
45 Btw Ave S and Pearblossom/Sierra Hwy		2M (+1H)							3M (+1H)								
2014 Count	71,000		2,225	6,050	2,357	0.39	2,634	0.44		2,225	8,275	2,599	0.31	3,273	0.40		
2035 Without Project	84,000		2,225	6,050	2,940	0.49	2,910	0.48		2,225	8,275	2,800	0.34	3,840	0.46	LOS E	
2035 With Project	77,000		2,225	6,050	3,080	0.51	2,750	0.45		2,225	8,275	2,710	0.33	3,880	0.47		
Project Traffic & V/C	(7,000)				140	0.02	(160)	(0.03)				(90)	(0.01)	40	0.01		



**TABLE 5.10-25  
 FREEWAY VOLUME AND CAPACITY SUMMARY – CUMULATIVE (2035 AND 2040) CONDITIONS WITH AND WITHOUT THE PROJECT**

Location	ADT Volume	NORTHBOUND/EASTBOUND							SOUTHBOUND/WESTBOUND							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
46 Btw Pearblossom/Sierra Hwy and Angeles Forest		2M (+1H)							3M (+1H)								
2014 Count	83,000		2,225	6,050	2,756	0.46	3,079	0.51		2,225	8,275	3,038	0.37	3,826	0.46	LOS E	
2035 Without Project	92,000		2,225	6,050	3,160	0.52	3,310	0.55		2,225	8,275	3,230	0.39	4,380	0.53		
2035 With Project	90,000		2,225	6,050	3,290	0.54	3,160	0.52		2,225	8,275	3,150	0.38	4,440	0.54		
Project Traffic & V/C	(2,000)				130	0.02	(150)	(0.03)				(80)	(0.01)	60	0.01		
47 Btw Angeles Forest Hwy and Soledad		3M (+1H)							2M (+1H)								
2014 Count	144,000		2,225	8,275	3,154	0.38	3,525	0.43		2,225	6,050	3,477	0.57	4,380	0.72	LOS E	
2035 Without Project	118,000		2,225	8,275	3,690	0.45	4,140	0.50		2,225	6,050	3,970	0.66	5,980	0.99		
2035 With Project	116,000		2,225	8,275	3,910	0.47	3,970	0.48		2,225	6,050	3,670	0.61	6,060	1.00		
Project Traffic & V/C	(2,000)				220	0.02	(170)	(0.02)				(300)	(0.05)	80	0.01		
48 Btw Soledad and Santiago Rd		2M (+1H)							2M (+1H)								
2014 Count	95,000		2,236	6,071	3,154	0.52	3,525	0.58		2,236	6,071	3,477	0.57	4,380	0.72	LOS E	
2035 Without Project	117,000		2,236	6,071	3,750	0.62	4,160	0.69		2,236	6,071	3,700	0.61	5,650	0.93		
2035 With Project	115,000		2,236	6,071	3,910	0.64	4,000	0.66		2,236	6,071	3,480	0.57	5,700	0.94		
Project Traffic & V/C	(2,000)				160	0.02	(160)	(0.03)				(220)	(0.04)	50	0.01		
49 Btw Santiago Rd and Crown Valley Rd		2M (+1H)							2M (+1H)								
2014 Count	94,000		2,236	6,071	3,121	0.51	3,487	0.57		2,236	6,071	3,440	0.57	4,333	0.71	LOS E	
2035 Without Project	113,000		2,236	6,071	3,580	0.59	4,260	0.70		2,236	6,071	3,700	0.61	5,450	0.90		
2035 With Project	110,000		2,236	6,071	3,690	0.61	4,050	0.67		2,236	6,071	3,480	0.57	5,480	0.90		
Project Traffic & V/C	(3,000)				110	0.02	(210)	(0.03)				(220)	(0.04)	30	0.00		
50 Btw Crown Valley Rd and Ward Rd		2M (+1H)							2M (+1H)								
2014 Count	95,000		2,236	6,071	3,154	0.52	3,525	0.58		2,236	6,071	3,477	0.57	4,380	0.72	LOS E	
2035 Without Project	142,000		2,236	6,071	3,660	0.60	4,160	0.69		2,236	6,071	3,730	0.61	5,690	0.94		
2035 With Project	140,000		2,236	6,071	3,830	0.63	3,970	0.65		2,236	6,071	3,510	0.58	5,730	0.94		
Project Traffic & V/C	(2,000)				170	0.03	(190)	(0.04)				(220)	(0.03)	40	0.00		
51 Btw Ward Rd and Escondido Cyn Rd		3M (+1H)							2M (+1H)								
2014 Count	93,000		2,189	8,167	3,088	0.38	3,450	0.42		2,189	5,978	3,404	0.57	4,287	0.72	LOS E	
2035 Without Project	120,000		2,189	8,167	3,660	0.45	4,780	0.59		2,189	5,978	3,970	0.66	5,730	0.96		
2035 With Project	117,000		2,189	8,167	3,810	0.47	4,540	0.56		2,189	5,978	3,700	0.62	5,780	0.97		
Project Traffic & V/C	(3,000)				150	0.02	(240)	(0.03)				(270)	(0.04)	50	0.01		
52 Btw Escondido Cyn Rd and Agua Dulce Cyn Rd		2M (+1H)							3M (+1H)								
2014 Count	93,000		2,236	8,307	1,776	0.21	4,669	0.56		2,236	6,071	4,994	0.82	2,613	0.43	LOS E	
2035 Without Project	119,000		2,236	8,307	2,240	0.27	5,950	0.72		2,236	6,071	5,660	0.93	3,980	0.66		
2035 With Project	116,000		2,236	8,307	2,350	0.28	5,650	0.68		2,236	6,071	5,370	0.88	4,010	0.66		
Project Traffic & V/C	(3,000)				110	0.01	(300)	(0.04)				(290)	(0.05)	30	0.00		
53 Btw Agua Dulce Cyn Rd and Soledad Rd		3M (+1H)							2M (+1H)								
2014 Count	96,000		2,236	8,307	1,834	0.22	4,819	0.58		2,236	6,071	5,155	0.85	2,698	0.44	LOS E	
2035 Without Project	121,000		2,236	8,307	2,350	0.28	5,930	0.71		2,236	6,071	5,550	0.91	4,100	0.68		
2035 With Project	118,000		2,236	8,307	2,480	0.30	5,660	0.68		2,236	6,071	5,270	0.87	4,130	0.68		
Project Traffic & V/C	(3,000)				130	0.02	(270)	(0.03)				(280)	(0.04)	30	0.00		
54 Btw Shadow Pines/Soledad Rd and Sand Cyn Rd		2M (+1H)							2M (+1H)								
2014 Count	99,000		2,236	6,071	1,891	0.31	4,970	0.82		2,236	6,071	5,316	0.88	2,782	0.46	LOS E	
2035 Without Project	119,000		2,236	6,071	2,340	0.39	5,470	0.90		2,236	6,071	5,680	0.94	3,850	0.63		
2035 With Project	117,000		2,236	6,071	2,460	0.41	5,300	0.87		2,236	6,071	5,430	0.89	3,880	0.64		
Project Traffic & V/C	(2,000)				120	0.02	(170)	(0.03)				(250)	(0.05)	30	0.01		

**TABLE 5.10-25  
FREEWAY VOLUME AND CAPACITY SUMMARY – CUMULATIVE (2035 AND 2040) CONDITIONS WITH AND WITHOUT THE PROJECT**

Location	ADT Volume	NORTHBOUND/EASTBOUND							SOUTHBOUND/WESTBOUND							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
55 Btw Sand Cyn Rd and Via Princessa 2014 Count 2035 Without Project 2035 With Project Project Traffic & V/C	112,000	3M (+1H)	2,215	8,246	2,139	0.26	5,622	0.68	3M (+1H)	2,215	8,246	6,014	0.73	3,147	0.38	LOS E	
	140,000		2,215	8,246	2,540	0.31	6,670	0.81		2,215	8,246	7,160	0.87	4,810	0.58		
	137,000		2,215	8,246	2,640	0.32	6,460	0.78		2,215	8,246	6,890	0.84	4,830	0.59		
	(3,000)				100	0.01	(210)	(0.03)				(270)	(0.03)	20	0.01		
56 Btw Via Princessa and Golden Valley Rd 2014 Count 2035 Without Project 2035 With Project Project Traffic & V/C	144,000	3M (+1H+1A)	2,215	9,246	2,750	0.30	7,229	0.78	3M (+1H+1A)	2,215	9,246	7,733	0.84	4,046	0.44	LOS E	
	177,000		2,215	9,246	3,220	0.35	8,200	0.89		2,215	9,246	8,800	0.95	5,570	0.60		
	174,000		2,215	9,246	3,320	0.36	7,990	0.86		2,215	9,246	8,640	0.93	5,530	0.60		
	(3,000)				100	0.01	(210)	(0.03)				(160)	(0.02)	(40)	0.00		
57 Btw Golden Valley Rd and Placerita Cyn Rd 2014 Count 2035 Without Project 2035 With Project Project Traffic & V/C	144,000	3M (+1H)	2,215	8,246	2,750	0.33	7,229	0.88	3M (+1H)	2,215	8,246	7,733	0.94	4,046	0.49	LOS E	
	174,000		2,215	8,246	3,070	0.37	7,920	0.96		2,215	8,246	8,760	1.06	5,240	0.64		
	171,000		2,215	8,246	3,170	0.38	7,740	0.94		2,215	8,246	8,570	1.04	5,200	0.63		
	(3,000)				100	0.01	(180)	(0.02)				(190)	(0.02)	(40)	(0.01)		
58 Btw Placerita Cyn Rd and San Fernando Rd 2014 Count 2035 Without Project 2035 With Project Project Traffic & V/C	151,000	3M (+1H)	2,215	8,246	2,884	0.35	7,580	0.92	3M (+1H)	2,215	8,246	8,109	0.98	4,243	0.51	LOS E	
	178,000		2,215	8,246	3,130	0.38	8,230	1.00		2,215	8,246	8,680	1.05	5,270	0.64		
	175,000		2,215	8,246	3,220	0.39	8,090	0.98		2,215	8,246	8,570	1.04	5,170	0.63		
	(3,000)				90	0.01	(140)	(0.02)				(110)	(0.01)	(100)	(0.01)		
59 Btw San Fernando Rd//Newhall Ave and Jct I-5 2014 Count 2035 Without Project 2035 With Project Project Traffic & V/C	166,000	5M (+1H)	2,215	12,676	3,171	0.25	8,333	0.66	5M (+1H)	2,215	12,676	8,914	0.70	4,665	0.37	LOS E	
	185,000		2,215	12,676	3,180	0.25	8,860	0.70		2,215	12,676	9,360	0.74	5,170	0.41		
	182,000		2,215	12,676	3,210	0.25	8,720	0.69		2,215	12,676	9,360	0.74	5,110	0.40		
	(3,000)				30	0.00	(140)	(0.01)				0	0.00	(60)	(0.01)		
<b>SR-99</b>																	
70 Btw Jct SR-58 W and California 2015 Count 2040 Without Project 2040 With Project Project Traffic & V/C	104,110	4M	2,246	8,985	3,848	0.43	6,276	0.70	4M	2,246	8,985	4,004	0.45	6,694	0.75	LOS E	
	126,890		2,246	8,985	4,808	0.54	8,042	0.90		2,246	8,985	5,443	0.61	7,702	0.86		
	127,890		2,246	8,985	4,948	0.55	7,452	0.83		2,246	8,985	5,413	0.60	7,802	0.87		
	1,000				140	0.01	(590)	(0.07)				(30)	(0.01)	100	0.01		
71 Btw California and Jct SR-58 E 2015 Count 2040 Without Project 2040 With Project Project Traffic & V/C	89,700	4M	2,246	8,985	3,392	0.38	5,263	0.59	4M	2,246	8,985	3,390	0.38	5,895	0.66	LOS E	
	106,855		2,246	8,985	3,970	0.44	6,335	0.71		2,246	8,985	4,394	0.49	6,702	0.75		
	107,855		2,246	8,985	4,120	0.46	6,255	0.70		2,246	8,985	4,374	0.49	6,822	0.76		
	1,000				150	0.02	(80)	(0.01)				(20)	0.00	120	0.01		
72 Btw Jct SR-58 E and Ming Ave 2015 Count 2040 Without Project 2040 With Project Project Traffic & V/C	88,820	5M	2,246	10,107	3,406	0.34	5,478	0.54	5M	2,246	10,107	3,217	0.32	5,663	0.56	LOS E	
	135,885		2,246	10,107	5,304	0.52	7,887	0.78		2,246	10,107	5,643	0.56	8,613	0.85		
	137,885		2,246	10,107	5,334	0.53	7,807	0.77		2,246	10,107	5,693	0.56	8,743	0.87		
	2,000				30	0.01	(80)	(0.01)				50	0.00	130	0.02		
73 Btw Ming Ave and White Lane 2015 Count 2040 Without Project 2040 With Project Project Traffic & V/C	69,755	4M	2,246	8,985	2,614	0.29	4,435	0.49	4M	2,296	9,186	2,394	0.26	4,508	0.49	LOS E	
	121,880		2,246	8,985	5,502	0.61	7,209	0.80		2,296	9,186	4,853	0.53	7,112	0.77		
	123,880		2,246	8,985	5,522	0.61	7,139	0.79		2,296	9,186	4,863	0.53	7,252	0.79		
	2,000				20	0.00	(70)	(0.01)				10	0.00	140	0.02		

**TABLE 5.10-25  
 FREEWAY VOLUME AND CAPACITY SUMMARY – CUMULATIVE (2035 AND 2040) CONDITIONS WITH AND WITHOUT THE PROJECT**

Location	ADT Volume	NORTHBOUND/EASTBOUND							SOUTHBOUND/WESTBOUND							LOS Threshold	Project Impact?
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C		
74 Btw White Lane and Panama Lane		4M							4M								
2015 Count	57,090		2,296	9,186	2,165	0.24	3,616	0.39		2,296	9,186	2,072	0.23	3,565	0.39		
2040 Without Project	106,660		2,296	9,186	4,840	0.53	6,369	0.69		2,296	9,186	3,957	0.43	6,396	0.70	LOS E	
2040 With Project	108,660		2,296	9,186	4,890	0.53	6,289	0.68		2,296	9,186	3,977	0.43	6,576	0.72		
Project Traffic & V/C	2,000				50	0.00	(80)	(0.01)				20	0.00	180	0.02		
75 Btw Panama Lane and Jct SR-119 W		4M							4M								
2015 Count	44,450		2,296	9,186	1,622	0.18	2,890	0.31		2,296	9,186	1,797	0.20	2,581	0.28		
2040 Without Project	91,405		2,296	9,186	4,114	0.45	5,581	0.61		2,296	9,186	3,481	0.38	5,345	0.58	LOS E	
2040 With Project	93,405		2,296	9,186	4,154	0.45	5,481	0.60		2,296	9,186	3,481	0.38	5,565	0.61		
Project Traffic & V/C	2,000				40	0.00	(100)	(0.01)				0	0.00	220	0.03		
76 Btw Jct SR-119 W and Houghton Rd		3M							3M								
2015 Count	35,470		2,296	6,889	1,229	0.18	2,345	0.34		2,141	6,422	1,533	0.24	1,987	0.31		
2040 Without Project	69,590		2,296	6,889	3,114	0.45	4,387	0.64		2,141	6,422	2,950	0.46	3,914	0.61	LOS D	
2040 With Project	72,590		2,296	6,889	3,174	0.46	4,287	0.62		2,141	6,422	2,970	0.46	4,134	0.64		
Project Traffic & V/C	3,000				60	0.01	(100)	(0.02)				20	0.00	220	0.03		
77 Btw Houghton Rd and Jct SR-233 E		3M							3M								
2015 Count	33,360		2,141	6,422	1,158	0.18	2,176	0.34		2,141	6,422	1,473	0.23	1,865	0.29		
2040 Without Project	67,150		2,141	6,422	3,031	0.47	4,202	0.65		2,141	6,422	2,826	0.44	3,741	0.58	LOS D	
2040 With Project	70,150		2,141	6,422	3,091	0.48	4,112	0.64		2,141	6,422	2,836	0.44	3,991	0.62		
Project Traffic & V/C	3,000				60	0.01	(90)	(0.01)				10	0.00	250	0.04		
78 Btw Jct SR-223 E and Old U.S. 99*		3M							3M								
2015 Count	27,270		2,141	6,422	945	0.15	1,788	0.28		2,133	6,400	1,233	0.19	1,488	0.23		
2040 Without Project	61,975		2,141	6,422	2,772	0.43	3,900	0.61		2,133	6,400	2,635	0.41	3,468	0.54	LOS D	
2040 With Project	64,975		2,141	6,422	2,832	0.44	3,790	0.59		2,133	6,400	2,645	0.41	3,728	0.58		
Project Traffic & V/C	3,000				60	0.01	(110)	(0.02)				10	0.00	260	0.04		
79 Btw Old U.S. 99 and Herring Rd		3M							3M								
2015 Count	28,585		2,133	6,400	987	0.15	1,860	0.29		2,133	6,400	1,284	0.20	1,586	0.25		
2040 Without Project	66,340		2,133	6,400	2,922	0.46	4,092	0.64		2,133	6,400	2,761	0.43	3,873	0.61	LOS D	
2040 With Project	69,340		2,133	6,400	2,982	0.47	3,982	0.62		2,133	6,400	2,771	0.43	4,133	0.65		
Project Traffic & V/C	3,000				60	0.01	(110)	(0.02)				10	0.00	260	0.04		
80 Btw Herring Rd and Sandrini Rd.		3M							3M								
2015 Count	27,775		2,133	6,400	960	0.15	1,805	0.28		2,133	6,400	1,253	0.20	1,537	0.24		
2040 Without Project	65,985		2,133	6,400	2,889	0.45	4,058	0.63		2,133	6,400	2,748	0.43	3,852	0.60	LOS D	
2040 With Project	68,985		2,133	6,400	2,969	0.46	3,958	0.62		2,133	6,400	2,758	0.43	4,112	0.64		
Project Traffic & V/C	3,000				80	0.01	(100)	(0.01)				10	0.00	260	0.04		
81 Btw Sandrini Rd and David Rd		3M							3M								
2015 Count	27,775		2,133	6,400	960	0.15	1,805	0.28		2,133	6,400	1,253	0.20	1,537	0.24		
2040 Without Project	65,985		2,133	6,400	2,889	0.45	4,058	0.63		2,133	6,400	2,748	0.43	3,852	0.60	LOS D	
2040 With Project	68,985		2,133	6,400	2,969	0.46	3,958	0.62		2,133	6,400	2,758	0.43	4,112	0.64		
Project Traffic & V/C	3,000				80	0.01	(100)	(0.01)				10	0.00	260	0.04		
82 Btw David Rd and Valpredo		3M							3M								
2015 Count	27,740		2,133	6,400	959	0.15	1,803	0.28		2,133	6,400	1,251	0.20	1,535	0.24		
2040 Without Project	63,995		2,133	6,400	2,811	0.44	3,922	0.61		2,133	6,400	2,660	0.42	3,716	0.58	LOS D	
2040 With Project	66,995		2,133	6,400	2,901	0.45	3,832	0.60		2,133	6,400	2,680	0.42	3,986	0.62		
Project Traffic & V/C	3,000				90	0.01	(90)	(0.01)				20	0.00	270	0.04		
83 Btw Valpredo and Jct SR-166 W		3M							3M								
2015 Count	27,740		2,133	6,400	959	0.15	1,803	0.28		2,096	6,288	1,251	0.20	1,535	0.24		
2040 Without Project	63,995		2,133	6,400	2,811	0.44	3,922	0.61		2,096	6,288	2,660	0.42	3,716	0.59	LOS D	
2040 With Project	66,995		2,133	6,400	2,901	0.45	3,832	0.60		2,096	6,288	2,680	0.43	3,986	0.63		
Project Traffic & V/C	3,000				90	0.01	(90)	(0.01)				20	0.01	270	0.04		

**TABLE 5.10-25  
 FREEWAY VOLUME AND CAPACITY SUMMARY – CUMULATIVE (2035 AND 2040) CONDITIONS WITH AND WITHOUT THE PROJECT**

Location	ADT Volume	NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND						LOS Threshold	Project Impact?	
		Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C	Lanes	Cap/Lane	Total Cap	AM Vol	AM V/C	PM Vol	PM V/C			
84 Btw Jct SR-166 W and Jct I-5		3M								3M								
2015 Count	26,965		2,096	6,288	934	0.15	1,733	0.28		2,054	6,162	1,219	0.20	1,507	0.24			
2040 Without Project	66,375		2,096	6,288	2,813	0.45	4,077	0.65		2,054	6,162	2,746	0.45	3,949	0.64		LOS D	
2040 With Project	69,375		2,096	6,288	2,903	0.46	3,987	0.63		2,054	6,162	2,766	0.45	4,219	0.68			
Project Traffic & V/C	3,000				90	0.01	(90)	(0.02)				20	0.00	270	0.04			
Notes:	LOS	Freeway Segment V/C Ranges																
<b>Boldface type</b> denotes LOS exceeds the performance standard	A	0.00–0.30																
ADT: average daily traffic	B	0.31–0.56																
Cap: capacity	C	0.57–0.76																
V/C: volume-to-capacity ratio	D	0.77–0.90																
Btw: between	E	0.91–1.00																
SR: State Route	F	Above 1.00																
M: Mixed flow lane																		
T: Truck Lane																		
N: north																		
Jct: junction																		
S: south																		
A: Auxiliary lane																		
H: High Occupancy Vehicle lane																		
NB: northbound																		
C: Climbing lane																		
F: Freeway to Freeway																		
I: Interstate																		
W: west																		
E: east																		
Source: Stantec 2017 (Table 4-6).																		
		For freeway segments located in LA County (i.e., SR-138, SR-14 and I-5) and Kern County freeway segments on the I-5 from Fort Tejon Interchange to the LA/Kern County line, volumes represent 2035 cumulative conditions. For freeway segments located in Kern County (i.e., SR-99 and I-5 from the Grapevine Grade to SR-99), volumes represent 2040 cumulative conditions. *Capacity of High Occupancy Vehicle (HOV) or High Occupancy Toll (HOT) Lane: 1,600 vehicles/hour/lane *Capacity of Auxiliary Lane: 1,000 vehicles/hour/lane																

*This page intentionally left blank*

The following freeway mainline segments would be significantly impacted by the Project under the cumulative plus Project conditions:

**I-5 Freeway**

- 3. **Between Grapevine and Fort Tejon Road:** NB PM, SB PM.
- 11. **Between Smokey Bear Road and Vista Del Lago Road:** NB PM
- 12. **Between Vista Del Lago Road and Templin Highway:** NB PM
- 13. **Between Templin Highway and Lake Hughes Road:** NB PM
- 14. **Between Lake Hughes Road and Parker Road:** SB AM

All affected freeway segments would operate within acceptable performance criteria under cumulative with Project conditions with the following improvements (see Exhibit 10-26, which excerpts the pre- and post-mitigation analysis of impacted freeway segments under Cumulative Plus Project conditions, and Table 4-16 of the Traffic Study [Appendix 5.10-A] for a complete freeway mainline pre- and post-mitigation analysis):

- **I-5 between Parker Road and SR-14:** Add one HOV or HOT lane in each direction
- **I-5 between Lake Hughes and Parker:** Add one auxiliary lane in each direction
- Development of a high capacity goods movement facility along the SR-58 and/or E-220 corridors between I-5 in Kern County and I-15 in San Bernardino County.

Caltrans approved the I-5 High Occupancy Vehicle (HOV)/Truck Lanes Project SR-14 to Parker Road project in 2009. The project initially consisted of adding a high-occupancy vehicle (HOV) lane in each direction between SR-14 and Parker Road in northern Santa Clarita Valley and adding an auxiliary truck lane in each direction between SR-14 and Pico Canyon Road/Lyons Avenue. In 2013, Caltrans approved the replacement of the planned HOV lanes with high occupancy toll (HOT) lanes and this modification is currently in the design phase. The HOT lanes are currently estimated for completion by 2022. A regional high capacity goods movement facility along the SR-58 and/or the E-220 corridor between I-5 in Kern County and I-15 in San Bernardino County is in the planning stages and included in the Kern COG RTP/SCS. MM 10-3 and MM 10-4 require the Project Applicant to seek to enter into a CTIP and transportation mitigation fee program that would fully mitigate for all impacts to freeway segments under cumulative plus Project conditions or to contribute fair share funding for the required improvements. MM 10-26 requires fair share funding for Kern COG RTP/SCS improvement projects on SR-58 between I-5 in Kern County and I-15 in San Bernardino County, which could include development of a high capacity goods movement facility along the SR-58 and/or E-220 corridors the high capacity goods movement facility along the SR-58 and/or E-220 corridors in Kern County. MM 10-31 requires fair share funding for the addition of one auxiliary lane in each direction between Lake Hughes and Parker roads, the addition of one HOV or HOT lane in each direction between Parker Road and SR-14, and MM 10-28 for the strengthening and widening of the inside and outside shoulders of I-5 between the Fort Tejon and Grapevine Road and SR-138 and Lake Hughes Road interchanges.

MMs 10-29 and 10-30 also require the implementation of on-site programs to reduce vehicle trips (see PDFs 10-1 through 10-4), including the formation of a Transportation Management Association (TMA) that would coordinate and manage the following programs:

1. Ride Share Program
2. Transit Program
3. Commuter Bus Program

As shown in Table 5.10-26, compliance with these mitigation measures and fair share contributions towards the improvements described above would reduce potential cumulative plus Project impacts to freeway mainline segments to less than significant levels.

**TABLE 5.10-26  
VOLUME AND CAPACITY SUMMARY - 2035 AND 2040 FREEWAY CONDITIONS WITH MITIGATION**

Location	ADT Volume	Northbound/Eastbound							Southbound/Westbound							
		Lanes	Cap/ lane	Total Cap	AM Volume	AM V/C	PM Volume	PM V/C	Lane	Cap/ lane	Total Cap	AM Volume	AM V/C	PM Volume	PM V/C	
<b>I-5</b>																
3	Btw. Grapevine and Fort Tejon Rd (MF+Truck)		4M							4M						
	2040 Without Project	97,300		1,750	7,000	4,160	0.59	6,300	0.90		1,550	6,200	4,260	0.69	5,180	0.84
	2040 With Project	107,300		1,750	7,000	4,520	0.65	6,550	<b>0.94</b>		1,550	6,200	4,580	0.74	5,810	<b>0.94</b>
	2040 w/ Project and T&RP	107,100				4,520	0.65	6,510	<b>0.93</b>				4,540	0.73	5,810	<b>0.94</b>
	2040 w/Proj, T&RP and GMP	99,230				4,295	0.61	6,210	0.89				4,315	0.70	5,510	0.89
	Project Traffic & V/C (w/mit)	1,930				135	0.02	(90)	(0.01)				55	0.01	330	0.05
10	Btw S Jct SR-138 and Smokey Bear Rd		4M							4M						
	2035 Without Project	105,000		1,375	5,500	2,010	0.37	4,040	0.73		1,375	5,500	2,880	0.52	2,930	0.53
	2035 With Project	127,000		1,375	5,500	2,390	0.43	5,410	<b>0.98</b>		1,375	5,500	4,290	0.78	3,470	0.63
	2035 w/ Project and T&RP	126,000				2,390	0.43	5,210	<b>0.95</b>				4,090	0.74	3,470	0.63
	2035 w/Proj, TandRP and GMP	119,200				2,210	0.40	4,970	0.90				3,910	0.71	3,230	0.59
	Project Traffic & V/C (w/mit)	14,200				200	0.03	930	0.17				1,030	0.19	300	0.06
11	Btw Smokey Bear Rd & Vista Del Lago Rd		4M							4M						
	2035 Without Project	110,000		1,489	5,957	2,330	0.39	4,150	0.70		1,489	5,957	2,980	0.50	3,230	0.54
	2035 With Project	129,000		1,489	5,957	2,490	0.42	5,500	<b>0.92</b>		1,489	5,957	4,390	0.74	3,610	0.61
	2035 w/ Project and T&RP	128,000				2,490	0.42	5,300	0.89				4,190	0.70	3,610	0.61
	2035 w/Proj, T&RP and GMP	121,200				2,310	0.39	5,060	0.85				4,010	0.67	3,370	0.57
	Project Traffic & V/C (w/mit)	11,200				(20)	0.00	910	0.15				1,030	0.17	140	0.03
12	Btw Vista Del Lago Rd and Templin Hwy		4M							4M						
	2035 Without Project	117,000		1,489	5,957	2,330	0.39	4,150	0.70		1,489	5,957	2,980	0.50	3,230	0.54
	2035 With Project	129,000		1,489	5,957	2,490	0.42	5,500	<b>0.92</b>		1,489	5,957	4,390	0.74	3,610	0.61
	2035 w/ Project and T&RP	128,000				2,490	0.42	5,300	0.89				4,190	0.70	3,610	0.61
	2035 w/Proj, T&RP and GMP	121,200				2,310	0.39	5,060	0.85				4,010	0.67	3,370	0.57
	Project Traffic & V/C (w/mit)	4,200				(20)	(0.00)	910	0.15				1,030	0.17	140	0.03
13	Btw Templin Hwy and Lake Hughes Rd		4M							4M						
	2035 Without Project	114,000		1,489	5,957	2,410	0.40	4,160	0.70		1,489	5,957	2,930	0.49	3,300	0.55
	2035 With Project	130,000		1,489	5,957	2,530	0.42	5,500	<b>0.92</b>		1,489	5,957	4,350	0.73	3,640	0.61
	2035 w/ Project and T&RP	129,000				2,530	0.42	5,300	0.89				4,150	0.70	3,640	0.61
	2035 w/Proj, T&RP and GMP	122,200				2,350	0.39	5,060	0.85				3,970	0.67	3,400	0.57
	Project Traffic & V/C (w/mit)	8,200				(60)	(0.01)	900	0.15				1,040	0.18	100	0.02



**TABLE 5.10-26  
VOLUME AND CAPACITY SUMMARY - 2035 AND 2040 FREEWAY CONDITIONS WITH MITIGATION**

Location	ADT Volume	Northbound/Eastbound								Southbound/Westbound					
		Lanes	Cap/lane	Total Cap	AM Volume	AM V/C	PM Volume	PM V/C	Lane	Cap/lane	Total Cap	AM Volume	AM V/C	PM Volume	PM V/C
14 Btw Lake Hughes Rd and Parker Rd		4M (+ 1A)								4M (+ 1A)					
2035 Without Project	140,300		1,856	8,422	5,440	0.65	7,070	0.84		1,856	8,422	7,230	0.86	4,940	0.59
2035 With Project	158,000		1,856	8,422	5,510	0.65	8,320	0.99		1,856	8,422	8,550	<b>1.02</b>	5,250	0.62
2035 w/ Project and T&RP	157,000				5,510	0.65	8,120	0.96				8,350	0.99	5,250	0.62
2035 w/Proj, T&RP and GMP	150,200				5,330	0.63	7,880	0.94				8,170	0.97	5,010	0.59
Project Traffic & V/C (w/mit)	9,900				(110)	(0.02)	810	0.10				940	0.11	70	0.00

<b>Boldface type</b> denotes LOS exceeds the performance standard	LOS	Freeway Segment V/C Ranges
ADT: annual average daily traffic	A	0.00-0.30
L: Lanes	B	0.31-0.56
Cap: Capacity	C	0.57-0.76
Vol: Volume	D	0.77-0.90
V/C: Volume-to-capacity ratio	E	0.91-1.00
Btw: between	F	Above 1.00

For freeway segments located in LA County (i.e., I-5) and Kern County freeway segments on the I-5 from Fort Tejon Interchange to the LA/Kern County line, volumes represent 2035 cumulative conditions.  
 For freeway segments located in Kern County (i.e., I-5 from the Grapevine Grade to SR-99), volumes represent 2040 cumulative conditions.  
 \*Capacity of High Occupancy Vehicle (HOV) or High Occupancy Toll (HOT) Lane: 1,600 vehicles/hour/lane  
 \*Capacity of Auxiliary Lane: 1,000 vehicles/hour/lane

BTw: between  
 MF: Mixed Flow Lanes  
 M: Mixed flow lane  
 T&RP: Transit and Rideshare Program  
 GMP: Goods Movement Corridor Project  
 SR: State Route  
 w/mit: with mitigation  
 A: Auxiliary Lane

Source: Stantec 2017 (Table 4-16).

***Freeway Interchange Ramps***

Potential impacts to freeway ramps under cumulative plus Project conditions were evaluated for study area locations, including within the Santa Clarita Valley as identified by the Los Angeles County Department of Public Works. Cumulative with and without peak hour AM and PM traffic volumes for conditions at northbound/eastbound and southbound/westbound freeway ramps are summarized in Table 5.10-27.

The table shows that significant impacts would occur under cumulative with Project conditions at the SR-14 northbound off-ramp to SR-138 (AM peak hour) and at the SR-14 southbound on-ramp from SR-138 (PM peak hour). The I-5/SR-138 interchange connector ramps from westbound SR-138 to southbound I-5 and from northbound I-5 to eastbound SR-138 would also exceed 1,500 vehicles per hour, which is the capacity of the single lane connections to I-5 at these locations.

**TABLE 5.10-27  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY –CUMULATIVE (2035 AND 2040) CONDITIONS**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
<b>I-5</b>																
SR-99 NB Off Ramp								SR-99 SB On Ramp								
Existing	20,600	2	4,000	980	0.25	1,280	0.32	Existing	21,400	2	4,000	1,000	0.25	1,020	0.26	
2040 No Project	44,800	2	4,000	3,050	0.76	3,790	0.95	2040 No Project	32,500	2	4,000	2,060	0.52	2,870	0.72	
2040 With Project	45,400	2	4,000	3,120	0.78	3,690	0.92	2040 With Project	34,800	2	4,000	2,090	0.52	3,130	0.78	
Project Traffic & V/C	600			70	0.02	(100)	(0.03)	Project Traffic & V/C	2,300			30	0.00	260	0.06	
Laval/Wheeler West NB Off Ramp								Laval/Wheeler Ridge West SB On Ramp								
Existing	1,450	1	1,500	50	0.03	80	0.05	Existing	6,200	1	1,500	270	0.18	330	0.22	
2040 No Project	967	1	1,500	90	0.06	50	0.03	2040 No Project	7,667	1	1,500	620	0.41	610	0.41	
2040 With Project	1,667	1	1,500	140	0.09	110	0.07	2040 With Project	9,067	1	1,500	710	0.47	650	0.43	
Project Traffic & V/C	700			50	0.03	60	0.04	Project Traffic & V/C	1,400			90	0.06	40	0.02	
Laval/Wheeler East NB Off Ramp								Grapevine SB On Ramp Loop								
Existing	3,850	1	1,500	170	0.11	260	0.17	Existing	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
2040 No Project	5,100	1	1,500	540	0.36	420	0.28	2040 No Project	5,600	1	1,500	230	0.15	620	0.41	
2040 With Project	7,000	1	1,500	580	0.39	470	0.31	2040 With Project	6,200	1	1,500	280	0.19	650	0.43	
Project Traffic & V/C	1,900			40	0.03	50	0.03	Project Traffic & V/C	600			50	0.04	30	0.02	
Grapevine NB Off Ramp								Grapevine SB On Ramp								
Existing	1,750	1	1,500	50	0.03	40	0.03	Existing	1,200	1	1,500	40	0.03	50	0.03	
2040 No Project	11,467	1	1,500	620	0.41	1,010	0.67	2040 No Project	4,600	1	1,500	330	0.22	360	0.24	
2040 With Project	11,667	1	1,500	680	0.45	1,070	0.71	2040 With Project	5,200	1	1,500	390	0.26	390	0.26	
Project Traffic & V/C	200			60	0.04	60	0.04	Project Traffic & V/C	600			60	0.04	30	0.02	

**TABLE 5.10-27  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY –CUMULATIVE (2035 AND 2040) CONDITIONS**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
Fort Tejon Rd NB-Off Ramp								Fort Tejon Rd SB-On Ramp								
Existing	140	1	1,500	10	0.01	10	0.01	Existing	230	1	1,500	10	0.01	20	0.01	
2035 No Project	5,800	1	1,500	220	0.15	380	0.25	2035 No Project	3,000	1	1,500	200	0.13	110	0.07	
2035 With Project	6,000	1	1,500	230	0.15	390	0.26	2035 With Project	3,200	1	1,500	210	0.14	120	0.08	
Project Traffic & V/C	200			10	0.00	10	0.01	Project Traffic & V/C	200			10	0.01	10	0.01	
Lebec NB Off-Ramp								Lebec SB-On Ramp								
Existing	690	1	1,500	30	0.02	50	0.03	Existing	320	1	1,500	10	0.01	20	0.01	
2035 No Project	19,500	1	1,500	580	0.39	1,440	0.96	2035 No Project	26,200	1	1,500	1,520	1.01	1,200	0.80	
2035 With Project	19,700	1	1,500	590	0.39	1,450	0.97	2035 With Project	26,400	1	1,500	1,530	1.02	1,210	0.81	
Project Traffic & V/C	200			10	0.00	10	0.01	Project Traffic & V/C	200			10	0.01	10	0.01	
Frazier NB Off-Ramp								Frazier SB On-Ramp								
Existing	3,350	1	1,500	130	0.09	220	0.15	Existing	4,200	1	1,500	160	0.11	280	0.19	
2035 No Project	6,300	1	1,500	300	0.20	390	0.26	2035 No Project	6,700	1	1,500	270	0.18	430	0.29	
2035 With Project	5,300	1	1,500	260	0.17	240	0.16	2035 With Project	5,500	1	1,500	140	0.09	360	0.24	
Project Traffic & V/C	(1,000)			(40)	(0.03)	(150)	(0.10)	Project Traffic & V/C	(1,200)			(130)	(0.09)	(70)	(0.05)	
Gorman Rd NB Off-Ramp								Gorman Rd SB On-Ramp								
Existing	2,900	1	1,500	110	0.07	190	0.13	Existing	1,250	1	1,500	50	0.03	80	0.05	
2035 No Project	3,100	1	1,500	120	0.08	200	0.13	2035 No Project	1,400	1	1,500	60	0.04	90	0.06	
2035 With Project	5,800	1	1,500	170	0.11	680	0.45	2035 With Project	3,800	1	1,500	510	0.34	180	0.12	
Project Traffic & V/C	2,700			50	0.03	480	0.32	Project Traffic & V/C	2,400			450	0.30	90	0.06	

**TABLE 5.10-27  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY –CUMULATIVE (2035 AND 2040) CONDITIONS**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
WB SR-138 NB On-Ramp								EB SR-138 SB Off-Ramp								
Existing	1,650	2*	1,500	60	0.04	110	0.07	Existing	1,350	2*	1,500	50	0.03	90	0.06	
2035 No Project	14,500	2*	1,500	1,130	0.75	1,340	0.89	2035 No Project	11,700	2*	1,500	990	0.66	890	0.59	
2035 With Project	15,400	2*	1,500	1,060	0.71	1,380	0.92	2035 With Project	14,600	2*	1,500	1,200	0.80	1,080	0.72	
Project Traffic & V/C	900			(70)	(0.04)	40	0.03	Project Traffic & V/C	2,900			210	0.14	190	0.13	
EB SR-138 NB Off-Ramp								WB SR-138 SB On-Ramp								
Existing	750	2*	1,500	30	0.02	50	0.03	Existing	740	2*	1,500	30	0.02	50	0.03	
2035 No Project	7,100	2*	1,500	300	0.20	960	0.64	2035 No Project	6,600	2*	1,500	780	0.52	490	0.33	
2035 With Project	15,100	2*	1,500	480	0.32	1,570	<b>1.05</b>	2035 With Project	16,700	2*	1,500	2,110	<b>1.41</b>	860	0.57	Yes
Project Traffic & V/C	8,000			180	0.12	610	0.41	Project Traffic & V/C	10,100			1,330	0.89	370	0.25	
Templin Hwy NB On-Ramp								Templin Hwy SB Off-Ramp								
Existing	140	1	1,500	10	0.01	10	0.01	Existing	140	1	1,500	10	0.01	10	0.01	
2035 No Project	200	1	1,500	20	0.01	10	0.01	2035 No Project	200	1	1,500	20	0.01	20	0.01	
2035 With Project	300	1	1,500	20	0.01	10	0.01	2035 With Project	200	1	1,500	20	0.01	20	0.01	
Project Traffic & V/C	100			0	0.00	0	0.00	Project Traffic & V/C	0			0	0.00	0	0.00	
Lake Hughes Rd NB On-Ramp								Lake Hughes Rd SB Off-Ramp								
Existing	6,700	1	1,500	250	0.17	440	0.29	Existing	3,850	1	1,500	150	0.10	250	0.17	
2035 No Project	7,000	1	1,500	280	0.19	470	0.31	2035 No Project	4,200	1	1,500	180	0.12	280	0.19	
2035 With Project	7,300	1	1,500	280	0.19	510	0.34	2035 With Project	4,400	1	1,500	230	0.15	280	0.19	
Project Traffic & V/C	300			0	0.00	40	0.03	Project Traffic & V/C	200			50	0.03	0	0.00	

**TABLE 5.10-27  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY –CUMULATIVE (2035 AND 2040) CONDITIONS**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
Hasley Cyn Rd NB On-Ramp								Hasley Cyn Rd SB-Off Ramp								
Existing	870	1	1,500	40	0.03	50	0.03	Existing	1,250	1	1,500	60	0.04	80	0.05	
2035 No Project	4,800	1	1,500	490	0.33	390	0.26	2035 No Project	4,200	1	1,500	270	0.18	510	0.34	
2035 With Project	6,100	1	1,500	420	0.28	650	0.43	2035 With Project	4,800	1	1,500	400	0.27	490	0.33	
Project Traffic & V/C	1,300			(70)	(0.05)	260	0.17	Project Traffic & V/C	600			130	0.09	(20)	(0.01)	
WB SR-126 NB On-Ramp								WB SR-126 SB Off-Ramp								
Existing	5,100	1	1,500	240	0.16	310	0.21	Existing	7,700	1	1,500	350	0.23	470	0.31	
2035 No Project	7,300	1	1,500	360	0.24	630	0.42	2035 No Project	9,100	1	1,500	550	0.37	480	0.32	
2035 With Project	7,900	1	1,500	300	0.20	800	0.53	2035 With Project	9,900	1	1,500	660	0.44	480	0.32	
Project Traffic & V/C	600			(60)	(0.04)	170	0.11	Project Traffic & V/C	800			110	0.07	0	0.00	
(not applicable)								Rye Canyon Rd SB Off-Ramp								
								Existing	1,650	1	1,500	80	0.05	100	0.07	
								2035 No Project	4,500	1	1,500	200	0.13	440	0.29	
								2035 With Project	5,100	1	1,500	360	0.24	410	0.27	
								Project Traffic & V/C	600				0.11		(0.02)	
Magic Mountain Pkwy NB On-Ramp								Magic Mountain Pkwy SB Off-Ramp								
Existing	4,500	2	2,250	210	0.09	280	0.12	Existing	3,950	2	2,250	180	0.08	240	0.11	
2035 No Project	5,300	2	2,250	260	0.12	200	0.09	2035 No Project	5,300	2	2,250	280	0.12	240	0.11	
2035 With Project	6,000	2	2,250	270	0.12	290	0.13	2035 With Project	6,000	2	2,250	370	0.16	270	0.12	
Project Traffic & V/C	700			10	0.00	90	0.04	Project Traffic & V/C	700			90	0.04	30	0.01	

**TABLE 5.10-27  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY –CUMULATIVE (2035 AND 2040) CONDITIONS**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
Valencia Blvd NB On-Ramp								Valencia Blvd SB Off-Ramp								
Existing	2,150	2	2,250	100	0.04	130	0.06	Existing	2,850	2	2,250	130	0.06	170	0.08	
2035 No Project	2,300	2	2,250	110	0.05	160	0.07	2035 No Project	3,500	2	2,250	220	0.10	210	0.09	
2035 With Project	2,500	2	2,250	110	0.05	190	0.08	2035 With Project	3,700	2	2,250	240	0.11	240	0.11	
Project Traffic & V/C	200			0	0.00	30	0.01	Project Traffic & V/C	200			20	0.01	30	0.02	
McBean Pkwy NB On-Ramp								McBean Pkwy SB Off-Ramp								
Existing	2,550	1	1,500	70	0.05	90	0.06	Existing	3,500	1	1,500	150	0.10	190	0.13	
2035 No Project	2,700	1	1,500	160	0.11	200	0.13	2035 No Project	5,400	1	1,500	350	0.23	370	0.25	
2035 With Project	3,100	1	1,500	140	0.09	270	0.18	2035 With Project	5,600	1	1,500	420	0.28	350	0.23	
Project Traffic & V/C	400			(20)	(0.02)	70	0.05	Project Traffic & V/C	200			70	0.05	(20)	(0.02)	
Lyons Ave NB On-Ramp								Lyons Ave SB Off-Ramp								
Existing	9,400	1	1,500	430	0.29	580	0.39	Existing	4,400	1	1,500	200	0.13	270	0.18	
2035 No Project	9,600	1	1,500	450	0.30	590	0.39	2035 No Project	4,600	1	1,500	150	0.10	340	0.23	
2035 With Project	9,600	1	1500	450	0.30	580	0.39	2035 With Project	4,800	1	1500	190	0.13	360	0.24	
Project Traffic & V/C	0			0	0.00	(10)	0.00	Project Traffic & V/C	200			40	0.03	20	0.01	
Calgrove Blvd NB On-Ramp								Calgrove Blvd SB Off-Ramp								
Existing	2,650	1	1,500	120	0.08	160	0.11	Existing	2,100	1	1,500	100	0.07	130	0.09	
2035 No Project	16,100	1	1,500	670	0.45	1,000	0.67	2035 No Project	8,500	1	1,500	470	0.31	410	0.27	
2035 With Project	16,100	1	1500	670	0.45	1,000	0.67	2035 With Project	8,600	1	1500	480	0.32	410	0.27	
Project Traffic & V/C	0			0	0.00	0	0.00	Project Traffic & V/C	100			10	0.01	0	0.00	

**TABLE 5.10-27  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY –CUMULATIVE (2035 AND 2040) CONDITIONS**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
NB On-Ramp from SB SR-14								SB Off-Ramp to NB SR-14								
Existing	5,200	1	2,000	240	0.12	320	0.16	Existing	5,900	1	2,000	270	0.14	360	0.18	
2035 No Project	8,300	1	2,000	340	0.17	550	0.28	2035 No Project	8,300	1	2,000	520	0.26	370	0.19	
2035 With Project	8,400	1	2,000	340	0.17	560	0.28	2035 With Project	8,400	1	2,000	530	0.27	370	0.19	
Project Traffic & V/C	100			0	0.00	10	0.00	Project Traffic & V/C	100			10	0.01	0	0.00	
WB SR-210 NB On-Ramp								EB SR-210 SB Off-Ramp								
Existing	28,472	2	4,000	1,910	0.48	1,930	0.48	Existing	30,274	2	4,000	2,030	0.51	2,060	0.52	
2035 No Project	32,500	2	4,000	2,240	0.56	2,150	0.54	2035 No Project	35,400	2	4,000	2,370	0.59	2,410	0.60	
2035 With Project	33,400	2	4,000	2,240	0.56	2,260	0.57	2035 With Project	35,500	2	4,000	2,380	0.60	2,410	0.60	
Project Traffic & V/C	900			0	0.00	110	0.03	Project Traffic & V/C	100			10	0.01	0	0.00	
Roxford St NB On-Ramp								Roxford St SB Off-Ramp								
Existing	4,050	1	1,500	270	0.18	270	0.18	Existing	3,000	1	1,500	200	0.13	200	0.13	
2035 No Project	4,600	1	1,500	310	0.21	300	0.20	2035 No Project	3,500	1	1,500	230	0.15	230	0.15	
2035 With Project	4,700	1	1,500	310	0.21	310	0.21	2035 With Project	3,500	1	1,500	230	0.15	230	0.15	
Project Traffic & V/C	100			0	0.00	10	0.01	Project Traffic & V/C	0			0	0.00	0	0.00	
I-405 NB On-Ramp								I-405 SB Off-Ramp								
Existing	62,000	3	6,000	4,150	0.69	4,210	0.70	Existing	65,000	3	6,000	4,360	0.73	4,410	0.74	
2035 No Project	70,700	3	6,000	4,710	0.79	4,710	0.79	2035 No Project	74,600	3	6,000	4,940	0.82	5,000	0.83	
2035 With Project	71,200	3	6,000	4,710	0.79	4,780	0.80	2035 With Project	74,600	3	6,000	4,940	0.82	5,000	0.83	
Project Traffic & V/C	500			0	0.00	70	0.01	Project Traffic & V/C	0			0	0.00	0	0.00	



**TABLE 5.10-27  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY –CUMULATIVE (2035 AND 2040) CONDITIONS**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
<b>SR-14</b>																
Rosamond Blvd NB Off-Ramp								WB Rosamond Blvd SB On-Ramp								
Existing	6,750	1	1,500	460	0.31	640	0.43	Existing	3,622	1	1,500	250	0.17	340	0.23	
2035 No Project	7,900	1	1,500	480	0.32	780	0.52	2035 No Project	3,700	1	1,500	300	0.20	320	0.21	
2035 With Project	9,400	1	1,500	610	0.41	880	0.59	2035 With Project	4,600	1	1,500	340	0.23	400	0.27	
Project Traffic & V/C	1,500			130	0.09	100	0.07	Project Traffic & V/C	900			40	0.03	80	0.06	
(not applicable)								EB Rosamond SB On-Ramp								
								Existing	3,211	1	1,500	220	0.15	300	0.20	
								2035 No Project	3,300	1	1,500	260	0.17	280	0.19	
								2035 With Project	4,100	1	1,500	300	0.20	350	0.23	
								Project Traffic & V/C	800			40	0.03	70	0.04	
Jct SR-138/ Ave D NB Off-Ramp								Jct SR-138/ Ave D SB On-Ramp								
Existing	1,600	1	1,500	110	0.07	130	0.09	Existing	1,540	1	1,500	110	0.07	130	0.09	
2035 No Project	21,600	1	1,500	1,830	1.22	1,840	1.23	2035 No Project	19,400	1	1,500	1,630	1.09	1,800	1.20	
2035 With Project	23,300	1	1,500	1,670	1.11	2,130	<b>1.42</b>	2035 With Project	20,900	1	1,500	1,980	<b>1.32</b>	1,850	<b>1.23</b>	Yes
Project Traffic & V/C	1,700			(160)	(0.11)	290	0.19	Project Traffic & V/C	1,500			350	0.23	50	0.03	
WB Jct SR-138/Ave D NB On-Ramp								(not applicable)								
Existing	250	1	1,500	20	0.01	20	0.01									
2035 No Project	1,100	1	1,500	70	0.05	110	0.07									
2035 With Project	4,000	1	1,500	80	0.05	80	0.05									
Project Traffic & V/C	2,900			10	0.00	(30)	(0.02)									

**TABLE 5.10-27  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY –CUMULATIVE (2035 AND 2040) CONDITIONS**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
<b>SR-14</b>																
EB Jct SR-138/Ave D NB On-Ramp								Jct SR-138/Ave D SB Off-Ramp								
Existing	340	1	1,500	20	0.01	30	0.02	Existing	510	1	1,500	40	0.03	40	0.03	
2035 No Project	1,000	1	1,500	80	0.05	130	0.09	2035 No Project	1,800	1	1,500	180	0.12	200	0.13	
2035 With Project	1,000	1	1,500	170	0.11	390	0.26	2035 With Project	6,000	1	1,500	540	0.36	370	0.25	
Project Traffic & V/C	0			90	0.06	260	0.17	Project Traffic & V/C	4,200			360	0.24	170	0.12	
WB Ave H NB On-Ramp								Ave H SB Off-Ramp								
Existing	1,600	1	1,500	110	0.07	130	0.09	Existing	1,900	1	1,500	130	0.09	160	0.11	
2035 No Project	4,100	1	1,500	380	0.25	260	0.17	2035 No Project	3,200	1	1,500	160	0.11	330	0.22	
2035 With Project	3,900	1	1,500	350	0.23	210	0.14	2035 With Project	3,000	1	1,500	130	0.09	310	0.21	
Project Traffic & V/C	(200)			(30)	(0.02)	(50)	(0.03)	Project Traffic & V/C	(200)			(30)	(0.02)	(20)	(0.01)	
EB Ave H NB On-Ramp								(not applicable)								
Existing	300	1	1,500	20	0.01	20	0.01									
2035 No Project	500	1	1,500	20	0.01	20	0.01									
2035 With Project	500	1	1,500	20	0.01	20	0.01									
Project Traffic & V/C	0				0.00		0.01									
Ave I NB On-Ramp								Ave I SB Off-Ramp								
Existing	3,500	1	1,500	240	0.16	290	0.19	Existing	2,700	1	1,500	190	0.13	220	0.15	
2035 No Project	4,000	1	1,500	230	0.15	260	0.17	2035 No Project	4,600	1	1,500	550	0.37	220	0.15	
2035 With Project	3,900	1	1,500	230	0.15	260	0.17	2035 With Project	4,500	1	1,500	1,110	0.74	250	0.17	
Project Traffic & V/C	(100)			0	0.00	0	0.00	Project Traffic & V/C	(100)			560	0.37	30	0.02	

**TABLE 5.10-27  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY –CUMULATIVE (2035 AND 2040) CONDITIONS**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
Ave J NB On-Ramp								Ave J SB Off-Ramp								
Existing	2,700	1	1,500	190	0.13	220	0.15	Existing	3,200	1	1,500	220	0.15	270	0.18	
2035 No Project	3,600	1	1,500	300	0.20	300	0.20	2035 No Project	5,100	1	1,500	580	0.39	270	0.18	
2035 With Project	3,600	1	1,500	310	0.21	290	0.19	2035 With Project	5,000	1	1,500	540	0.36	300	0.20	
Difference	0			10	0.01	(10)	(0.01)	Project Traffic & V/C	(100)			(40)	(0.03)	30	0.02	
EB Ave K NB On-Ramp								Ave K SB Off-Ramp								
Existing	1,350	1	1,500	90	0.06	110	0.07	Existing	3,250	1	1,500	230	0.15	270	0.18	
2035 No Project	1,200	1	1,500	80	0.05	100	0.07	2035 No Project	6,500	1	1,500	510	0.34	540	0.36	
2035 With Project	1,200	1	1,500	80	0.05	90	0.06	2035 With Project	6,400	1	1,500	510	0.34	540	0.36	
Project Traffic & V/C	0			0	0.00	(10)	(0.01)	Project Traffic & V/C	(100)			0	0.00	0	0.00	
WB Ave K NB On-Ramp								(not applicable)								
Existing	2,850	1	1,500	200	0.13	240	0.16									
2035 No Project	6,400	1	1,500	460	0.31	540	0.36									
2035 With Project	6,400	1	1,500	460	0.31	540	0.36									
Project Traffic & V/C	0			0	0.00	0	0.00									
<b>SR-14</b>																
EB Ave L NB On-Ramp								Ave L SB Off-Ramp								
Existing	1,050	1	1,500	70	0.05	90	0.06	Existing	3,950	1	1,500	280	0.19	330	0.22	
2035 No Project	2,000	1	1,500	150	0.10	150	0.10	2035 No Project	6,400	1	1,500	470	0.31	470	0.31	
2035 With Project	2,000	1	1,500	150	0.10	140	0.09	2035 With Project	6,300	1	1,500	470	0.31	510	0.34	
Project Traffic & V/C	0			0	0.00	(10)	(0.01)	Project Traffic & V/C	(100)			0	0.00	40	0.03	

**TABLE 5.10-27  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY – CUMULATIVE (2035 AND 2040) CONDITIONS**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
WB Ave L NB On-Ramp								(not applicable)								
Existing	3,450	1	1,500	240	0.16	290	0.19									
2035 No Project	5,400	1	1,500	370	0.25	370	0.25									
2035 With Project	5,400	1	1,500	380	0.25	420	0.28									
Project Traffic & V/C	0			10	0.00	50	0.03									
EB Jct SR-138/Palmdale Blvd NB On-Ramp								Jct SR-138/Palmdale Blvd SB Off-Ramp								
Existing	2,450	1	1,500	170	0.11	200	0.13	Existing	9,400	1	1,500	660	0.44	780	0.52	
2035 No Project	3,200	1	1,500	210	0.14	220	0.15	2035 No Project	10,800	1	1,500	750	0.50	830	0.55	
2035 With Project	3,200	1	1,500	220	0.15	300	0.20	2035 With Project	10,800	1	1,500	760	0.51	830	0.55	
Project Traffic & V/C	0			10	0.01	80	0.05	Project Traffic & V/C	0			10	0.01	0	0.00	
WB Jct SR-138/Palmdale Blvd NB On-Ramp								(not applicable)								
Existing	7,500	1	1,500	520	0.35	620	0.41									
2035 No Project	8,900	1	1,500	540	0.36	750	0.50									
2035 With Project	9,000	1	1,500	540	0.36	750	0.50									
Project Traffic & V/C	100			0	0.00	0	0.00									
Golden Valley Rd NB Off-Ramp								Golden Valley Rd SB On-Ramp								
Existing	5,500	1	1,500	400	0.27	430	0.29	Existing	5,000	1	1,500	360	0.24	390	0.26	
2035 No Project	5,300	1	1,500	390	0.26	420	0.28	2035 No Project	5,500	1	1,500	890	0.59	390	0.26	
2035 With Project	5,300	1	1,500	410	0.27	390	0.26	2035 With Project	5,200	1	1,500	870	0.58	370	0.25	
Project Traffic & V/C	0			20	0.01	(30)	(0.02)	Project Traffic & V/C	(300)			(20)	(0.01)	(20)	(0.01)	

**TABLE 5.10-27  
RAMP PEAK HOUR VOLUMES AND V/C SUMMARY –CUMULATIVE (2035 AND 2040) CONDITIONS**

NORTHBOUND/EASTBOUND								SOUTHBOUND/WESTBOUND								Project Impact?
LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		LOCATION	ADT	Lanes	Cap	AM Peak Hour		PM Peak Hour		
				Vol	V/C	Vol	V/C					Vol	V/C	Vol	V/C	
San Fernando Rd NB Off-Ramp								San Fernando Rd SB On-Ramp								
Existing	10,200	1	1,500	740	0.49	800	0.53	Existing	11,500	1	1,500	840	0.56	900	0.60	
2035 No Project	9,100	1	1500	750	0.50	1,290	0.86	2035 No Project	8,500	1	1500	870	0.58	620	0.41	
2035 With Project	8,900	1	1,500	750	0.50	1,270	0.85	2035 With Project	8,200	1	1,500	870	0.58	610	0.41	
Project Traffic & V/C	(200)			0	0.00	(20)	(0.01)	Project Traffic & V/C	(300)			0	0.00	(10)	0.00	

V/C: volume-to-capacity ratio; ADT: average daily trips; Cap: capacity; Vol: volume; I: Interstate; SR: State Route; NB: northbound; SB: southbound; WB: westbound; EB: eastbound; Jct: junction  
 \* Connector ramps with no auxiliary lane at freeway mainline  
 See Table 5.10-11 for ramp performance criteria (Table 1-5 of Traffic Study).  
**Boldface type** denotes an intersection that exceeds performance threshold.  
 Source: Stantec 2017 (Table 4-7).

All affected freeway ramps would operate within acceptable performance criteria under cumulative with Project conditions with the following improvements (see Table 4-17 of the Traffic Study [Appendix 5.10-A]):

- **WB SR-138 to SB I-5 Connector:** add two auxiliary lanes to the I-5 mainline connector ramp;
- **NB I-5 Off Ramp to SR-138:** add two auxiliary lanes to the I-5 mainline before the northbound I-5 to eastbound SR-138 connector ramp;
- **NB SR-14 Off Ramp to SR-138:** add one mainline auxiliary lane and a second off-ramp lane for the SR-14 northbound off ramp to SR-138; and
- **SB SR-14 On Ramp from SR-138:** add a second lane on the SR-14 southbound on-ramp from SR-138.

MM 10-3 and MM 10-4 require the Project Applicant to seek to enter into a CTIP and transportation mitigation fee program that would fully mitigate for all impacts to freeway ramps under cumulative plus Project conditions or to contribute fair share funding for the required improvements. MM 10-32 requires fair share funding for the addition of two auxiliary lanes at the connector ramp from westbound SR-138 to southbound I-5; MM 10-33 requires the addition of two auxiliary lanes at the connector ramp mainline before the northbound I-5 to eastbound SR-138 connector ramp; MM 10-31 requires the construction of one auxiliary lane and a second off-ramp lane for the SR 14 northbound off ramp to SR-138; and MM 10-35 requires the construction of a second lane on the SR-14 southbound on-ramp from SR-138. Compliance with these mitigation measures and the fair share contributions towards the improvements described above would reduce potential cumulative plus Project impacts to freeway ramps to less than significant levels (see Table 4-17 of the Traffic Study [Appendix 5.10-A]).

### ***Arterial Roadway Intersections***

An ICU analysis for long-range cumulative conditions was conducted for key intersections within the study area, including all intersections along SR-138, select intersections in Kern County (per the request of Caltrans and the County of Kern Department of Public Works) and ramp-arterial intersections in the Castaic area and Santa Clarita Valley (per the request of the Los Angeles County Department of Public Works) under cumulative plus Project conditions.

The ICU analysis for all intersections in the study area compared cumulative without Project to cumulative with Project impacts to identify Project-related impacts. The resulting ICU values and LOS for these locations are summarized in Table 5.10-28.

As requested by Los Angeles County, the ICU analysis of SR-138 intersections compared cumulative plus Project conditions with existing conditions to identify potential impacts. If implemented, the proposed Northwest 138 Corridor Improvement Project (discussed above) would reduce the number of access locations along the SR-138 corridor from existing levels to meet freeway and expressway standards. Certain existing intersections with SR-138 would be eliminated and access to SR-138 would be obtained by other means (such as by

way of parallel access roads connecting to the remaining intersections). To reflect the more limited access along SR-138 that would occur under future conditions, the cumulative analysis is based on the assumptions utilized by the County of Los Angeles in the AVAP EIR analysis. The results of the SR-138 ICU analysis under cumulative plus Project conditions are summarized in Table 5.10-29.

**TABLE 5.10-28  
ICU AND LOS SUMMARY – CUMULATIVE (2035) NO PROJECT AND WITH PROJECT COMPARISON**

Intersection	Jurisdiction	Intersection Control	Cumulative (2035) Without Project				Cumulative (2035) With Project				ICU Difference	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM	PM
1. Westerly Access & SR-138	LA County/Caltrans	NA	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>	0.98	E	1.20	F	NA	NA
2. Central Access & SR-138	LA County/Caltrans	NA	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>	1.11	F	1.22	F	NA	NA
3. 300 <sup>th</sup> St W & SR-138 <sup>2</sup>	LA County/Caltrans	North leg stop	1.25	F	1.21	F	0.98	E	1.04	F	(0.27)	(0.17)
4. 290 <sup>th</sup> St W & SR-138	LA County/Caltrans	No control	1.26	F	1.21	F	0.86	D	1.04	F	(0.40)	(0.17)
7. 245 <sup>th</sup> St W & SR-138	LA County/Caltrans	South leg stop	1.43	F	1.41	F	1.84	F	1.86	F	0.41	0.45
9. 190 <sup>th</sup> St W & SR-138	LA County/Caltrans	North/South legs stop	1.38	F	1.48	F	1.65	F	1.81	F	0.27	0.33
11 110 <sup>th</sup> St W & SR-138	LA County/Caltrans	North/South legs stop	1.31	F	1.44	F	1.68	F	1.83	F	0.37	0.39
13. 60 <sup>th</sup> St W & SR-138 <sup>2</sup>	LA County/Caltrans	North/South legs stop	1.68	F	2.09	F	2.03	F	2.46	F	0.35	0.37
15. SR-14 SB Ramps and SR-138	Caltrans	North leg stop	1.26	F	1.52	F	1.49	F	1.87	F	<b>0.23</b>	<b>0.35</b>
16. SR-14 NB Ramps and SR-138	Caltrans	South leg stop	1.31	F	1.69	F	1.24	F	1.90	F	(0.07)	<b>0.21</b>
17. 90 <sup>th</sup> St W/Willow Springs and Rosamond <sup>3</sup>	Kern County	4-way stop	0.25	A	0.33	A	0.27	A	0.42	A	0.02	0.09
18. Willow Springs and Oak Creek <sup>3</sup>	Kern County	East leg stop	0.30	A	0.35	A	0.32	A	0.38	A	0.02	0.03
19. Willow Springs and Highline	Kern County	West leg stop	0.33	A	0.49	A	0.35	A	0.54	A	0.02	0.05
20. Bear Mountain Blvd/SR-223 and Wheeler Ridge Rd	Kern County/Caltrans	4-way stop	0.51	A	0.84	D	0.53	A	0.87	D	0.02	0.03
21. The Old Road and I-5 SB Ramps	LA County/Caltrans	4-way stop	0.82	D	0.65	B	0.82	D	0.66	B	0.00	0.01



**TABLE 5.10-28  
ICU AND LOS SUMMARY – CUMULATIVE (2035) NO PROJECT AND WITH PROJECT COMPARISON**

Intersection	Jurisdiction	Intersection Control	Cumulative (2035) Without Project				Cumulative (2035) With Project				ICU Difference	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM	PM
22. I-5 NB Ramps and Lake Hughes	LA County/ Caltrans	South leg stop	0.63	B	0.74	C	0.69	B	0.81	D	0.06	<b>0.07</b>
23. I-5 SB On Ramp and Parker	LA County/ Caltrans	No control	1.17	F	1.23	F	1.17	F	1.23	F	0.00	0.00
24. I-5 NB Off Ramp and Parker	LA County/ Caltrans	South leg stop	1.17	F	1.54	F	1.17	F	1.54	F	0.00	0.00
25. I-5 NB Ramps and Hasley Canyon	LA County/ Caltrans	Roundabout	12.2*	B	12.3*	B	12.2*	B	13.4*	B	0.0	1.1
26. I-5 SB Ramps and Sedona/Old Road	LA County/ Caltrans	Signal	0.97	E	0.70	B	1.03	F	0.71	C	<b>0.06</b>	0.01
27. The Old Road and Hasley Canyon	LA County	Roundabout	11.1*	B	8.0*	A	11.1*	B	8.0*	A	0.0	0.0
28. I-5 NB Ramps and SR-126	Caltrans	Signal	0.73	C	0.90	D	0.73	C	0.90	D	0.00	0.00
29. I-5 SB Ramps and SR-126	Caltrans	Signal	1.00	E	0.64	B	1.00	E	0.67	B	0.00	0.03
30. The Old Road and I-5 SB Ramps	LA County/ Caltrans	Signal	0.67	B	1.54	F	0.74	C	1.54	F	0.07	0.00
31. I-5 SB Ramps and Magic Mountain	LA County/ Caltrans	Signal	0.82	D	0.59	A	0.88	D	0.63	B	<b>0.06</b>	0.04
32. I-5 NB Ramps and Magic Mountain	City of Santa Clarita/ Caltrans	Signal	0.82	D	0.68	B	0.85	D	0.71	C	<b>0.03</b>	0.03
33. I-5 SB Ramps and Valencia	LA County/ Caltrans	Signal	0.88	D	1.04	F	0.91	E	1.06	F	<b>0.03</b>	<b>0.02</b>
34. I-5 NB Ramps and Valencia	City of Santa Clarita/ Caltrans	Signal	0.80	C	.77	C	0.82	D	0.78	C	<b>0.02</b>	0.01
35. I-5 SB Ramps and McBean	LA County/ Caltrans	Signal	0.62	B	0.79	C	0.70	B	0.81	D	0.08	<b>0.02</b>

**TABLE 5.10-28  
ICU AND LOS SUMMARY – CUMULATIVE (2035) NO PROJECT AND WITH PROJECT COMPARISON**

Intersection	Jurisdiction	Intersection Control	Cumulative (2035) Without Project				Cumulative (2035) With Project				ICU Difference	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM	PM
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS		
36. I-5 NB Ramps and McBean	City of Santa Clarita/ Caltrans	Signal	0.44	A	0.60	A	0.46	A	0.62	B	0.02	0.02
37. I-5 SB/Marriott and Pico/Lyons	LA County/ Caltrans	Signal	0.65	B	0.71	C	0.66	B	0.71	C	0.01	0.00
38. I-5 NB On/Off and Lyons Ave	City of Santa Clarita/ Caltrans	Signal	0.51	A	0.78	C	0.51	A	0.78	C	0.00	0.00
39. I-5 SB Ramps and Calgrove	City of Santa Clarita/ Caltrans	North leg stop	0.79	C	1.07	F	0.80	C	1.08	F	0.01	<b>0.01</b>
40. I-5 NB Ramps and Calgrove	City of Santa Clarita/ Caltrans	South leg stop	0.69	A	0.81	D	0.69	B	0.84	D	0.00	<b>0.03</b>

ICU: intersection capacity utilization; LOS: level of service; SR: State Route; SB: southbound Caltrans: California Department of Transportation; NB: northbound; I: Interstate

**Boldface type** denotes significant impact.

Performance Criteria is outlined in Table 5.10-12 (Table 1-6 of Traffic Study).

\* This location is a roundabout; therefore the LOS shown is based on average delay (sec/veh)

<sup>1</sup> not an existing intersection  
<sup>2</sup> denotes Los Angeles CMP route and cross street  
<sup>3</sup> denotes Kern County CMP principal arterial

Note: See Table 5.10-29 for SR-138 intersections cumulative analysis comparison using LA County's methodology.-  
Intersections 5, 6, 8, 10, 12, 14 have limited or no access to the SR-138 consistent with assumptions used for the AVAP EIR.

Source: Stantec 2017 (Table 4-8).

**TABLE 5.10-29  
ICU AND LOS SUMMARY – EXISTING (2014 & 2015) CONDITIONS AND CUMULATIVE (2035) WITH PROJECT  
COMPARISON (LOS ANGELES COUNTY SR-138 INTERSECTIONS)**

Intersection	Jurisdiction	Control	Existing (2014 & 2015) Conditions				Cumulative (2035) With Project				ICU Difference	
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
			ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM	PM
1. Westerly Access & SR-138	LA County/ Caltrans	NA	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>	0.98	E	1.20	F	NA <sup>1</sup>	NA <sup>1</sup>
2. Central Access & SR-138	LA County/ Caltrans	NA	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>	NA <sup>1</sup>	1.11	F	1.22	F	NA <sup>1</sup>	NA <sup>1</sup>
3. 300 <sup>th</sup> St W & SR-138 <sup>2</sup>	LA County/ Caltrans	North leg stop	0.17	A	0.20	A	0.98	D	1.04	F	<b>0.81</b>	<b>0.84</b>
4. 290 <sup>th</sup> St W & SR-138	LA County/ Caltrans	No control	0.18	A	0.20	A	0.86	D	1.04	F	<b>0.68</b>	<b>0.84</b>
7. 245 <sup>th</sup> St W & SR-138	LA County/ Caltrans	South leg stop	0.17	A	0.19	A	1.84	F	1.86	F	<b>1.67</b>	<b>1.67</b>
9. 190 <sup>th</sup> St W & SR-138	LA County/ Caltrans	North/South leg stop	0.17	A	0.19	A	1.65	F	1.81	F	<b>1.48</b>	<b>1.62</b>
11. 110 <sup>th</sup> St W & SR-138	LA County/ Caltrans	North/South leg stop	0.17	A	0.21	A	1.68	F	1.83	F	<b>1.51</b>	<b>1.62</b>
13. 60 <sup>th</sup> St W & SR-138 <sup>2</sup>	LA County/ Caltrans	North/South leg stop	0.22	A	0.25	A	2.03	F	2.46	F	<b>1.81</b>	<b>2.21</b>

<sup>1</sup> not an existing intersection  
<sup>2</sup> denotes Los Angeles CMP route and cross street  
Note: The SR-138 freeway/expressway configuration results in a reduced number of access locations to the SR-138 due to expressway intersection spacing requirements.  
**Boldface type** – denotes significant impact.  
Performance Criteria is outlined in Table 5.10-12 (Table 1-6 of Traffic Study).  
Source: Stantec 2017 (Table 4-9).

The LOS summary in Table 5.10-29 shows that the following intersections along SR-138 would be impacted under cumulative plus Project conditions compared with existing conditions (see Table 4-9 of the Traffic Study [Appendix 5.10-A]):

1. Westerly Access and SR-138
2. Central Access and SR-138
3. 300th St W and SR-138
4. 290th St W and SR-138
7. 245th St W and SR-138
9. 190th St W and SR-138
11. 110th St W and SR-138
13. 60th St W and SR-138

Certain of these intersections will be constructed to serve the Project (the Westerly Access and SR-138 and Central Access and SR-138 intersections) and others will be improved in conjunction with the planned and required improvements to SR-138. With these improvements, which would be supported by Project fair share contributions under the CTIP (MM 10-3), traffic mitigation fee program (MM 10-4), and/or fair share contributions as required by MM 10-3 and MMs 10-6 through 10-25, MM 10-27, and MMs 10-32 through 10-35, SR-138 intersections would operate at acceptable levels under cumulative with Project conditions (see Table 4-15 of the Traffic Study [Appendix 5.10-A]).

The LOS summary in Table 5.10-28 intersections shows that the following 11 intersections would be impacted under cumulative plus Project conditions:

15. SR-14 SB Ramps and SR-138
16. SR-14 NB Ramps and SR-138
22. I-5 NB Ramps and Lake Hughes
26. I-5 SB Ramps and Sedona/Old Road
31. I-5 SB Ramps and Magic Mountain
32. I-5 NB Ramps and Magic Mountain
33. I-5 SB Ramps and Valencia
34. I-5 NB Ramps and Valencia
35. I-5 SB Ramps and McBean
39. I-5 SB Ramps and Calgrove
40. I-5 NB Ramps and Calgrove

Mitigation measures that would reduce impacts to the 11 affected intersections to less than significant levels include the following:

- 15. SR-14 SB Ramps and SR-138** Reconfigure interchange to include two eastbound through lanes and three westbound through lanes. In the southbound direction, add a second right-turn lane. Also, install traffic signal and include right-turn overlap phasing. Or contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-36 and Traffic Study MM-31)
- 16. SR-14 NB Ramps and SR-138** Reconfigure interchange to include two eastbound through lanes and two westbound through lanes. In the northbound direction, add two left-turn lanes. Also, install traffic signal. Or contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-37 and Traffic Study MM-32)
- 22. I-5 NB Ramps and Lake Hughes** Add one lane to the northbound off-ramp and restripe the configuration to include one left-turn, one shared left/right-turn lane, and one dedicated right-turn lane. (MM 10-38 and Traffic Study MM-33)
- 26. I-5 SB Ramps and Sedona/The Old Road** Add a second southbound left-turn lane. (MM 10-22 and Traffic Study MM-34)
- 31. I-5 SB Ramps and Magic Mountain** Restripe the southbound off-ramp to provide two left-turn lanes, one shared left-turn/through lane, and one right-turn lane. (MM 10-39 and Traffic Study MM-35)
- 32. I-5 NB Ramps and Magic Mountain** Convert the shared through/right-turn lane to a shared left-/through/right-turn lane. (MM 10-40 and Traffic Study MM-36)
- 33. I-5 SB Ramps and Valencia** Stripe a third westbound through lane. (MM 10-41 and Traffic Study MM-37)

- |                                      |   |
|--------------------------------------|---|
| 34. <b>I-5 NB Ramps and Valencia</b> | Traffic signal modification to add a northbound right-turn overlap phase. (MM 10-42 and Traffic Study MM-38)  |
| 35. <b>I-5 SB Ramps and McBean</b>   | Restripe the dedicated westbound right-turn lane to a shared through/right-turn lane. (MM 10-43 and Traffic Study MM-39)                                    |
| 39. <b>I-5 SB Ramps and Calgrove</b> | Add second eastbound through lane and a de-facto right-turn lane. In the westbound direction, add a second through lane. (MM 10-44 and Traffic Study MM-40) |
| 40. <b>I-5 NB Ramps and Calgrove</b> | Restripe to add a westbound de-facto right-turn lane. (MM 10-45 and Traffic Study MM-41)  |

As shown in Table 5.10-31, construction of the improvements for the 11 intersections would reduce impacts to less than significant levels. MM 10-3, 10-4 and MMs 10-36 through 10-45 require that the Project provide fair share funding for all of the improvements required to mitigate potential intersection impacts under cumulative plus Project conditions.

The improvements to SR-138 and related intersections, and the improvements included in MMs 10-36 through 10-45 for other intersections, as shown in Table 5.10-29B, would ensure

that the Project would not cause significant intersection impacts under cumulative plus Project conditions.

**TABLE 5.10-30  
CUMULATIVE IMPACT SUMMARY FOR SR-138 WITH IMPROVEMENTS**

Intersection	Existing (2014 and 2015) Conditions				Cumulative (2035) With Project (SR-138 Expressway Improvements)				ICU Difference	
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM	PM
1a. Westerly Access and SR-138 WB Ramps*	N/A	N/A	N/A	N/A	0.76	C	0.70	B	N/A	N/A
1b. Westerly Access and SR-138 EB Ramps*					0.66	B	0.71	C	N/A	N/A
2a. Central Access and SR-138 WB Ramps*	N/A	N/A	N/A	N/A	0.74	C	0.76	C	N/A	N/A
2b. Central Access and SR-138 WB Ramps*					0.64	B	0.61	B	N/A	N/A
3a. 300 <sup>th</sup> St W and SR-138 WB Ramps	0.17	A	0.20	A	0.43	A	0.65	B	0.26	0.45
3b. 300 <sup>th</sup> St W and SR-138 EB Ramps					0.40	A	0.51	A	0.23	0.31
4a. 290 <sup>th</sup> St W and SR-138 WB Ramps	0.18	A	0.20	A	0.46	A	0.69	B	0.28	0.49
4b. 290 <sup>th</sup> St W and SR-138 EB Ramps					0.54	A	0.52	A	0.36	0.32
7a. 245 <sup>th</sup> St and SR-138 WB Ramps	0.17	A	0.19	A	0.44	A	0.45	A	0.27	0.26
7b. 245 <sup>th</sup> St and SR-138 EB Ramps					0.37	A	0.44	A	0.20	0.25
9a. 190 <sup>th</sup> St and SR-138 WB Ramps	0.17	A	0.19	A	0.32	A	0.33	A	0.15	0.14
9b. 190 <sup>th</sup> St and SR-138 EB Ramps					0.35	A	0.20	A	0.18	0.01
11a. 110 <sup>th</sup> St and SR-138 WB Ramps	0.17	A	0.21	A	0.30	A	0.20	A	0.13	(0.01)
11b. 110 <sup>th</sup> St and SR-138 EB Ramps					0.26	A	0.21	A	0.09	0.00
13a. 60 <sup>th</sup> St and SR-138 WB Ramps	0.22	A	0.25	A	0.54	A	0.64	B	0.32	0.39
13b. 60 <sup>th</sup> St and SR-138 EB Ramps					0.53	A	0.58	A	0.31	0.33
ICU: intersection capacity utilization; LOS: level of service; SR: State Route; WB: westbound; N/A: not applicable; EB: eastbound * not an existing intersection Note: The ICU and LOS shown under existing conditions represent the existing at-grade intersection configuration. The SR-138 Expressway improvements would replace the existing at-grade intersections with grade-separated interchanges consisting of two ramp-arterial intersections at each interchange. Source: Stantec 2017 (Table 4-15).										

**TABLE 5.10-31  
PROJECT IMPACT SUMMARY WITH MITIGATION**

Intersection	Cumulative (2035) With Project				Cumulative (2035) With Project + Mitigation				ICU Difference	
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour			
	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	AM	PM
15. SR-14 SB Ramps and SR-138	1.49	F	1.87	F	0.62	B	0.72	C	(0.87)	(1.15)
16. SR-14 NB Ramps and SR-138	1.31	F	1.69	F	0.56	A	0.84	D	(0.75)	(0.85)
22. I-5 NB Ramps and Lake Hughes	0.63	B	0.74	C	0.66	B	0.69	B	0.03	(0.05)
26. I-5 SB Ramps and Sedona/Old Road	0.97	E	0.70	B	0.88	D	0.63	B	(0.09)	(0.07)
31. I-5 SB Ramps and Magic Mountain	0.82	D	0.59	A	0.76	C	0.56	A	(0.06)	(0.03)
32. I-5 NB Ramps and Magic Mountain	0.82	D	0.68	B	0.74	C	0.71	C	(0.08)	0.03
33. I-5 SB Ramps and Valencia	0.88	D	1.04	F	0.73	C	0.80	C	(0.15)	(0.24)
34. I-5 NB Ramps and Valencia	0.80	C	0.77	C	0.80	C	0.78	C	0.00	0.01
35. I-5 SB Ramps and McBean	0.62	B	0.79	C	0.70	B	0.76	C	0.08	(0.03)
39. I-5 SB Ramps and Calgrove	0.79	C	1.07	F	0.62	B	0.70	B	(0.17)	(0.37)
40. I-5 NB Ramps and Calgrove	0.69	A	0.81	D	0.53	A	0.69	B	(0.16)	(0.12)

ICU: intersection capacity utilization; LOS: level of service; SR: State Route; SB: southbound; WB: westbound; I: Interstate  
Source: Stantec 2017 (Table 4-19)

## Off-Site Impacts

The proposed off-site wells and utility connections would cause essentially no increase in traffic. It is anticipated that one daily visit to each well location would be necessary for maintenance and monitoring purposes. This level of traffic would be nominal relative to the anticipated daily trips associated with the Project. The proposed off-site roadway improvements (e.g., deceleration lanes, acceleration lanes, turn pockets, and signalized traffic lights on SR-138) would be constructed within Caltrans rights-of-way to allow for safe ingress/egress to and from the site. These improvements would have beneficial impacts on traffic and are evaluated in the discussion of On-Site Impacts above. Aqueduct crossings, while off-site, would be part of the internal circulation system and are also evaluated in the discussion of On-Site Impacts above. Improvements to SR-138 and I-5 are subject to the environmental review process of Caltrans and are not part of the Project. Proposed off-site improvements would have no impact related to traffic congestion and no mitigation is required.



***Impact Summary:*** The on-site roadway network has been designed to accommodate projected traffic from proposed land uses. Impacts on the internal roadway system would be less than significant after mitigation. If improvements at Project access points on SR-138 are not constructed, impacts would be significant and unavoidable. Project buildout would result in significant traffic impacts on off-site roadways and freeways, including SR-138, I-5 mainline segments and interchange ramps, and arterial roadway intersections (see Table 5.10-30 below). Mitigation measures have been identified to reduce all significant Project impacts, as listed in Table 5.10-31, Mitigation Summary. In addition, MM 10-23 would protect the right-of-way needed to widen and realign SR-138.

Although mitigation measures identified for Caltrans facilities would reduce Project impacts, it is outside the control of the County of Los Angeles to implement these measures. The CTIP or the Project Applicant's fair share contribution requirements in MM 10-3 and MMs 10-6 through 10-28 and MMs 10-31 through 10-45 will provide funding for the planning, design, and construction of certain improvements. MM 10-4 requires the Project Applicant to work to establish a funding program to collect fair share contributions from other projects for the required improvements. Compliance with these mitigation measures would reduce traffic impacts to a less than significant level. Potential Project impacts would be significant and unavoidable, however, if the improvements are not constructed by Caltrans because the County (as the Lead Agency) lacks jurisdiction and control over State highway facilities and cannot mandate the construction of improvements to these facilities.

**TABLE 5.10-32  
PROJECT IMPACT SUMMARY**

<b>Location</b>	<b>Impacts</b>
SR-138	Based on the existing SR-138 facility, significant impacts would occur at the following segments:  SR-138 between I-5 and SR-14 (Existing Plus Project and Cumulative)  Intersections along SR-138 from westerly access of the Specific Plan area to SR-14 NB Ramps (Existing Plus Project and 2035 Cumulative)
I-5	Based on the existing I-5 facility, significant impacts would occur at the following segments:  Between Grapevine and Fort Tejon Road (Cumulative) Between SR-138 and Parker Road (Cumulative)
I-5/SR-138 Interchange	Based on the existing I-5/SR-138 Interchange, significant impacts would occur at the following connector ramps:  WB SR-138 to SB I-5 Connector (Existing Plus Project and Cumulative) NB I-5 Connector to EB SR-138 (Cumulative) NB SR-14 Off Ramp to SR-138 (Cumulative) SB SR-14 On Ramp from SR-138 (Cumulative)
Freeway Interchange Intersections	Based on existing lane configurations, significant impacts would occur at the following intersections:  SR-14 NB Ramps and SR-138 (Cumulative ) SR-14 SB Ramps and SR-138 (Cumulative) I-5 NB Ramps and Lake Hughes (Cumulative) I-5 SB Ramps and Sedona/The Old Road (Existing Plus Project and Cumulative) I-5 SB Ramps and Magic Mountain (Cumulative) I-5 NB Ramps and Magic Mountain (Cumulative) I-5 SB Ramps and Valencia (Cumulative) I-5 NB Ramps and Valencia (Cumulative) I-5 SB Ramps and McBean (Cumulative) I-5 SB Ramps and Calgrove (Cumulative) I-5 NB Ramps and Calgrove (Cumulative)
SR: State Route; NB: northbound; I: Interstate; WB: westbound; SB: southbound; EB: eastbound Source: Stantec 2017 (Table 4-10).	

**TABLE 5.10-33  
MITIGATION SUMMARY**

<b>Mitigation</b>
<b>SR-138</b>
<p><b>Existing Plus Project Mitigation</b></p> <ul style="list-style-type: none"> <li>• Improve SR-138 to a four lane expressway from I-5 to 190<sup>th</sup> Street West, with right-of-way reserved for a six-lane expressway between I-5 and 300<sup>th</sup> Street West or comparable improvements consistent with the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-6/Traffic Study MM-1)</li> <li>• Intersection improvements from the westerly access of the Centennial Specific Plan area to 30<sup>th</sup> Street West or comparable improvements consistent with the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative): <ul style="list-style-type: none"> <li>○ Specific Plan Westerly Access and SR-138</li> <li>○ Specific Plan Central Access and SR-138</li> <li>○ 300<sup>th</sup> Street West and SR-138</li> <li>○ 290<sup>th</sup> Street West and SR-138</li> <li>○ Margalo Drive and SR-138</li> <li>○ Three Points and SR-138</li> <li>○ 245<sup>th</sup> Street West and SR-138</li> <li>○ 230<sup>th</sup> Street West and SR-138</li> <li>○ 190<sup>th</sup> Street West and SR-138</li> <li>○ 170<sup>th</sup> Street West and SR-138</li> <li>○ 110<sup>th</sup> Street West and SR-138</li> <li>○ 90<sup>th</sup> Street West and SR-138</li> <li>○ 60<sup>th</sup> Street West and SR-138</li> <li>○ 30<sup>th</sup> Street West and SR-138</li> </ul> </li> </ul> <p><b>Cumulative Conditions Mitigation</b></p> <ul style="list-style-type: none"> <li>• Dedicate right-of-way within the Project site at each site access location to accommodate the ultimate intersection or interchange configuration as determined by the Northwest 138 Corridor Improvement project (specific improvements pending Caltrans selection of a preferred alternative) (MM 10-23/Traffic Study MM-18)</li> <li>• Contribute fair share of adding one lane in both directions (six lanes total) on SR-138 from I-5 to 300<sup>th</sup> Street West (in addition to above), or contribute fair share to the SR-138 improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-24/Traffic Study MM-19)</li> <li>• Contribute fair share of adding one auxiliary lane in both directions (six lanes total) on SR-138 from 300<sup>th</sup> Street West to 245<sup>th</sup> Street West (in addition to above), or contribute fair share to the SR-138 improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-25/Traffic Study MM-20)</li> <li>• Fair share participation and/or contribution to the Kern COG RTP/SCS improvement projects on SR-58 between I-5 in Kern County and I-15 in San Bernardino County, which could include development of a high capacity goods movement facility along the SR-58 and/or E-220 corridors. (MM 10-26/Traffic Study MM-21)</li> <li>• Fair share participation and/or contribution to the SR-138 improvements to a limited access facility with grade-separated interchanges, consistent with the County's analysis of the AVAP, or fair share participation and/or contribution to the SR-138 improvements (freeway/ expressway or expressway/limited access conventional highway) being advanced by Caltrans in the Northwest 138</li> </ul>

**TABLE 5.10-33  
MITIGATION SUMMARY**

<b>Mitigation</b>
<p>Corridor Improvement project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-27/Traffic Study MM-22)</p> <ul style="list-style-type: none"> <li>Fair share participation and/or contribution to strengthening and widening the inside and outside shoulders of I-5 between the Fort Tejon and Grapevine Road interchanges and between the SR-138 and Lake Hughes Road interchanges. (MM 10-28/Traffic Study MM-23)</li> </ul>
<b>I-5</b>
<p><b>Cumulative Conditions Mitigation</b></p> <ul style="list-style-type: none"> <li>On-Site Transportation Management Association (TMA) that would coordinate and manage the following programs: (MM 10-29/Traffic Study MM-24) <ol style="list-style-type: none"> <li>Ride Share Program</li> <li>Transit Program</li> <li>Commuter Bus Program</li> </ol> </li> <li>Contribute fair share to planned freeway mainline improvements for the following segments: (MM 10-31/Traffic Study MM-25) <ol style="list-style-type: none"> <li>Between Parker Road and SR-14 – add one HOV or HOT lane in each direction.</li> <li>Between Lake Hughes and Parker – add one auxiliary lane in each direction.</li> </ol> </li> <li>Fair share participation and/or contribution to the development of a high capacity goods movement facility along the SR-58 and/or E-220 corridors between I-5 in Kern County and I-15 in San Bernardino County. (MM 10-26/Traffic Study MM-26)</li> </ul>
<b>I-5/SR-138 Interchange</b>
<p><b>Existing Plus Project Mitigation</b></p> <ul style="list-style-type: none"> <li>To mitigate the westbound SR-138 to SB I-5 connector ramp, construct one auxiliary lane to the I-5 mainline, or contribute fair share to the SR-138/I-5 connector ramps improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-21/Traffic Study MM-16)</li> </ul> <p><b>Cumulative Conditions Mitigation</b></p> <ul style="list-style-type: none"> <li>To mitigate the westbound SR-138 to SB I-5 connector ramp, contribute fair-share to the construction of two auxiliary lanes to the I-5 mainline, or contribute fair share to the SR-138/I-5 connector ramps improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-32/Traffic Study MM-27)</li> <li>To mitigate the northbound I-5 to eastbound SR-138 connector ramp, contribute fair share to the construction of two auxiliary lanes to the I-5 mainline before the northbound I-5 to eastbound SR-138 connector ramp, or contribute fair share to the SR-138/I-5 connector ramps improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-33/Traffic Study MM-28)</li> </ul>
<b>SR-14/SR-138 Interchange</b>
<p><b>Cumulative Conditions Mitigation</b></p> <ul style="list-style-type: none"> <li>Contribute fair share to the construction of one mainline auxiliary lane and a second off-ramp lane for the SR-14 northbound off ramp to SR-138, or contribute fair share to the SR-138/SR-14 connector ramps improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project</li> </ul>

**TABLE 5.10-33  
MITIGATION SUMMARY**

<b>Mitigation</b>
<p>(specific improvements pending Caltrans selection of a preferred alternative). (MM 10-34/Traffic Study MM-29)</p> <ul style="list-style-type: none"> <li>• Contribute fair share to the construction of a second lane on the SR-14 southbound on-ramp from SR-138, or contribute fair share to the SR-138/SR-14 connector ramps improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative). (MM 10-35/Traffic Study MM-30)</li> </ul>
<b>Off-Site Intersections</b>
<p><b>Existing Plus Project Mitigation</b></p> <ul style="list-style-type: none"> <li>• Contribute fair-share to recommended mitigation measures at the following intersections, or contribute fair share to the SR-138 improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative): <ul style="list-style-type: none"> <li>○ Intersection improvements from the westerly access of the Centennial Specific Plan area to 30<sup>th</sup> Street West (MMs 10-7 through 10-20/Traffic Study MM-2 through MM-15)</li> <li>○ I-5 SB Ramps and Sedona/The Old Road (Intersection 26) (MM 10-22/Traffic Study MM-17)</li> </ul> </li> </ul> <p><b>Cumulative Conditions Mitigation</b></p> <ul style="list-style-type: none"> <li>• Contribute fair-share to recommended mitigation measures at the following intersections, or contribute fair share to the SR-138 improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative): <ul style="list-style-type: none"> <li>○ SR-14 SB Ramps and SR-138 (Caltrans Intersection) (MM 10-36/Traffic Study MM-31)</li> <li>○ SR-14 NB Ramps and SR-138 (Caltrans Intersection) (MM 10-37/Traffic Study MM-32)</li> <li>○ I-5 NB Ramps and Lake Hughes (LA County/Caltrans Intersection) (MM 10-38/Traffic Study MM-33)</li> <li>○ I-5 SB Ramps and Sedona/The Old Road (LA County/Caltrans Intersection) (MM 10-22/Traffic Study MM-34)</li> <li>○ I-5 SB Ramps and Magic Mountain (LA County/Caltrans Intersection) (MM 10-39/Traffic Study MM-35)</li> <li>○ I-5 NB Ramps and Magic Mountain (City of Santa Clarita/Caltrans Intersection) (MM 10-40/Traffic Study MM-36)</li> <li>○ I-5 SB Ramps and Valencia (LA County/Caltrans Intersection) (MM 10-41/Traffic Study MM-37)</li> <li>○ I-5 NB Ramps and Valencia (City of Santa Clarita/Caltrans Intersection) (MM 10-42/Traffic Study MM-38)</li> <li>○ I-5 SB Ramps and McBean (LA County/Caltrans Intersection) (MM 10-43/Traffic Study MM-39)</li> <li>○ I-5 SB Ramps and Calgrove (City of Santa Clarita/Caltrans Intersection) (MM 10-44/Traffic Study MM-40)</li> <li>○ I-5 NB Ramps and Calgrove (City of Santa Clarita/Caltrans Intersection) (MM 10-45/Traffic Study MM-41)</li> </ul> </li> </ul>
<p>393SR: State Route; I: Interstate; Kern COG: Kern Council of Governments; RTP/SCS: Regional Transportation Plan/Sustainable Communities Strategy; HOT: high-occupancy toll; Caltrans: California Department of Transportation.</p> <p>Source: Stantec 2017 (Table 4-11).</p>

**Threshold 10-2**     **Would the project conflict with an applicable congestion management program (CMP), including, but not limited to, level of service standards and travel demand measures, or other standards established by the CMP for designated roads or highways?**

The Los Angeles County CMP includes a Land Use Analysis Program, which requires that the impacts of land use decisions on the regional transportation system be evaluated for projects preparing an EIR. Impacts are evaluated by monitoring level of service performance standards for highway segments and key roadway intersections on the CMP highway network. The CMP Land Use Analysis Program also requires a Transit System Impact Analysis, which monitors project impacts on the regional transit system and provides the planning framework to make the most effective use of transit services.

**On-Site Impacts**

The CMP highway network, which is evaluated in the impact analysis, consists of all state highways (both freeways and arterials) and principal arterials that meet the criteria established by Metro. The Project site is largely undeveloped and does not have roadways that are part of the CMP highway network. Also, there is no transit system on or near the site. Thus, no on-site impacts would occur.

**Off-Site Impacts**

***Transportation Impact Analysis***

A Transportation Impact Analysis (TIA) is required as part of the CMP Land Use Analysis Program for CEQA documentation. (Development projects requiring subsequent approvals do not need to repeat this process as long as no significant changes are made to the Project.)

The study area of the CMP TIA is defined by a focused set of criteria used only to satisfy CMP requirements. In many cases, the study area used in the Project's traffic analysis may differ from the study area used for the CMP TIA. The study area for the CMP TIA is defined by the following criteria:

1. CMP intersections where the proposed Project will add 50 or more trips during the AM or PM weekday peak hours (of adjacent street traffic).
2. Mainline freeway locations where the Project will add 150 or more trips, in either direction, during either the AM or PM weekday peak hours.

Table 5.10-32 lists the freeway and intersection locations affected by the Project that meet the CMP criteria. As specified in the CMP guidelines, the criteria for determining significant impacts for arterial intersections and freeway monitoring stations is defined by an ICU or V/C increase of two percent or more ( $V/C \geq .02$ ) which causes or worsens LOS "F" ( $V/C > 1.00$ ). Evaluation of Project impacts for CMP locations is based on peak hour volumes.

**TABLE 5.10-34  
CMP ANALYSIS LOCATIONS**

Location	Meet Criteria?	ProjectTraffic	
		AM Peak Hour	PM Peak Hour
<b>Freeways</b>			
I-5 n/o Jct SR-126 NB	Yes	0	1,180
I-5 n/o Jct SR-126 SB	Yes	1,340	280
I-5 n/o Jct SR-14 NB	Yes	0	170
I-5 n/o Jct SR-14 SB	Yes	190	0
SR-14 s/o Jct SR-138/Ave D NB	No	40	140
SR-14 s/o Jct SR-138/Ave D SB	No	120	0
SR-14 n/o Jct I-5 NB	No	30	0
SR-14 n/o Jct I-5 SB	No	0	0
<b>Intersections</b>			
Lancaster Rd (SR-138) and 300 <sup>th</sup> St West	Yes	4,950	5,390
Ave D (SR-138) and 60 <sup>th</sup> St West	Yes	1,540	1,700
I: Interstate; n/o: north of; SR: State Route; NB: northbound; SB: southbound; s/o: south of Source: Stantec 2017 (Table 5-1).			

The long-range analysis presented under Threshold 10-1 above shows that based on the current freeway and arterial configurations, the Project would cause a significant impact at the following CMP monitoring stations:

- I-5 north of SR-126
- SR-138 at 300<sup>th</sup> Street West
- SR-138 at 60<sup>th</sup> Street West

The analysis above under Threshold 10-1 shows that with the proposed mitigation measures at these facilities, Project impacts would be fully mitigated.

### ***Countywide Deficiency Plan***

The CMP statute requires the preparation of deficiency plans when portions of the CMP highway system do not meet the established level of service standard. The deficiency plan is linked to the Land Use Analysis Program because it provides jurisdictions the opportunity to plan for mitigation before impacts occur due to new development.

The CMP allows each jurisdiction to mitigate impacts created by new development with an appropriate amount of improvements and/or land use strategies based on a point system. Under this point system, new development generates debit points which represent the jurisdiction's mitigation goal. Credit points are awarded based on the construction of improvements and/or a number of land use strategies. These credits serve as the basis by which the jurisdictions meet mitigation goals. The CMP allows mitigation in the form of credits to not be directly associated with a specific deficiency, thereby giving local

jurisdictions the flexibility to prioritize improvements based on local needs and also to partner with other jurisdictions to resolve regional issues.

While the CMP requires an assessment of Project impacts through the TIA, deficiency plan debits and credits will be assigned when building permits are issued, or when land use strategies are implemented and/or transportation improvements are made. Therefore, this analysis shows the gross impact on the CMP system and provides an estimate of the relative balance of mitigation contained in the plan. Actual debits and credits will be determined in the future and documented through an Annual Monitoring Activity Report based on the CMP guidelines and prepared in consultation with Metro. The specific value of individual development and improvement projects within the Centennial Specific Plan area will be determined at that time.

### ***Transit System Impact Analysis***

The CMP Land Use Analysis Program also requires a Transit System Impact Analysis, which monitors project impacts on the regional transit system and provides the planning framework to make the most effective use of transit services. The CMP has a transit monitoring network which consists of bus and rail routes that are within the corridors of the Congested Corridor Progress Report and provide service parallel to the CMP highway system for five miles or greater.

The CMP TIA requires a review of transit impacts that include evidence that transit operators received the Notice of Preparation, identification of existing transit services near the Project (none for this area), estimation of the number of Project trips assigned to transit, information on facilities and/or programs that will encourage public transit use, and an analysis of Project impacts on transit service.

The proposed Project is forecasted to generate approximately 216,400 ADT. The conversion to person trips is accomplished by using Metro guidelines (multiplying the ADT by an occupancy factor of 1.4) which results in a total of 302,960 average daily person trips. Applying Metro's factor for converting total person trips to transit trips (.035) results in approximately 10,600 total daily transit trips and approximately 1,660 peak hour AM plus PM transit trips. The estimated transit trips are summarized in Table 5.10-33.

**TABLE 5.10-35  
TRANSIT TRIP SUMMARY**

Description	Time Period		
	Daily	AM Peak Hour	PM Peak Hour
Vehicle Trips	216,400	16,440	17,370
Person Trips*	302,960	23,020	24,310
Factor to Transit Trips	3.5%	3.5%	3.5%
Total Transit Trips	10,604	810	850
* Person Trips = Vehicle Trips x 1.4 (from Congestion Management Program for Los Angeles County, 2002, 2004, and 2010)			
Source: Stantec 2017 (Table 5-2).			



The transit demand created by the Project will occur in increments as the Project develops. As required by MM 10-2, transit services will be evaluated at the tentative tract map level and the vehicle trip reduction measures and transit friendly design standards contained in the Specific Plan (PDFs 10-1 to 10-4), and transit operator assessment of the capacity and demand for transit services, will occur as the Project is developed.

### ***Kern County CMP***

The Congestion Management Program for Kern County (Kern County CMP) is a section of the County's Regional Transportation Plan. The purpose of the CMP is to help ensure that a balanced transportation system is developed that relates population growth, traffic growth and land use decisions to transportation system LOS performance standards and air quality improvement.

The Kern County CMP contains six elements and places the requirements of these elements on the local agencies (City and County governments) and on the Kern Council of Governments. No specific requirements are not placed on private developments. The Centennial Project is consistent with the goals of the CMP based on its consistency with each element of the CMP, as discussed below.

**Land Use Impact Analysis:** The impacts of the Project are evaluated for the roadways within Kern County. The analysis demonstrates that the Project would not result in a significant impact to the Kern County transportation system.

**Multi-Modal Performance Standards:** The Project has been evaluated based on the performance standards of Caltrans and the County of Kern, which equal or exceed the performance standards of the Kern County CMP. Since the Project is located in Los Angeles County, bus/transit service is being coordinated with operators based in Los Angeles County.

**Regional Traffic Model:** The traffic impact analysis utilizes the Kern COG traffic model for traffic volume forecasts for Kern County roadways. Kern COG modeling staff prepared special model runs of the Kern COG regional traffic model to account for the traffic generation of the Project. The analysis demonstrates that the Project would not result in a significant impact to the Kern County Congestion Management system.

**Transportation Demand Management:** The Project has been designed to promote alternatives to driving, such as walking, biking, transit, and the use of neighborhood electric vehicles. In addition, the Project will include formation of a Traffic Management Association to promote transit use and other alternatives to automobile use and to reduce vehicle trips from the Project.

**Capital Improvement Program:** The Project Applicant worked with the local agencies to ensure that needed roadway improvements are programmed into the appropriate plans of those agencies, and will be contributing its fair share of funding for improvements at locations significantly impacted by the Project. Also, the analysis shows that the Project would not result in a significant impact to the Kern County roadway system.

**Deficiency Plan:** Where significant traffic impacts have been determined, the Project would implement mitigation measures for these impacts. Also, the analysis shows that the Project would not result in a significant impact to the Kern County roadway system.

**Impact Summary:** The Project would not conflict with the Los Angeles County and Kern County CMPs. Impacts would be less than significant, and no mitigation is required beyond those previously identified (MMs 10-23 through 10-28 and MMs 10-31 through 10-45). However, if Caltrans does not implement the needed improvements identified under Threshold 10-1 above, impacts on freeways, arterial roadways, and intersections on the CMP highway network would be significant and unavoidable.

**Threshold 10-3**      **Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?**

### **On-Site Impacts**

The Quail Lake Skypark Airport, a small, single-strip, general aviation (i.e., non-jet) private airport, is the closest airport to the Project site and is located east of Quail Lake and south of the Project site. Because the Quail Lake Skypark is privately owned and only has six locally based aircraft, the number and frequency of flights is expected to be minimal. Development of the Project would not increase the flights in or out of this airport as it would still be privately owned. As such, there would be no changes to air traffic patterns, nor would there be increased safety risks as a result. Impacts would be less than significant. Please see Section 5.3, Hazards and Fire Safety, for more information about impacts as a result of the Quail Lake Skypark Airport.

### **Off-Site Impacts**

Construction of off-site roadway and utility improvements would not change air traffic patterns or levels at the Quail Lake Skypark Airport, nor would it result in increased safety risks. There would be no impact, and no mitigation is required. As determined for the Centennial Project above, exposure to hazards created by aircraft operations at the Quail Lake Skypark Airport would not have a significant impact on the proposed wells, utility connections, and roadway improvements due to the small scale of airport operations. Also, the off-site Project features would not result in glare, emit smoke, or otherwise affect air traffic. Therefore, impacts would be considered less than significant and no mitigation is required.

**Impact Summary:** The Project would not change air traffic patterns; create an increase in air traffic levels; or create substantial safety risks from air traffic. Impacts would be less than significant, and no mitigation is required.

**Threshold 10-4**      **Will the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?**

**Threshold 10-5 Will the project result in inadequate emergency access?**

**On-Site Impacts**

The Circulation Plan for the Project was designed to accommodate the projected traffic volumes that would be generated by on-site development. The Project's Mobility Plan (PDF 10-1/MMs 10-29 and 10-30) has been designed to reduce vehicle trip generation and provide adequate roadway capacity. A capacity verification of the on-site circulation system was made using long-range traffic forecast data from the CTM.

The Project roadways would be built to County of Los Angeles Department of Public Works standards as contained in County design manuals, the AVAP and the *Centennial Specific Plan*. The roadways will be designed to ensure that there is proper access for emergency ingress and egress for evacuation and for access by emergency vehicles. In addition, the conceptual alignment of the roadways for the Project area has been designed to accommodate general design speeds in accordance with County standards.

National Cement Plant Road is planned to be realigned to the west to provide a shorter route of access for the cement trucks to the I-5 and separate cement truck traffic from Project-generated vehicle trips. The Project also includes the construction of off-site roadway improvements under MMs 10-23 and 10-7 through 10-20 (e.g., deceleration lanes, acceleration lanes, turn pockets, and signalized traffic lights on SR-138) to allow for safe ingress/egress to and from the site. Thus, no traffic hazards or inadequate emergency access would occur as a result of the Project.

**Off-Site Impacts**

The proposed wells would not involve modifications to existing roadways, nor would they require new roadways. The proposed well locations would be accessed via the existing dirt or decomposed granite roads serving the Tejon Ranch Company Water Bank or via West Avenue B. Therefore, the off-site wells would not affect traffic circulation or otherwise affect emergency access in any way. The proposed wells would not increase traffic hazards or result in inadequate emergency response.

The proposed utility connections would be underground and would not affect traffic flow or emergency access. In addition, the proposed roadway improvements would provide safe and efficient access to and from the site. The proposed off-site roadway improvements (e.g., deceleration lanes, acceleration lanes, turn pockets, and signalized traffic lights on SR-138 and Aqueduct crossings) would improve traffic safety.

There are no off-site Project features being proposed that will impede traffic flow or restrict emergency access to or from the Project site or create a hazardous situation; therefore there will be no impacts to or from off-site Project features.

Construction of the proposed off-site Project features would lead to temporary obstruction of roadways where utility lines connections and roadway improvements are planned but this impact would be temporary and would occur at scattered locations. Compliance with the Greenbook and Graybook and implementation of traffic management plans during

construction (MM 10-5) would prevent traffic and emergency access obstruction. Impacts would be less than significant.

***Impact Summary:*** There are no known traffic hazards, nor are there existing or planned Project components that may create hazards that will impact the Project or surrounding area. There will be less than significant impacts to emergency access with implementation of the proposed roadway improvements at intersections with SR-138 and compliance with existing regulations and implementation of MMs 10-7 through 10-20, MMs 10-29, 10-30, 10-23, and 10-5.

**Threshold 10-6** **Would the project conflict with adopted policies, plans or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?**

## **On-Site Impacts**

### ***Intersections, Streets, Highways and Freeways***

Please see the discussion under Threshold 10-1 for the impact analysis regarding intersections, streets, highways, and freeways. Please see Section 5.8, Land Use, Entitlements, and Planning, for a consistency analysis with the SCAG Regional Comprehensive Plan (RCP) and RTP/SCS, the County of Los Angeles General Plan, and the Antelope Valley Area Plan (AVAP).

### ***Pedestrian and Bicycle Paths***

Please see Section 5.8, Land Use, Entitlements, and Planning, for a consistency analysis with goals and policies related to pedestrian and bicycle paths, as contained in the SCAG RCP and RTP/SCS, the County of Los Angeles General Plan, and the AVAP.

### ***Transit***

As part of the Project's overall transportation demand management (TDM) strategy to reduce the dependence on the private automobile, which would result in a consequential reduction in overall volume of Project-generated trips off site, the Project Applicant will participate in or form a Transportation Management Association (TMA) to serve the residents and employees of businesses within the Project area or will be organized in conjunction with an existing organization in the Antelope Valley or Santa Clarita area. If the former, the Centennial TMA will specifically develop strategic linkages with other Antelope Valley/Santa Clarita Valley TMAs or like organizations in order to maximize transit efficiencies and services. Such coordination will also help match ride sharers and provide information on transit options. The TMA's purpose will be to coordinate and facilitate transit and rideshare usage to serve as many riders as possible. Commuter buses that may be utilized by Project residents to travel to and from the Santa Clarita Valley, Antelope Valley and the Tejon Ranch Commerce Center are expected to lead to 100 less vehicle trips to and from the Santa Clarita Valley and 50 less vehicle trips to and from the Antelope Valley during peak hours on weekdays.

Rideshare programs are also expected to lead to a net reduction of 100 single occupancy vehicle trips to (AM) and from (PM) the Santa Clarita Valley and a net reduction of 60 single occupancy vehicle trips from (AM) and to (PM) the Antelope Valley. A total of 200 vehicle trips to and from the Santa Clarita Valley and 110 trips to and from the Antelope Valley would be reduced by commuter buses and rideshare programs.

Under MM 10-30, TDM measures such as the transit and rideshare program will be implemented at the onset of Project development, although conceivably on a smaller scale and expanded as demand increases through buildout.

### ***Policy Compliance***

In a regional context, SCAG policies have been assessed in Table 5.8-4, SCAG Regional Comprehensive Plan Consistency, and Table 5.8-2, Consistency with SCAG RTP/SCS Goals and Policies, in Section 5.8, Land Use, Entitlements, and Planning. There are six policies in SCAG's RTP/SCS that are applicable to the Project. They are listed below with a discussion of how the Centennial Project complies with each policy.

- **Policy 1:** Transportation investments shall be based on SCAG's adopted Regional Performance Indicators.

The RTP Performance Criteria, as noted in Table 5.10-1, depict the following Performance Indicators: Location Efficiency, Mobility and Accessibility, Safety and Health, Environmental Quality, Economic Well Being, Investment Effectiveness, and System Sustainability. Location Efficiency is met by the site's location on SR-138 and near the I-5, a major regional transportation corridor, where improvements have been planned for both Caltrans facilities. Mobility is addressed through mitigation measures that enhance capacity and flow of the transportation network. Accessibility is provided through a comprehensive plan of on-site roadways, greenway trails, and community trails. Safety and health is met by building a circulation system in accordance with County safety standards. Environmental quality is promoted by Project features and mitigation measures that provide alternatives to vehicle use and minimize vehicle emissions and road runoff generated by on-site uses. Economic well-being is met by development of a new community where residents can work and obtain goods and services within the site and employees can live near their place of work in the Centennial community. Investment effectiveness is increased through Project investment in roadway and infrastructure improvements in the area and funding mechanisms to ensure the improvements are maintained. Lastly, the Project's Green Development Program incorporates sustainability measures through planned infrastructure and the fossil fuel reduction that would occur with ADT reduction as a result of balanced growth on-site and development in accordance with the AVAP.

- **Policy 2:** Ensuring safety, adequate maintenance, and efficiency of operations on the existing multimodal transportation system should be the highest RTP/SCS priorities for any incremental funding in the region

The Project includes a Green Development Program, which would serve to improve the efficiency of the transportation network. Among the policies of the Green Development Program, the Project would result in the construction of streets and parking lot aisles to the

minimum widths in accordance with the *Centennial Specific Plan*, in compliance with regulations for the Americans with Disabilities Act, and in accordance with safety requirements for fire and emergency vehicle access. Additionally, as identified above, safety would be met via building improvements in accordance with County safety standards. The Project's TMA would also coordinate with public transportation providers to provide transit service, special charter operations, and other similar types of transit to reduce vehicle trips.

- **Policy 3:** RTP/SCS land use and growth strategies in the RTP/SCS will respect local input and advance smart growth initiatives

Developed via interagency coordination, the Project is included in demographic analyses with respect to anticipated population, housing, and employment growth assumed in the 2012 RTP/SCS. The Project was developed to utilize smart growth strategies, including the development of walkable neighborhoods with a range of housing choices in close proximity to schools, parks and commercial uses in village centers, and non-residential uses to accommodate employment for local residents.

- **Policy 4:** Transportation demand management (TDM) and non-motorized transportation will be focus areas, subject to Policy 1

The Project includes an on-site network of sidewalks, greenway trails, and community trails that contribute to TDM measures; participation in a TMA that promotes the use of transit, ridesharing, carpools and/or vanpools; and a community intranet for public education and information sharing.

- **Policy 5:** HOV gap closures that significantly increase transit and rideshare usage will be supported and encouraged, subject to Policy 1

To mitigate impacts to the I-5 mainline, the Project will contribute its fair share to the planned I-5 improvement Project, which consists of adding one auxiliary lane in each direction between Lake Hughes and Parker and adding one HOT lane in each direction between Parker Road and SR-14.

- **Policy 6:** Monitoring progress on all aspects of the Plan, including the timely implementation of projects, programs, and strategies, will be an important and integral component of the Plan

The Project includes a detailed Mitigation Monitoring and Reporting Plan (MMRP) to ensure that the mitigation measures are implemented to reduce or avoid significant environmental impacts. Specifically, the proposed Project includes design elements called project design features (PDFs) and mitigation measures (MMs). PDFs are design features that the Project Applicant incorporates into a project to minimize impacts. The MMs serve to address potential significant impacts related to Project implementation. Because PDFs have been incorporated into the Project, they do not constitute mitigation measures as defined by CEQA; however, PDFs will be included in the MMRP to ensure that they are implemented as part of the Project and monitored as required.

### ***Trip Balance Between Residential and Non-residential***

The Centennial Project has been designed to balance residential and non-residential uses and to balance the number of on-site jobs with on-site housing units to encourage local trips. Because of the balanced land use plan, all jobs could be filled by workers in the community and all service needs could be met by on-site retail and other service land uses. Non-work activities such as schools, parks, library facilities, and retail have also been planned on the Project site in an effort to reduce the need to access such services by making trips external to the Project. As discussed in Threshold 10-1, a proportion of Project residential work and service or amenity transit can be expected to consist of external trips to or from the site, and a proportion of residents and workers outside of the site can be expected to commute to the Project. Overall, about 65 percent of all daily trips, measured by trip ends, will be internal to the Project. The estimated proportion of Project internal (on site) and external (off site) trip ends and trips is summarized in Table 5.10-18 and Table 5.10-19.

### **Off-Site Impacts**

The proposed off-site wells and well infrastructure, utility connections, and roadway improvements would not cause an increase in traffic. The only traffic would be generated by the anticipated daily visit to each well location for maintenance and monitoring. Therefore, the proposed off-site improvements would not conflict with any measures for performance of the circulation system. There would be no interference with existing or proposed alternative transportation facilities. There would be no impact and no mitigation is required.

***Impact Summary:*** The Project will promote the use of alternatives to the automobile and will comply with applicable transportation plans, policies, and regulations. The bicycle and pedestrian facilities proposed for the Project will be built for safe performance, consistent with regional and County plans. In addition, the proposed Transportation Management Association would promote transit use and reduce vehicle trips. There will be no impact on alternative transportation systems as a result of Project implementation.

## **5.10.7 MITIGATION MEASURES**

**MM 10-1** The Project shall provide internet infrastructure and a community intranet with access for homeowners associations; interest groups; local event scheduling; schools, library, carpool and transit services; and other on-site entertainment and amenities for residential land uses. The internet and intranet will reduce the need for people to use automobile travel to obtain the information that is provided by both. The intranet shall also provide education about greenhouse gas (GHG) emissions; GHG reduction opportunities; energy and water conservation opportunities; financial incentives (e.g., rebates and low-interest loans) for energy-efficiency improvements; and energy-efficiency technology systems, including those suitable for large commercial and industrial users.

- MM 10-2** The Project Applicant/Developer shall submit a traffic study that addresses site access and local circulation in accordance with the County of Los Angeles Department of Public Works Traffic Impact Analysis Report Guidelines. The Project Applicant/Developer shall retain a Traffic Engineer or Civil Engineer licensed in the State of California to perform the traffic study to the satisfaction of the County.
- MM 10-3** The Project Applicant/Developer shall seek to enter into a Centennial Transportation Improvement Program (CTIP) for Land Development Impacts to California State Transportation Facilities with Caltrans and shall comply with the terms the CTIP agreement if approved and implemented. Compliance with the CTIP shall constitute compliance with the mitigation measures for the Project's traffic impacts on the State highway system. Any required improvements that result from direct Project impacts (i.e., not from cumulative impacts), and are required on Caltrans-owned facilities, shall be implemented through a CTIP. Any required improvements that result from cumulative traffic impacts may be implemented through payment of fair share fees.
- MM 10-4** The Project Applicant/Developer will work with the County and/or Caltrans to establish a Traffic Mitigation Fee Program or an assessment district (an example of such is the Bridge and Thoroughfare District pursuant to *California Government Code*, Sections 66484 et seq.) or other equivalent program. Such a program or assessment district will mitigate vehicular trips related to new development accessing the SR-138 corridor between I-5 and SR-14 by establishing a fair share contribution from such new development to ensure the SR-138 needed improvements are fully funded. These fees shall be used for the needed improvements and may include the cost of engineering, soils analysis, right-of-way acquisition, demolition, relocation, construction, inspection, and other related expenses.
- MM 10-5** The Project Applicant/Developer shall submit Traffic Management Plans to the County for review and approval. The Traffic Management Plans shall describe traffic-control measures that shall be implemented to maintain traffic flow in all directions, including where utilities and other improvements are being implemented in existing roadways. The Traffic Management Plans shall identify the following: construction haul routes; duration and location of lane closures; location of parking for the public and construction workers during construction phases; use of flag persons; and any pedestrian-related impacts to sidewalks and intersection crossings. The Traffic Management Plan shall be implemented during all stages of Project construction that generate traffic impacts.
- MM 10-6** (*Traffic Study MM-1*) To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP to improve SR-138 to a four lane expressway from I-5 to 190<sup>th</sup> Street West, with right-of-way reserved for a six-lane expressway between I-5 and 300<sup>th</sup> Street West, or



comparable improvements consistent with the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-7** *(Traffic Study MM-2)* To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for the following intersection improvements at Specific Plan Westerly Access and SR-138:

- Widen SR-138 to a four-lane highway from westerly project entrance to 290th Street West, with auxiliary lanes between intersections, resulting in three through lanes in the WB and EB directions.
- Construct intersection to include: two NB left-turn lanes, three NB through lanes and one NB right-turn lane.
- In the SB direction, construct two left turn lanes, three through lanes and one free-flow right-turn lane.
- In the EB direction, construct three left-turn lanes and one right-turn lane.
- In the WB direction, construct two left-turn lanes and a free-flow right-turn lane.
- Install traffic signal.

Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-8** *(Traffic Study MM-3)* To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at Specific Plan Central Access and SR-138:

- Widen SR-138 to a four-lane highway from westerly project entrance to 290<sup>th</sup> Street West, with auxiliary lanes between intersections, resulting in three through lanes in the WB and EB directions.
- In the NB and SB directions, construct two left-turn lanes, three through lanes and one right-turn lane.
- In the EB direction, construct two left-turn lanes and one right-turn lane.
- In the WB direction, construct two left-turn lanes and a free-flow right-turn lane.
- Install traffic signal and include SB and NB right-turn overlap phasing.

Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-9** *(Traffic Study MM-4)* To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 300<sup>th</sup> Street West and SR-138:

- Widen SR-138 to a four-lane highway from westerly project entrance to 290<sup>th</sup> Street West, with auxiliary lanes between intersections, resulting in three through lanes in the WB and EB directions.
- Construct two left-turn lanes and one right-turn lane in the EB direction and two left-turn lanes and dual right-turn lanes in the WB direction.
- In the NB direction, construct two left-turn lanes, three through lanes, and one right-turn lane.
- In the SB direction, construct two left turn lanes, three through lanes and one free-flow right-turn lane.
- Install traffic signal and include WB right-turn overlap phasing.

Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-10** *(Traffic Study MM-5)* To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 290<sup>th</sup> Street West and SR-138:

- Widen SR-138 to a four-lane highway from westerly project entrance to 290<sup>th</sup> Street West, with auxiliary lanes between intersections, resulting in three through lanes in the WB and EB directions.
- Additional intersection improvements include: two EB left turn lanes, one WB right-turn lane, two SB left turn and two SB right-turn lanes.
- Install traffic signal.

Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-11** *(Traffic Study MM-6)* To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at Margalo Drive and SR-138:

- Widen SR-138 to a four-lane highway from 290th Street West to 190th Street West with roadway augmentation at intersection, approximately ¼ mile in length for the west and east legs resulting in three through lanes in the WB and EB directions.
- Additional intersection improvements include: one EB left turn lane and one WB right-turn lane.
- Install traffic signal.

Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-12** *(Traffic Study MM-7)* To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at Three Points and SR-138:

- Widen SR-138 to a four-lane highway from 290th Street West to 190th Street West with roadway augmentation at intersection, approximately ¼ mile in length for the west and east legs resulting in three through lanes in the WB and EB directions.
- Additional improvements include adding one NB left-turn lane and one SB left turn lane.

Or contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-13** *(Traffic Study MM-8)* To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 245<sup>th</sup> Street West and SR-138:

- Widen SR-138 to a four-lane highway from 290th Street West to 190th Street West with roadway augmentation at intersection, approximately ¼ mile in length for the west and east legs resulting in three through lanes in the WB and EB directions.
- Additional improvements include adding one NB left-turn lane and one SB left turn lane and one dedicated EB right-turn lane.
- Install traffic signal.

Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-14** *(Traffic Study MM-9)* To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 230<sup>th</sup> Street West and SR-138:

- Widen SR-138 to a four-lane highway from 290th Street West to 190th Street West.
- Additional improvements include one SB left-turn lane, one SB right-turn lane and one EB left-turn lane.

Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-15** *(Traffic Study MM-10)* To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 190<sup>th</sup> Street West and SR-138:

- Widen SR-138 to a four-lane highway from 290th Street West to 190th Street West with roadway augmentation at intersection, approximately ¼ mile in length for the west and east legs resulting in three through lanes in the WB and EB directions.
- Additional improvements include adding one EB left-turn lane, one WB left-turn lane, one NB left-turn lane and one SB left turn lane and one dedicated EB right-turn lane.
- Install traffic signal.

Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-16** *(Traffic Study MM-11)* To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 170<sup>th</sup> Street West and SR-138:

- Roadway augmentation at intersection, approximately ¼ mile in length for the east and west legs, resulting in 2 through lanes in the WB and EB directions at the intersection.
- Additional improvements include one EB left-turn lane, one WB left-turn lane, one NB left-turn lane and one SB left-turn lane.

Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-17** *(Traffic Study MM-12)* To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 110<sup>th</sup> Street West and SR-138:

- Roadway augmentation at intersection, approximately ¼ mile in length for the east and west legs, resulting in 2 through lanes in the WB and EB directions at the intersection.
- Additional improvements include: one EB left-turn lane, one WB left-turn lane, two NB left-turn lanes, one SB left-turn lane and two SB right-turn lanes.
- Install traffic signal.

Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-18** *(Traffic Study MM-13)* To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 90th Street West and SR-138:

- Roadway augmentation at intersection, approximately ¼ mile in length for the east and west legs, resulting in 2 through lanes in the WB and EB directions at the intersection.
- Additional improvements include: one EB left-turn lane, one WB left-turn lane, one NB left-turn lane and one SB left-turn lane.

Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-19** *(Traffic Study MM-14)* To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 60th Street West and SR-138:

- Roadway augmentation at intersection, approximately ¼ mile in length for the east and west legs, resulting in 2 through lanes in the WB and EB directions at the intersection.
- Additional improvements include: one EB left-turn lane, one WB left-turn lane, one NB left-turn lane and one SB left-turn lane.
- Install traffic signal.

Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-20** *(Traffic Study MM-15)* To mitigate the Project's impacts to SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for implementation of the following intersection improvements at 30th Street West and SR-138:

- Roadway augmentation at intersection, approximately ¼ mile in length for the east and west legs, resulting in 2 through lanes in the WB and EB directions at the intersection.
- Additional improvements include adding one EB left-turn lane and one WB left-turn lane.

Or, contribute fair share to intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-21** *(Traffic Study MM-16)* To provide adequate capacity at the I-5/SR-138 interchange, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the following ramp improvement at I-5/SR-138:

- Addition of one auxiliary lane at the connector ramp from westbound SR-138 to southbound I-5 for existing plus Project conditions

**MM 10-22** *(Traffic Study MM-17 and MM-34)* To provide adequate capacity at The Old Road at I-5 SB Ramps/Sedona intersection, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the addition of a second southbound left-turn lane from The Old Road to the I-5 Southbound On-Ramp.

**MM 10-23** *(Traffic Study MM-18)* To mitigate the increase of side-street delay for the existing adjacent off-site areas and for planned on-site side streets along SR-138, the Project Applicant/Developer shall either (1) comply with the terms of the Centennial Transportation Improvement Program (CTIP) or (2) dedicate right-of-way within the project site at each site access location to accommodate the ultimate intersection or interchange configuration to be determined by the Northwest Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative) at the following SR-138 intersections:

- Westerly Access
- Central Access
- 300<sup>th</sup> Street West

- 290<sup>th</sup> Street West

**MM 10-24** *(Traffic Study MM-19)* To provide adequate on- and off-site capacity, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the widening of SR-138, including:

- Addition of an auxiliary lane in each direction (six lanes total) from I-5 to 300<sup>th</sup> Street West

**MM 10-25** *(Traffic Study MM-20)* To provide adequate on- and off-site capacity, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the widening of SR-138, including:

- Addition of an auxiliary lane in each direction (six lanes total) from 300<sup>th</sup> Street West to 245<sup>th</sup> Street West

**MM 10-26** *(Traffic Study MM-21 and MM-26)* To provide adequate capacity to the I-5 mainline freeway, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding towards RTP/SCS improvement projects on SR-58 between I-5 in Kern County and I-15 in San Bernardino County, as verified by the County in consultation with the Kern COG and Caltrans. Improvements could include development of a high capacity goods movement facility along the SR-58 and/or E-220 corridors.

**MM 10-27** *(Traffic Study MM-22)* To provide adequate capacity on SR-138, the Project Applicant/Developer shall comply with the terms of the CTIP for the SR-138 improvements to a limited access facility with grade-separated interchanges, consistent with the County's analysis of the AVAP, or fair share participation and/or contribution to the SR-138 improvements (freeway/expressway or expressway/limited access conventional highway) being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).

**MM 10-28** *(Traffic Study MM-23)* To provide adequate capacity to the I-5 mainline freeway, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding towards the following planned improvements to I-5:

- I-5 between Fort Tejon and Grapevine Road and between SR-138 and Lake Hughes Road interchanges: Strengthening and widening the inside and outside shoulders of I-5.

**MM 10-29** *(Traffic Study MM-24)* The Project Applicant/Developer shall implement the Mobility Plan, included as Section 3.2 of the Specific Plan, which provides an extensive system of sidewalks, greenway trails, community trails, and two transit hubs to serve as alternative means of transportation on the Project site. The Mobility Plan also requires creation and ongoing operation of a

Transportation Management Association (TMA) to implement ongoing transportation improvements and programs.

The Project Applicant/Developer, through the required implementation of the Mobility Plan, shall:

- Reinforce and serve the Land Use Plan;
- Provide residents and employees with multiple modes of accessibility for internal and external trips by future residents and visitors;
- Provide options to reduce vehicle trips and emissions by linking effective travel demand management with transportation systems and parking policies;
- Provide residents and employees on the Project site with multiple modes of transportation;
- Provides for 80 percent on average, but no less than 50 percent of residential units to be located within one-half mile of a Village center that includes retail and service uses;
- Provide parks within a 5-minute walk (0.25 mile) of 80 percent of all residential units;
- Require TMA implementation of combination of transit and transportation measures to reduce on-site single-occupancy automobile use by 30 percent in relation to standard ITE-generation rates for the overall Project; and
- Require TMA implementation of a combination of measures to reduce off-site peak hour commutes to and from the Project site in single-occupancy automobiles by 20 percent.
- Require TMA implementation of a program to coordinate with automotive dealers on the Project site to promote CNG, electric, and hybrid electric vehicles.
- Require TMA oversight of requirement for service fleet vehicles for agencies or businesses located on-site to be alternative fuel vehicles to the maximum extent feasible, as determine by the Project Applicant/Developer.

The Circulation Plan sets forth requirements for roadway classifications; intersection controls; and traffic calming measures. Where approved by the California Department of Transportation (Caltrans) and the County and where maintenance and durability costs are comparable to traditional materials, use “cool” pavement materials, which reduce heat island effect.

**MM 10-30** *(Traffic Study MM-24)* Each component of the Mobility Plan incorporates Transportation Demand Management (TDM) features to reduce dependence



on the automobile, provide for a more efficient use of transportation resources among Project occupants, and thereby reduce pollutant emissions. Related to this is the creation and ongoing operation of a Transportation Management Association (TMA) to fund and manage the operation of ongoing transportation programs, including but not limited to transit and on-demand services.

The key TDM elements that are inherent in the overall Mobility Plan are:

- Sidewalks, greenway trails, and community trails that link residential, schools, shopping, and employment areas;
- Small- to medium-sized streets and blocks that allow for shorter walking distances to retail, parks, schools, and other destinations;
- Pedestrian environments incorporated with public streets;
- Parking behind buildings to encourage walking in retail areas along street frontage; and
- Parks within 0.25 mile of 80 percent of all residential units

**MM 10-31** *(Traffic Study MM-25)* To provide adequate capacity to the I-5 mainline freeway, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding towards the following planned improvements to I-5:

- I-5 between Lake Hughes and Parker: Addition of one auxiliary lane in each direction.
- I-5 between Parker Road and SR-14: Addition of one HOV or HOT lane in each direction.

**MM 10-32** *(Traffic Study MM-27)* To provide adequate capacity at the I-5/SR-138 interchange, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the following ramp improvement at I-5/SR-138:

- Addition of two auxiliary lanes at the connector ramp from westbound SR-138 to southbound I-5 for Year 2035 cumulative buildout conditions.

**MM 10-33** *(Traffic Study MM-28)* To provide adequate capacity at the I-5/SR-138 interchange, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the following ramp improvement at I-5/SR-138:

- Addition of two auxiliary lanes at the connector ramp mainline before the northbound I-5 to eastbound SR-138 connector ramp.

- MM 10-34** *(Traffic Study MM-29)* To provide adequate capacity at the SR-14/SR-138 interchange, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the following ramp improvement at SR-14/SR-138:
- Construction of one auxiliary lane and a second off-ramp lane for the SR-14 northbound off ramp to SR-138.
- MM 10-35** *(Traffic Study MM-30)* To provide adequate capacity at the SR-14/SR-138 interchange, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the following ramp improvement at SR-14/SR-138:
- Construction of a second lane on the SR-14 southbound on-ramp from SR-138.
- MM 10-36** *(Traffic Study MM-31)* To provide adequate capacity at the SR-14 SB Ramps and SR-138 interchange, the Project Applicant/Developer shall (1) comply with the terms of the CTIP for the reconfiguration of the interchange to include two eastbound through lanes and three westbound through lanes. In the southbound direction, add a second right-turn lane; and install a traffic signal and include right-turn overlap phasing or (2) contribute fair share funding for intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).
- MM 10-37** *(Traffic Study MM-32)* To provide adequate capacity at SR-14 NB Ramps and SR-138 interchange, the Project Applicant/Developer shall (1) comply with the terms of the CTIP for the reconfiguration of the interchange to include two eastbound through lanes and two westbound through lanes and, in the northbound direction, add two left-turn lanes and a traffic signal or (2) contribute fair share funding for intersection improvements being advanced by Caltrans in the Northwest 138 Corridor Improvement Project (specific improvements pending Caltrans selection of a preferred alternative).
- MM 10-38** *(Traffic Study MM-33)* To provide adequate capacity at Lake Hughes Road at I-NB Ramps intersection, the Project Applicant/Developer shall (1) comply with the terms of the CTIP or (2) contribute fair share funding towards planned improvements to I-5 for the addition of one lane to the northbound off-ramp and restripe the configuration to include one left-turn, one shared left/right-turn lane, and one dedicated right-turn lane.
- MM 10-39** *(Traffic Study MM-35)* To provide adequate capacity at the Magic Mountain Parkway at I-5 SB Ramps intersection, the Project Applicant/Developer shall (1) comply with the terms of the CTIP or (2) contribute fair share funding towards planned improvements to I-5 for the restriping of the southbound off-ramp to provide two left-turn lanes, one shared left-turn/through lane, and one right-turn lane.

- MM 10-40** *(Traffic Study MM-36)* To provide adequate capacity at the Magic Mountain Parkway at I-5 NB Ramps intersection, the Project Applicant/Developer shall (1) comply with the terms of the CTIP or (2) contribute fair share funding towards planned improvements to I-5 for the conversion of the shared through/right-turn lane to a shared left/through/right-turn lane.
- MM 10-41** *(Traffic Study MM-37)* To provide adequate capacity at the Valencia Road at I-5 SB Ramps intersection, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the striping of a third westbound through lane.
- MM 10-42** *(Traffic Study MM-38)* To provide adequate capacity at the Valencia Road at I-5 NB Ramps intersection, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the traffic signal modification to add a northbound right-turn overlap phase.
- MM 10-43** *(Traffic Study MM-39)* To provide adequate capacity at the McBean Parkway at I-5 SB Ramps intersection, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward the restriping of the dedicated westbound right-turn lane to a shared through/right-turn lane.
- MM 10-44** *(Traffic Study MM-40)* To provide adequate capacity at the Calgrove Road at I-5 SB Ramps intersection, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward adding a second eastbound through lane and a de-facto right-turn lane and a second through lane in the westbound direction.
- MM 10-45** *(Traffic Study MM-41)* To provide adequate capacity at the Calgrove Road at I-5 NB Ramps intersection, the Project Applicant/Developer shall either (1) comply with the terms of the CTIP or (2) contribute fair share funding toward restriping to add a westbound de facto right-turn lane.

Since Caltrans has deferred the selection of a preferred build alternative for the Northwest 138 Corridor Improvement Project and has also reserved the right to determine the specific types of intersection controls at the time the improvements occur and MMs 10-6 through 10-27 and MMs 10-31 through 10-35 would mitigate the Project's impacts and cumulative impacts on the SR-138, these mitigation measures are subject to change pending Caltrans determination of the preferred 138 Corridor alternative. Therefore, the Centennial Project will contribute its fair share and/or contribute towards the cost of the Northwest 138 Corridor Improvement Project for the alternative ultimately selected by Caltrans and Metro. Refer to the Traffic Study (Appendix 5.10-A) for additional detail on the traffic mitigation.

Under MM 10-29, the Project is required to reduce use of automobiles by implementing PDFs and TDM measures to be administered and monitored by a Transportation Management Association. These mandatory mitigation measures require the reduction of single-occupancy automobile use for off-site commutes by 20 percent, and require the reduction of

single occupancy automobile use within the Project site by 30 percent. The traffic analysis above conservatively assumes full trip (i.e., single occupancy automobile) volumes on- and off-site, and thus, is conservative and actual traffic volumes from the Project are anticipated to be lower.

### **5.10.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION**

Mitigation measures have been established to reduce the Project's significant impacts on traffic access and circulation. However, these mitigation measures call for improvements to Caltrans facilities, which are outside the control of the County of Los Angeles and the Project Applicant. Implementation of the CTIP or fair share contributions by the Project Applicant in accordance with MM 10-3, MMs 10-6 through 10-28, and MMs 10-31 through 10-45 will ensure that the Project provides fair share funding required to mitigate potential Project impacts. Implementation of a traffic mitigation fee program (MM 10-4) would provide a mechanism for providing fair share contributions from other projects and future activity affecting State facilities.

Accordingly, pursuant to Section 21081 of CEQA, the County determines that:

- (a) Changes or alterations have been requested or incorporated into the Project which mitigate the traffic effects to a less than significant level, and
- (b) The mitigations are within the responsibility and jurisdiction of Caltrans and can and should be adopted by Caltrans.

It is recognized that if Caltrans does not implement the improvements outlined in the mitigation measures above in the manner or within the time frame needed to serve the Project, significant and unavoidable impacts to traffic circulation may result.

### **5.10.9 REFERENCES**

California Department of Transportation (Caltrans). 2007 (June 13) Correspondence Regarding: Centennial Traffic Study – February 2006, Methodology and Modeling (Appendix 5.10-B).

California, State of. 2009. *California Code of Regulations* (Title 14, Natural Resources; Division 6, Resources Agency; Chapter 3, Guidelines for Implementation of the California Environmental Quality Act). Sacramento, CA: the State.

Centennial Founders. 2016. Centennial Transportation Improvement Program Agreement. Santa Clarita, CA: Centennial Founders.

Kern Council of Governments (Kern COG). 2014a (December, adopted). *2015 Federal Transportation Improvement Program*. Bakersfield, CA: the County.  
<http://www.kerncog.org/images/docs/ftip/2015FTIPWamend1to20.pdf>.

- . 2014b (March). *Draft 2014 Regional Transportation Plan/Sustainable Communities Strategy*. Bakersfield, CA: the County. [http://www.kerncog.org/images/docs/rtp/2014/draft\\_2014\\_RTP.pdf](http://www.kerncog.org/images/docs/rtp/2014/draft_2014_RTP.pdf).
- Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.
- . 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.
- Los Angeles County Metropolitan Transportation Authority (Metro). 2015 (April). Northwest 138 Corridor Improvement Project – Alternatives Fact Sheet. Los Angeles, CA: Metro.
- . 2010. *2010 Congestion Management Program*. Los Angeles, CA: Metro. [http://media.metro.net/projects\\_studies/cmp/images/CMP\\_Final\\_2010.pdf](http://media.metro.net/projects_studies/cmp/images/CMP_Final_2010.pdf).
- Southern California Association of Governments (SCAG). 2016 (April 7). The 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy. Los Angeles, CA: SCAG. <http://scagrtpscscs.net/Documents/2016/final/f2016RTPSCS.pdf>.
- . 2014 (September). *2015 Final Transportation Improvement Program*. Los Angeles, CA: SCAG.
- . 2012 (April). 2012 Regional Transportation Plan/Sustainable Communities Strategy. Los Angeles, CA: SCAG. <http://scagrtpscscs.net/Pages/2012RTPSCS.aspx>
- Stantec. 2017 (May). *Centennial Specific Plan Traffic Study*. Irvine, CA: Stantec (Appendix 5.10-A).
- Transportation Research Board of the National Academies (TRB). 2010. *2010 Highway Capacity Manual*. Washington D.C.: TRB Publications.

## 5.11 AIR RESOURCES

### 5.11.1 INTRODUCTION

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that air quality issues be evaluated as part of the environmental documentation process. The Project's air quality impacts are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0 of this EIR, respectively.

#### Summary

This section analyzes the temporary/construction-related and long-term/operational-related regional air quality emissions, local pollutant concentrations, and exposure of sensitive receptors to pollutants resulting from implementation of the Project. Analyses of health risks to sensitive receptors from toxic air contaminant emissions generated by stationary sources, minor sources, and by vehicles on State Route (SR) 138 are provided. Odor impacts and consistency with air quality management plans are also analyzed.

The northern 91 percent of the Project site lies within the boundaries of the Antelope Valley Air Quality Management District (AVAQMD), while the remaining 9 percent lies within the South Coast Air Quality Management District (SCAQMD).

The Project's construction emissions would exceed AVAQMD annual mass emissions thresholds for nitrogen oxides (NO<sub>x</sub>) and SCAQMD daily mass emissions thresholds for volatile organic compounds (VOC) and NO<sub>x</sub>.

Implementation of mitigation measures (MMs) 11-2 and 11-3 would substantially reduce construction-related NO<sub>x</sub> and would also reduce VOC emissions, but the impact would remain significant and unavoidable after mitigation. Construction mass emissions of inhalable particulate matter with a diameter of 10 microns or less (PM<sub>10</sub>), fine particulate matter with a diameter of 2.5 microns or less (PM<sub>2.5</sub>), carbon monoxide (CO), and sulfur oxides (SO<sub>x</sub>) would be less than significant. During later phases of construction, concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> from construction activities could exceed ambient air quality standards and potentially expose sensitive receptors in the completed area of the development to substantial pollutant concentrations. This impact would be significant and unavoidable.

At buildout of the Project, in 2035, long-term operational emissions of VOC, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> would exceed AVAQMD and SCAQMD CEQA significance thresholds. The primary source of long-term emissions would be from vehicle operations. MM 11-4, MM 11-5, and MM 11-6 would be implemented to reduce operational emissions; however, the impact would remain significant and unavoidable. It should be noted that the Project's proposed residential and non-residential uses have been planned for a balance between the number of jobs available and the number of on-site housing units in an effort to encourage local trip

making. The Centennial Traffic Study located in Appendix 5.10-A of this EIR forecasts that around 48 percent of the daily trip generation will be internal to the Project site, while 52 percent will be external trips. The Project would require the establishment of a Transportation Management Association (TMA) that develops strategic linkages with other Antelope Valley/Santa Clarita Valley TMAs or like organizations in order to maximize transit efficiencies and services. The TMA would reduce dependence on the automobile and provide for a more efficient use of transportation resources among Project occupants, thereby reducing pollutant emissions.

The Project's stationary sources (natural gas-fired boilers, emergency generators, broilers, and small source particulate matter generators) would be limited in size and number by MM 11-1, which requires implementation of PDF 11-1. With these limits, stationary source emissions would not exceed ambient air quality standards or health risk (cancer and non-carcinogenic) standards, and the impacts would be less than significant.

The Project would not contribute to off-site traffic conditions that would violate ambient CO standards; therefore, this impact would be less than significant.

MM 11-10 requires the implementation of PDF 11-6, which specifies that residences or other sensitive land uses shall not be built within 150 feet of SR-138. The analysis demonstrates that the incremental cancer risk and chronic non-cancer health risk to sensitive receptors beyond the 150-foot buffer would be less than significant. The analysis also indicates that health risks to existing residents adjacent to SR-138 in the Project vicinity would be less than significant with incorporation of MM 11-10.

There would be less than significant impacts related to potential offensive odors generated by the wastewater reclamation facilities (WRFs) or the Materials Recovery Facility/Transfer Station (MRF/TS), which would allow for mulching/composting operations.

The Project would not conflict with AVAQMD and SCAQMD air quality management plans (AQMP) because the land uses, population, and vehicle travel elements of the Project are anticipated in the Southern California Association of Governments (SCAG) *2012-2035 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS) and the SCAG 2016-2040 RTP/SCS, which is the basis for AQMP development. The impact would be less than significant.

## Section Format

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce the impacts; and level of significance after mitigation. This information is presented

in the following format (please refer to Section 2.0, Introduction, and Section 5.0, Environmental Setting, Impacts, and Mitigation, for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - Air Pollutants
  - References
- Relevant Plans, Policies, and Regulations
- Environmental Setting
- Project Design Features
- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- References

## **Air Pollutants**

### ***Criteria Pollutants***

The U.S. Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) have established national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS) for seven major pollutants (ozone [O<sub>3</sub>], PM<sub>10</sub>, PM<sub>2.5</sub>, CO, nitrogen dioxide [NO<sub>2</sub>], sulfur dioxide [SO<sub>2</sub>], and lead), often referred to as criteria pollutants. CARB has also developed CAAQS for four additional pollutants: visibility reducing particles, sulfates, hydrogen sulfide, and vinyl chloride. Table 5.11-1, California and National Ambient Air Quality Standards, presents the State and national ambient air quality standards. A brief explanation of each criteria pollutant and their health effects is presented below.

Emissions are discussed in terms of mobile, area, energy, and stationary sources. Mobile sources refer to motor vehicles, engines, and equipment that moves or can be moved from place to place, and include vehicles that operate on roads and highways (“on-road” or “highway” vehicles), as well as off-road vehicles, engines, and equipment. Off-road vehicles include construction equipment. Area sources refer to dispersed sources of pollution that emit pollutants from a specified area; these include consumer products, fireplaces, landscaping maintenance equipment, and other sources associated with a particular land use. Energy sources are natural gas uses, typically for building heat and hot water. Stationary sources refer to any fixed emitter of air pollutants, such as fossil fuel-burning power plants, petroleum refineries, petrochemical plants, food processing plants, gas stations, emergency



generators, central boilers, and other industrial and commercial sources. Stationary sources are typically required to obtain permits to operate from air pollution agencies.

**TABLE 5.11-1  
CALIFORNIA AND NATIONAL AMBIENT AIR QUALITY STANDARDS**

Pollutant	Averaging Time	California Standards	Federal Standards	
			Primary <sup>a</sup>	Secondary <sup>b</sup>
O <sub>3</sub> <sup>c</sup>	1 Hour	0.09 ppm (180 µg/m <sup>3</sup> )	-	-
	8 Hour	0.070 ppm (137 µg/m <sup>3</sup> )	0.070 ppm (137 µg/m <sup>3</sup> )	Same as Primary
PM <sub>10</sub>	24 Hour	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	Same as Primary
	AAM	20 µg/m <sup>3</sup>	-	Same as Primary
PM <sub>2.5</sub>	24 Hour	-	35 µg/m <sup>3</sup>	Same as Primary
	AAM	12 µg/m <sup>3</sup>	12.0 µg/m <sup>3</sup>	15.0 µg/m <sup>3</sup>
CO	1 Hour	20 ppm (23 mg/m <sup>3</sup> )	35 ppm (40 mg/m <sup>3</sup> )	-
	8 Hour	9.0 ppm (10 mg/m <sup>3</sup> )	9 ppm (10 mg/m <sup>3</sup> )	-
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )	-	-
NO <sub>2</sub>	AAM	0.030 ppm (57 µg/m <sup>3</sup> )	0.053 ppm (100 µg/m <sup>3</sup> )	Same as Primary
	1 Hour	0.18 ppm (339 µg/m <sup>3</sup> )	0.100 ppm (188 µg/m <sup>3</sup> )	-
SO <sub>2</sub>	24 Hour	0.04 ppm (105 µg/m <sup>3</sup> )	-	-
	3 Hour	-	-	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1 Hour	0.25 ppm (655 µg/m <sup>3</sup> )	0.075 ppm (196 µg/m <sup>3</sup> )	-
Lead	30-day Avg.	1.5 µg/m <sup>3</sup>	-	-
	Calendar Quarter	-	1.5 µg/m <sup>3</sup>	Same as Primary
	Rolling 3-month Avg.	-	0.15 µg/m <sup>3</sup>	
Visibility Reducing Particles	8 hour	Extinction coefficient of 0.23 per km – visibility ≥ 10 miles ( 0.07 per km – ≥30 miles for Lake Tahoe)	<b>No Federal Standards</b>	
Sulfates	24 Hour	25 µg/m <sup>3</sup>		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m <sup>3</sup> )		
Vinyl Chloride	24 Hour	0.01 ppm (26 µg/m <sup>3</sup> )		
<p>O<sub>3</sub>: ozone, ppm: parts per million, µg/m<sup>3</sup>: micrograms per cubic meter, -: No Standard; PM<sub>10</sub>: respirable particulate matter with a diameter of 10 microns or less, AAM: Annual Arithmetic Mean, PM<sub>2.5</sub>: fine particulate matter with a diameter of 2.5 microns or less, CO: carbon monoxide, mg/m<sup>3</sup>: milligrams per cubic meter, NO<sub>2</sub>: nitrogen dioxide, SO<sub>2</sub>: sulfur dioxide, km: kilometer.</p> <p><sup>a</sup> <i>National Primary Standards</i>: The levels of air quality necessary, within an adequate margin of safety, to protect the public health.</p> <p><sup>b</sup> <i>National Secondary Standards</i>: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.</p> <p>Note: More detailed information in the data presented in this table can be found at the CARB website (<a href="http://www.arb.ca.gov">www.arb.ca.gov</a>).</p> <p>Source: CARB 2016a.</p>				

### Ozone (O<sub>3</sub>)

O<sub>3</sub> is a secondary pollutant; it is not directly emitted. O<sub>3</sub> is formed by chemical reactions between VOCs (also referred to as reactive organic gases [ROGs]) and NO<sub>x</sub>, which occur only in the presence of bright sunlight. VOC/ROG emissions are generally unburned hydrocarbons that are a result of motor vehicle travel and other combustion sources. Nitrogen oxides are also a result of the combustion process, most notably due to the operation of motor vehicles. Sunlight and hot weather cause ground-level O<sub>3</sub> to form. (Not to be confused with the “ozone layer” which occurs very high in the atmosphere and shields the planet from some ultraviolet [UV] rays.) As a result, O<sub>3</sub> is known as a summertime air pollutant. Ground-level ozone is the primary constituent of smog. Because ground-level ozone is formed in the atmosphere, high concentrations can occur in areas well away from sources of its constituent pollutants.

People with lung disease, children, older adults, and people who are active are the most sensitive when O<sub>3</sub> levels are unhealthy. Numerous scientific studies have linked ground-level O<sub>3</sub> exposure to a variety of health problems, including:

- lung irritation that can cause inflammation much like a sunburn;
- wheezing, coughing, pain when taking a deep breath, and breathing difficulties during exercise or outdoor activities;
- permanent lung damage to those with repeated exposure to O<sub>3</sub> pollution; and
- aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.

Ground-level O<sub>3</sub> can also have detrimental effects on plants and ecosystems. These effects include:

- interfering with the ability of sensitive plants to produce and store food, making them more susceptible to certain diseases, insects, other pollutants, competition, and harsh weather;
- damaging the leaves of trees and other plants, negatively impacting the appearance of urban vegetation, national parks, and recreation areas; and
- reducing crop yields and forest growth, potentially impacting species diversity in ecosystems.

Currently, the South Coast Air Basin (SoCAB) and Mojave Desert Air Basin (MDAB) are designated as “Nonattainment Areas” for the State and federal O<sub>3</sub> standards.

### Particulate Matter (PM<sub>10</sub>, PM<sub>2.5</sub>, and UFP)

Particulate matter includes both aerosols and solid particles of a wide range of size and composition. Of particular concern are inhalable particulate matter, which are those particles equal to or smaller than 10 microns in size (PM<sub>10</sub>); fine particulate matter, which are particles smaller than or equal to 2.5 microns (PM<sub>2.5</sub>); and ultrafine particulate matter (UFP), which are particles less than 0.1 micron. The size of the particulate matter refers to

the aerodynamic diameter of the particulate. Smaller particulates are of greater concern because they can penetrate deeper into the lungs than large particles. PM<sub>2.5</sub> is directly emitted in combustion exhaust and fugitive dust and is formed from atmospheric reactions between various gaseous pollutants, including NO<sub>x</sub>, SO<sub>x</sub>, and VOCs. PM<sub>10</sub> is directly emitted as a result of mechanical processes that crush or grind larger particles or from the re-suspension of dusts most typically through construction activities and vehicular travels. PM<sub>2.5</sub> and PM<sub>10</sub> can remain suspended in the atmosphere for days and/or weeks and can be transported long distances. Ultrafine particles are the smallest particles and are good indicators of any kind of fuel burning, from diesel engines to refinery operations.

The principal health effects of airborne particulate matter are on the respiratory and cardiac systems. According to the USEPA, some people are more sensitive than others to breathing fine particles (USEPA 2017). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM<sub>10</sub> and PM<sub>2.5</sub>. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths. However, all people exposed to elevated levels of particulate matter may experience temporary health effects (USEPA 2016a).

Short-term exposure to high PM<sub>2.5</sub> levels is associated with premature mortality and increased hospital admissions and emergency room visits. Long-term exposure to high PM<sub>2.5</sub> levels is associated with premature mortality and development of chronic respiratory disease. Short-term exposure to high PM<sub>10</sub> levels is associated with hospital admissions for cardiopulmonary diseases, increased respiratory symptoms, and possible premature mortality. There are national and State 24-hour PM<sub>10</sub> standards, but there is no annual long-term standard. With respect to long-term PM<sub>10</sub> health effects, the USEPA concluded in a 2006 standards review that analysis of air quality data showed that the 24-hour PM<sub>10</sub> standard generally resulted in annual average PM<sub>10</sub> levels at or below the annual standard of 50 µg/m<sup>3</sup> and that available evidence did not suggest an association between long-term exposure to PM<sub>10</sub> at 2006 ambient levels and health problems. Based on this conclusion, the national PM<sub>10</sub> annual standard was revoked (USEPA 2006). However, California maintains an annual PM<sub>10</sub> standard.

Particulate matter in the AVAQMD tends to be primarily fugitive dust. This dust appears to be generated by both local sources and by region-wide dust during moderate to high wind episodes. These regional episodes tend to be multi-district and sometimes interstate in scope. The AVAQMD has identified the local sources of fugitive dust to be primarily unpaved road travel; construction and local disturbed areas of soil concentrated in the urban populated areas in the district; and seasonal agricultural operations (AVAQMD 2005).

No federal or State standards have been established for UFP. Currently, PM<sub>10</sub> levels in the SoCAB and MDAB are designated as “Nonattainment areas” for State standards and “Attainment/Maintenance areas” for federal standards. PM<sub>2.5</sub> levels in the SoCAB are designated as “Nonattainment areas” for State and federal standards; the MDAB is

designated as Unclassified/attainment for the PM<sub>2.5</sub> federal standard and Unclassified for the PM<sub>2.5</sub> State standard.

### Carbon Monoxide (CO)

CO is a colorless and odorless gas which, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can lead to headaches, aggravation of cardiovascular disease, and impairment of central nervous system functions. Carbon monoxide concentrations can vary greatly over comparatively short distances. Relatively high concentrations are typically found near crowded intersections; along heavily used roadways carrying slow moving traffic; and at or near ground level. Even under the most severe meteorological and traffic conditions, high CO concentrations are limited to locations within a relatively short distance (i.e., up to 600 feet or 185 meters) of heavily traveled roadways. Overall, CO emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973.

Currently, CO levels in the SoCAB and MDAB are in attainment for State and federal one-hour and eight-hour standards.

### Nitrogen Dioxide (NO<sub>2</sub>)

Nitrogen gas, normally relatively inert (unreactive), comprises about 80 percent of the air. At high temperatures (i.e., in the combustion process) and under certain other conditions it can combine with oxygen to form several different gaseous compounds collectively called nitrogen oxides (NO<sub>x</sub>). NO is converted to NO<sub>2</sub>, a red-brown pungent gas, in the atmosphere. Motor vehicle emissions are the main source of NO<sub>x</sub> in urban areas.

NO<sub>2</sub> is toxic to various animals and to humans. Its toxicity relates to its ability to form nitric acid with water in the eye, lung, mucus membrane, and skin. In animals, long-term exposure to NO<sub>x</sub> increases susceptibility to respiratory infections lowering their resistance to such diseases as pneumonia and influenza. Laboratory studies show susceptible humans, such as asthmatics, exposed to high concentrations of NO<sub>2</sub> can suffer lung irritation and, potentially, lung damage. Epidemiological studies have also shown associations between NO<sub>2</sub> concentrations and daily mortality from respiratory and cardiovascular causes and with hospital admissions for respiratory conditions.

NO<sub>x</sub> is primarily a combination of NO and NO<sub>2</sub>. While the NAAQS and CAAQS only address NO<sub>2</sub>, the total group of nitrogen oxides is of concern. NO and NO<sub>2</sub> are both precursors in the formation of O<sub>3</sub> and PM<sub>2.5</sub>. Because of this and the fact that NO emissions largely convert to NO<sub>2</sub>, NO<sub>x</sub> emissions are typically examined when assessing potential air quality impacts. Currently, NO<sub>2</sub> levels in the SoCAB and MDAB are in attainment for State and federal standards.

### Sulfur Dioxide (SO<sub>2</sub>)

Sulfur oxides (SO<sub>x</sub>) constitute a class of compounds of which SO<sub>2</sub> and sulfur trioxide (SO<sub>3</sub>) are included. Ninety-five percent of pollution-related SO<sub>x</sub> emissions are in the form of SO<sub>2</sub>. SO<sub>x</sub> emissions are typically examined when assessing potential air quality impacts of SO<sub>2</sub>. Combustion of fossil fuels for generation of electric power is the primary contributor of SO<sub>x</sub> emissions. Industrial processes, such as nonferrous metal smelting, also contribute to SO<sub>x</sub> emissions. SO<sub>x</sub> is also formed during combustion of motor fuels. However, most of the sulfur has been removed from fuels, greatly reducing SO<sub>x</sub> emissions from vehicles.

SO<sub>2</sub> combines easily with water vapor, forming aerosols of sulfurous acid (H<sub>2</sub>SO<sub>3</sub>), a colorless, mildly corrosive liquid. This liquid may then combine with oxygen in the air, forming the even more irritating and corrosive sulfuric acid (H<sub>2</sub>SO<sub>4</sub>). Peak levels of SO<sub>2</sub> in the air can cause temporary breathing difficulty for people with asthma who are active outdoors. Longer-term exposures to high levels of SO<sub>2</sub> gas and particles cause respiratory illness and aggravate existing heart disease. SO<sub>2</sub> reacts with other chemicals in the air to form tiny sulfate particles which are measured as PM<sub>2.5</sub>. SO<sub>2</sub> is monitored at several sites in the SoCAB and MDAB, and both the SoCAB and the MDAB are in attainment for the State and federal SO<sub>2</sub> standards.

### Lead

Lead is a stable compound, which persists and accumulates both in the environment and in animals. In humans, it affects the blood-forming (or hematopoietic), the nervous, and the renal systems. In addition, lead has been shown to affect the normal functions of the reproductive, endocrine, hepatic, cardiovascular, immunological, and gastrointestinal systems, although there is significant individual variability in response to lead exposure. Since 1975, lead emissions have been in decline due in part to the introduction of catalyst-equipped vehicles and the decline in production of leaded gasoline. In general, an analysis of lead is limited to projects that emit significant quantities of the pollutant (e.g., lead smelters, battery manufacturers, and battery recyclers) and are not undertaken for transportation, residential, or commercial development projects. Both the SoCAB and MDAB are in attainment for the State lead standard. The Los Angeles County portion of the SoCAB is classified nonattainment for the federal lead standard.

### Visibility Reducing Particles

Visibility reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consist of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt. The State standard is intended to limit the frequency and severity of visibility impairment due to regional haze. Both the SoCAB and the MDAB are “unclassified” for this pollutant. There are no federal standards for visibility reducing particulates.

### Sulfates (SO<sub>4</sub>)

Sulfates (SO<sub>4</sub>) are the fully oxidized ionic form of sulfur. SO<sub>4</sub> occurs in combination with metal and/or hydrogen ions. In California, emissions of sulfur compounds occur primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to SO<sub>2</sub> during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO<sub>2</sub> to SO<sub>4</sub> takes place comparatively rapidly and completely in California urban areas due to regional meteorological features.

The CARB's SO<sub>4</sub> standard is designed to prevent aggravation of respiratory symptoms. Effects of SO<sub>4</sub> exposure at levels above the standard include a decrease in respiratory function; aggravation of asthmatic symptoms; and an increased risk of cardiopulmonary disease. SO<sub>4</sub> is particularly effective in degrading visibility and, due to fact that it is usually acidic, can harm ecosystems and damage materials and property. Both the SoCAB and MDAB are in attainment for the State SO<sub>4</sub> standard.

### Hydrogen Sulfide (H<sub>2</sub>S)

H<sub>2</sub>S is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. It can also be present in sewer gas and some natural gas, and it can be emitted as the result of geothermal energy exploitation. Breathing H<sub>2</sub>S at levels above the standard will result in exposure to a very disagreeable odor. In 1984, a CARB committee concluded that the ambient standard for H<sub>2</sub>S is adequate to protect public health and to significantly reduce odor annoyance (CARB 2009). Both the SoCAB and the MDAB are "unclassified" for this pollutant.

### Vinyl Chloride (Chloroethene)

Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Short-term exposure to high levels of vinyl chloride in air causes central nervous system effects, such as dizziness, drowsiness, and headaches. Long-term exposure to vinyl chloride through inhalation and oral exposure causes liver damage. Cancer is a major concern from exposure to vinyl chloride via inhalation. Vinyl chloride exposure has been shown to increase the risk of angiosarcoma, a rare form of liver cancer in humans. Vinyl chloride is not routinely measured in the SoCAB or MDAB. California has a vinyl chloride standard, but there is no corresponding federal standard.

### ***Toxic Air Contaminants***

In addition to criteria air pollutants, toxic air contaminants (TACs) emitted from mobile and stationary sources must be taken into consideration for projects proposing new sources of TAC emissions. TACs are those pollutants that are known or suspected to cause cancer or other serious health effects (e.g., reproductive effects or birth defects) or adverse environmental effects.

Installation and operation of stationary equipment that emit TACs generally require permits from the applicable air district, and a Health Risk Assessment (an HRA) of TAC emissions may be a requirement under the permitting process. Land uses that would result in a long-term increase in mobile TAC emissions (e.g., distribution centers with diesel emissions from delivery trucks) also may require the preparation of an HRA. The HRA evaluates the risks posed to sensitive receptors (e.g., residents, schools, hospitals, and parks) in the vicinity of proposed TAC source(s) and must not exceed significance thresholds. Significance thresholds have been established in terms of cancer risk and hazard index.

Carcinogenic risks (i.e., cancer risks) are estimated as the incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk is expressed as a probability (e.g., 10 in 1 million). Hazard indices (HIs) express the potential for chemicals to result in non-cancer health impacts, and non-carcinogenic chemicals should not be present at levels expected to cause adverse health effects (i.e., HI greater than one). HIs are expressed using decimal notation (e.g., 0.001). If there is a reference exposure level of greater than 1, then impacts would be considered potentially significant. The National Contingency Plan (NCP, in accordance with *Code of Federal Regulations* [CFR], Title 40, Part 300) is commonly cited as the basis for target risk and hazard levels. According to the NCP, lifetime incremental cancer risks posed by a site should not exceed the range of between 1 in 1 million and 100 in 1 million. Pursuant to SCAQMD Rule 1401(d)(1) and AVAQMD Rule 1401(E)(3)(e), the risks associated with potential exposure to emissions from a source equipped with the best available control technology for toxics (T-BACT) and from all emissions sources included in a “project” are acceptable if the incremental cancer risk is less than ten in one million, and is less than one in one million for sources not equipped with T-BACT. A brief explanation of diesel particulate matter and its potential health effects is presented below. Additional TACs are discussed in Appendix 5.11-D.

### Diesel Particulate Matter

Diesel particulate matter (diesel PM) is part of a complex mixture that makes up diesel exhaust emitted from a broad range of diesel engines, including on-road diesel engines of trucks, buses, and cars and the off-road road diesel engines that include locomotives, marine vessels, and heavy-duty equipment. Diesel exhaust is composed of gas and particles. The gas phase is composed of many urban hazardous air pollutants, such as acetaldehyde, benzene, and formaldehyde. The particle phase includes categories of fine and ultra-fine particles that, when inhaled, can cause immunological effects including lung inflammation and cellular changes in the lung. Human epidemiological studies demonstrate an association between diesel exhaust exposure and increased lung cancer rates in occupational settings. In 1998, the California Office of Environmental Health Hazards (OEHHA) listed diesel PM as a TAC based on its potential to cause cancer and other adverse health effects. Under California regulatory guidelines, diesel exhaust, as a mixture, is identified as a known carcinogen. .

---

## References

All references cited for preparation of this analysis are listed in Section 5.11.10. The primary technical references for this section are listed below.

1. California Emissions Estimator Model for the Centennial Project (Appendix 5.11-A)
2. ENVIRON International Corporation. 2009a (September). *Air Quality Analysis for Stationary Sources Allowed by the Centennial Specific Plan*. San Francisco and Emeryville, CA: Environ (Appendix 5.11-B).
3. ENVIRON International Corporation. 2009b (June). *Centennial Supplemental Air Quality Analysis*. Emeryville, CA: ENVIRON (Appendix 5.11-C).
4. South Coast Air Quality Management District Rule 403 Tables 1 and 2. (Appendix 5.11-D)

### 5.11.2 RELEVANT PLANS, POLICIES, AND REGULATIONS

#### Federal

##### *U.S. Environmental Protection Agency*

The USEPA's air quality mandates are drawn primarily from the Clean Air Act (CAA), which was enacted in 1970. The most recent major amendments made by Congress were in 1990. The USEPA is responsible for setting and enforcing the NAAQS for criteria pollutants, which are discussed above in Section 5.11.1, Introduction and shown in Table 5.11-1, California and National Ambient Air Quality Standards. Regional air quality is defined by whether the area has attained or not attained State and federal standards, as determined by monitoring. As part of its enforcement responsibilities, the USEPA requires each State with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain and maintain the federal standards. The SIP must integrate federal, State, and local plan components and regulations to identify specific measures to reduce pollution by using a combination of performance standards and market-based programs within the SIP-identified timeframe.

#### State

##### *California Clean Air Act (CCAA)*

The California Clean Air Act of 1988 provides the basis for air quality planning and regulation independent of federal regulations. A major element of the Act is the requirement that local air districts in violation of the CAAQS must prepare attainment plans that identify air quality problems, causes, trends and actions to be taken to attain and maintain California's air quality standards by the earliest practicable date (CARB 2016b).

##### *California Air Resources Board (CARB)*

CARB, a part of the California Environmental Protection Agency (CalEPA), is responsible for coordinating and administering both the federal and State air pollution control programs in



California. In this capacity, CARB conducts research; sets the California Ambient Air Quality Standards (CAAQS), as shown in Table 5.11-1; compiles emission inventories; develops suggested control measures; oversees local programs; and prepares the SIP. For regions that do not attain the CAAQS, CARB requires the air districts to prepare plans for attaining the standards. These plans are then integrated into the State SIP. CARB establishes emissions standards for (1) motor vehicles sold in California; (2) consumer products (e.g., hair spray, aerosol paints, barbecue lighter fluid); and (3) various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

### ***Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling***

The California Code of Regulations (CCR, specifically, Title 13, Section 2485) places restrictions on vehicular idling. It requires that on or after February 1, 2005, any person that owns, operates, or causes to operate any diesel-fueled commercial motor vehicle with gross vehicular weight ratings of greater than 10,000 pounds must prohibit vehicle idling for more than five consecutive minutes at any location. Additionally, diesel-fueled internal combustion engine auxiliary power systems (APS) must be prohibited from operating for greater than 5 minutes at any location when within 100 feet of any property zoned for individual or multi-family housing units, schools, hotels, motels, hospitals, senior care facilities or child care facilities.

### ***Title 24 Energy Efficiency Standards***

The Energy Efficiency Standards for Residential and Nonresidential Buildings (24 CCR 6) were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The current applicable standards are the 2013 Standards, effective July 1, 2014. The 2016 Code was published on July 1, 2016, and will go into effect on January 1, 2017 (CBSC 2016). The 2016 code is estimated to be at least 28 percent more efficient for than the 2013 Code for residential buildings and 5 percent more efficient for nonresidential buildings (CEC 2015a, 2015b). The requirements of the energy efficiency standards result in the reduction of natural gas and electricity consumption. Since natural gas use produces criteria pollutant emissions, a reduction in natural gas consumption results in a related reduction in air quality emissions.<sup>1</sup> Additional discussion of the Title 24 energy efficiency standards is included in Section 5.21, Greenhouse Gas Emissions.

### ***Title 24 Green Building Standards***

The 2013 California Green Building Standards Code (24 CCR 11), also known as the CALGreen code, contains mandatory requirements for new residential and nonresidential buildings (including buildings for retail, office, public schools and hospitals) throughout California (CBSC 2016). The 2016 CALGreen Code was effective January 1, 2017 (CBSC 2016b). The development of the CALGreen Code is intended to (1) cause a reduction in greenhouse gas (GHG) emissions from buildings; (2) promote environmentally responsible, cost effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, the code is established to reduce

---

<sup>1</sup> Because electricity is not generated on site, the emissions associated with electricity generation are not included in the emissions calculations.

construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction.

The CALGreen Code contains requirements for construction site selection, storm water control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for the verification that all building systems, such as heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

The CALGreen Code provides mandatory requirements for bicycle parking, carpool/vanpool/electric vehicle spaces, light and glare reduction, grading and paving, energy efficient appliances, renewable energy, graywater systems, water efficient plumbing fixtures, recycling and recycled materials, pollutant controls (including moisture control and indoor air quality), acoustical controls, storm water management, building design, insulation, flooring, and framing, among others.

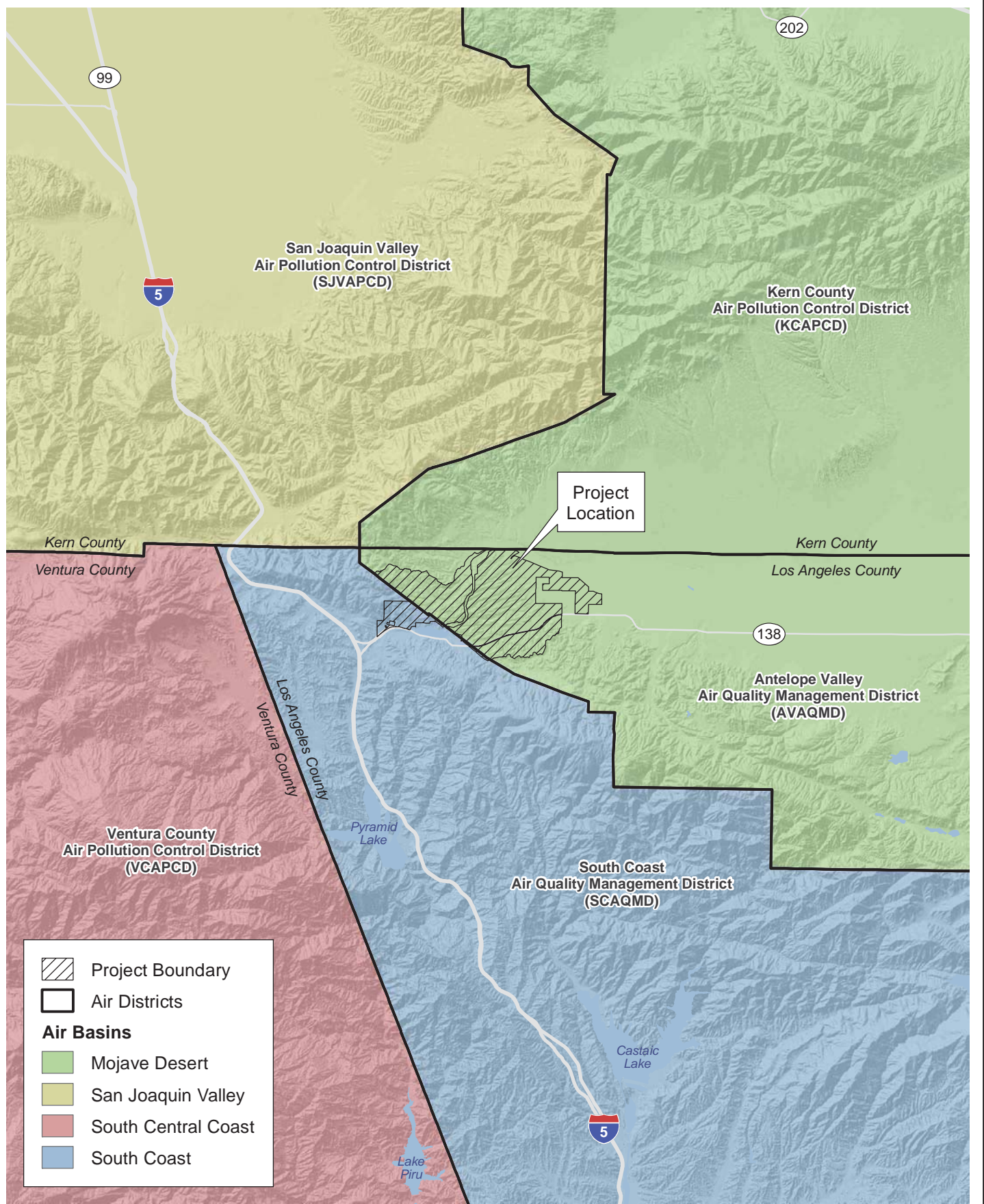
Beyond the mandatory requirements, optional Tier 1 status can be achieved by complying with voluntary measures for energy and water efficiency, material conservation, and other design features. Examples of Tier 1 requirements are 15 percent less energy use in residential construction than required by existing regulations and 12 percent less indoor water use in non-residential construction. Tier 2 status can be achieved by complying with additional voluntary measures; example requirements are 30 percent less energy use in residential construction and 20 percent less indoor water use in non-residential construction.

## **Regional**

### ***Air Quality Management Districts***

Air quality management districts are the air pollution control agencies that are responsible for attaining and maintaining State and federal ambient air quality standards in their respective air basin(s). California has been divided into 15 air basins based on similar meteorological and topographical features; these basins are managed by 35 different air quality management districts. As discussed above, each air district maintains a plan, or plans, that detail how State and federal air quality standards shall be met for nonattainment pollutants. Additionally, each air district monitors the air quality in its jurisdiction; issues and enforces permits for sources of pollutants to be constructed and operated; and establishes rules and regulations that govern sources of pollutants.

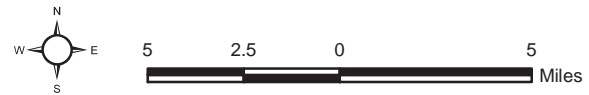
The Project site lies in two different air districts and two different air basins. The northern 91 percent of the site lies within the boundaries of the AVAQMD, while the remaining 9 percent lies within SCAQMD's boundaries. Since the Project lies within two air quality districts, the guidelines and significance thresholds from both the AVAQMD and SCAQMD are included in the air quality report. Exhibit 5.11-1, Air District and Basin Boundaries,



D:\Projects\3CEN\Centennial\XDR\EX\air\_disticts\_20150827.mxd

**Air District and Basin Boundaries**  
*Centennial Project*

**Exhibit 5.11-1**



illustrates the boundaries of these air districts and each air basin in relation to the Project site.

### Antelope Valley Air Quality Management District

The AVAQMD was formed in 1997 when the Antelope Valley separated from the jurisdiction of the SCAQMD. The AVAQMD is bound by the Kern County-Los Angeles County border to the north, the Los Angeles County-San Bernardino County border to the east, and the SCAQMD border to the south and southwest. The portion of the site under the jurisdiction of the AVAQMD lies within the Mojave Desert Air Basin (MDAB).

The AVAQMD's current air quality planning documentation, pursuant to SIP and the CCAA requirements applicable at the Project site, includes the following separate documents: the *AVAQMD 2004 Ozone Attainment Plan (State and Federal)*; the *AVAQMD List and Implementation Schedule for District Measures to Reduce PM Pursuant to Health & Safety Code §39614(d)*; the *8-Hour Reasonably Available Control Technology – State Implementation Plan Analysis*; the *2014 8-Hour Ozone Reasonably Available Control Technology (RACT) State Implementation Plan (SIP) Analysis – Supplemental Analysis*; and the *AVAQMD Federal 8-Hour Ozone Attainment Plan (Western Mojave Desert Non-attainment Area)*. The AVAQMD adopted the 2004 Ozone Plan in response to the designation of the western portions of the MDAB, including the Antelope Valley, as nonattainment areas for the O<sub>3</sub>NAAQS and CAAQS and in accordance with the Federal CAA requirement to prepare plans demonstrating attainment. The overall control strategy for the 2004 Ozone Plan is to implement all federal Reasonable Available Control Technology (RACT) rules to reduce O<sub>3</sub> precursors in the Antelope Valley (AVAQMD 2015a, AVAQMD 2015b).

The Antelope Valley has not yet demonstrated attainment status for O<sub>3</sub>, largely due to the transport of pollutants from the Los Angeles Basin and San Joaquin Valley. In 2008, the AVAQMD prepared the *Federal 8-Hour Ozone Attainment Plan (Western Mojave Desert Non-attainment Area)* to replace or update all previously submitted federal ozone plans for the Antelope Valley. The plan (1) demonstrates that the AVAQMD will meet the primary required federal O<sub>3</sub> planning milestones and will attain the 1997 8-hour O<sub>3</sub> NAAQS by June 2021; (2) presents the progress the AVAQMD will make towards meeting all required O<sub>3</sub>planning milestones; and (3) discusses the 2008 0.075 part per million (ppm) 8-hour O<sub>3</sub>NAAQS, preparatory to an expected nonattainment designation for the new NAAQS.<sup>2</sup> The AVAQMD is not proposing to adopt any additional control measures for direct O<sub>3</sub>precursor reduction purposes. However, the AVAQMD is committed to having all applicable Federal RACT rules as specified in the *Federal 8-Hour Ozone Attainment Plan*, and is currently performing analyses on the feasibility of adopting additional rules under the State of California “all feasible measures” mandate, which requires air districts to adopt rules that achieve the maximum degree of O<sub>3</sub>precursor emissions reduction, taking into account technology considerations and economic impacts. In addition, the AVAQMD will experience additional future emission reductions from existing and proposed federal and State control measures that affect mobile and area sources. In June 2008, the CARB approved a SIP revision for the Western Mojave Desert Ozone Nonattainment Area; the SIP revision includes the *AVAQMD*

---

<sup>2</sup> On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

*Federal 8-Hour Ozone Attainment Plan (Western Mojave Desert Non-attainment Area)*. The SIP revision was submitted to the USEPA in July 2008. As of the preparation of this EIR, the SIP revision has not been approved.

The AVAQMD adopted the *List and Implementation Schedule for District Measures to Reduce PM Pursuant to Health & Safety Code §39614(d)* on August 16, 2005. The list was prepared in response to the code which requires CARB, in consultation with local air pollution management districts, to develop and adopt a list of the most readily available, feasible, and cost-effective control measures that could be employed by CARB and the air districts to reduce PM10 and PM2.5.

#### South Coast Air Quality Management District

Approximately 9 percent of the Project site is under the jurisdiction of the SCAQMD and lies within the SoCAB. The SCAQMD was established in 1977 by merging the individual air pollution control districts of the four counties within the SoCAB: Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The SoCAB is bound on the west by the Pacific Ocean, on the north by the San Gabriel Mountains, on the north and east by the San Bernardino Mountains, on the southeast by the San Jacinto Mountains, and on the south the Santa Ana Mountains. The SoCAB occupies a low plain and the surrounding mountains channel and confine air flow, which traps air pollutants.

The Federal CAA requires the preparation of plans to demonstrate attainment of the NAAQS for which an area is designated as being in nonattainment. Furthermore, the CCAA requires the revision of these plans every three years to address reducing pollutant concentrations that exceed the CAAQS. The SCAQMD and SCAG, in coordination with local governments and the private sector, develop the Air Quality Management Plan (AQMP) for the SoCAB to satisfy these requirements. The AQMP is the most important air management document for the SoCAB because it provides the blueprint for meeting State and federal ambient air quality standards.

On November 28, 2007, CARB submitted a State Implementation Plan (SIP) revision to the USEPA for O<sub>3</sub>, PM2.5 (1997 Standard), CO, and NO<sub>2</sub> in the SoCAB. This revision is identified as the “2007 South Coast SIP”. The 2007 South Coast SIP demonstrates attainment of the federal PM2.5 standard in the SoCAB by 2014 and attainment of the federal 8-hour O<sub>3</sub> standard by 2023. This SIP also includes a request to reclassify the O<sub>3</sub> attainment designation from “severe” to “extreme”. The USEPA approved the redesignation effective June 4, 2010. The “extreme” designation requires the attainment of the 8-hour O<sub>3</sub> standard in the SoCAB by June 2024. CARB approved PM2.5 SIP revisions in April 2011 and the O<sub>3</sub> SIP revisions in July 2011. The USEPA approved the PM2.5 SIP on September 25, 2013, and has approved 47 of the 62 1997 8-hour O<sub>3</sub> SIP requirements (USEPA 2016b). On November 30, 2014, the USEPA proposed a finding that the SoCAB has attained the 1997 PM2.5 standards (USEPA 2014). The comment period closed on January 22, 2015; no subsequent action has been taken.

On September 30, 2015, the USEPA proposed to approve elements of the South Coast 2012 PM2.5 Plan and 2015 Supplement, which addresses Clean Air Act requirements for the 2006 PM2.5 NAAQS, and proposed to reclassify the area as a ‘serious’ nonattainment area for the

2006 PM<sub>2.5</sub> standard. The reclassification is based on the determination that the area cannot practicably attain the 2006 PM<sub>2.5</sub> NAAQS by the moderate area attainment date (December 31, 2015). On December 22, 2015, the EPA reclassified the South Coast area as a "Serious" nonattainment area for the 2006 PM<sub>2.5</sub> standard. The final reclassification requires the State to submit a "serious area" plan that provides for attainment of the 2006 PM<sub>2.5</sub> NAAQS as expeditiously as practicable as and no later than December 31, 2019 (USEPA 2016d).

On December 7, 2012, the SCAQMD adopted the 2012 AQMP, which is a regional and multi-agency effort (SCAQMD, CARB, SCAG, and USEPA). The 2012 AQMP incorporates the latest scientific and technical information and planning assumptions, including SCAG's 2012 *2012–2035 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS); updated emission inventory methods for various source categories; and SCAG's latest growth forecasts. The primary purposes of the 2012 AQMP are to demonstrate attainment of the federal 24-hour PM<sub>2.5</sub> standard by 2014 and to update the USEPA-approved 8-hour Ozone Control Plan. On December 20, 2012, the 2012 AQMP was submitted to CARB and the USEPA for concurrent review and approval for inclusion in the SIP (SCAQMD 2013). The 2012 AQMP was approved by the CARB on January 25, 2013.

The SCAQMD is currently developing the 2016 AQMP. The population projections for this plan include the proposed Project. The Final 2016 AQMP was adopted by the SCAQMD Governing Board on March 3, 2017 (SCAQMD 2017). The 2016 AQMP will develop integrated strategies and measures to meet the following NAAQS (SCAQMD 2016a):

- 8-hour O<sub>3</sub> (75 parts per billion [ppb]) by 2031<sup>3</sup>
- Annual PM<sub>2.5</sub> (12 micrograms per cubic meter [µg/m<sup>3</sup>]) by 2025
- 8-hour O<sub>3</sub> (80 ppb) by 2023
- 1-hour O<sub>3</sub> (120 ppb) by 2022
- 24-hour PM<sub>2.5</sub> (35 µg/m<sup>3</sup>) by 2019

### ***Southern California Association of Governments***

SCAG is a council of governments for Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura Counties. As a regional planning agency, SCAG serves as a forum for regional issues relating to transportation, the economy, community development, and the environment. SCAG also serves as the regional clearinghouse for projects requiring environmental documentation under federal and State law. In this role, SCAG reviews projects to analyze their impacts to its regional planning efforts.

Although SCAG is not an air quality management agency, it is responsible for several air quality planning issues. As the designated Metropolitan Planning Organization (MPO) for the Southern California region, SCAG partners with local air districts by providing information and/or oversight of air quality planning documentation. Specifically, SCAG provides

---

<sup>3</sup> On October 1, 2015, the USEPA lowered the 8-hour O<sub>3</sub> standard to 0.070 ppm (70 ppb). The SIP (or AQMP) for the 70 ppb standard will be due 4 years after the attainment/non-attainment designations are issued by the USEPA, which is expected next year in 2017. Thus, meeting the 70 ppb standard will be addressed in a 2021 AQMP.



demographic projections as well as integrated land use, housing, employment and transportation programs, measures, and strategies for portions of the South Coast AQMP, which applies to a portion of the Project site. The local air districts develop and enforce regulations for non-vehicular sources of air pollution and coordinate with SCAG to develop and implement Transportation Control Measures (TCMs) to reduce and otherwise improve vehicular travel and associated pollutant emissions.

On April 4, 2012, the SCAG Regional Council adopted the 2012–2035 RTP/SCS, which includes a strong commitment to reduce emissions from transportation sources in order to improve public health; to meet the NAAQS as set forth by the Federal CAA; and to comply with Senate Bill (SB) 375 (SCAG 2012). New to the 2012RTP, SB 375 states that RTPs must include an SCS that reduces greenhouse gas (GHG) emissions from passenger vehicles by 8 percent per capita by 2020 and 13 percent per capita by 2035 compared to 2005 emissions levels. The measures to reduce GHG emissions would also cause reductions in criteria pollutant emissions.

On April 7, 2016, the SCAG Regional Council adopted the 2016–2040 RTP/SCS. The RTP/SCS combines the need for mobility with a “sustainable future” through a reduction in the amount of emissions produced from transportation sources. This would be made through the operation of low or no emission transportation systems by 2040. The 2016 RTP/SCS, like the 2012 RTP/SCS, includes population and housing projections in Traffic Analysis Zone (TAZ) maps for the Project that are consistent with the size and location of the Project, and both the 2012 and 2016 RTP/SCS include corresponding figures that are consistent with the Project.

## County

### *General Plans*

#### Los Angeles County General Plan and Antelope Valley Area Plan

The *County of Los Angeles 2035 General Plan* and *Antelope Valley Area Plan* address air quality issues that affect the County. A consistency analysis of the Project’s specific goals and policies with the County’s relevant plans, policies and regulations is provided in the Land Use, Entitlements, and Planning Section (Section 5.8) of this document. The AVAP goal and policies applicable to the analysis of air quality with Project implementation are listed below.

#### **Air Quality Goal COS 9:** Improved air quality in the Antelope Valley.

**Policy COS 9.1:** Implement land use patterns that reduce the number of vehicle trips, reducing potential air pollution, as directed in the policies of the Land Use Element.

**Policy COS 9.2:** Develop multi-modal transportation systems that offer alternatives to automobile travel to reduce the number of vehicle trips, including regional transportation, local transit, bicycle routes, trails, and pedestrian networks, as directed in the policies of the Mobility Element.

**Policy COS 9.3:** In evaluating new development proposals, consider requiring trip reduction measures to relieve congestion and reduce air pollution from vehicle emissions.

**Policy COS 9.4:** Promote recycling and composting throughout the Antelope Valley to reduce air quality impacts from waste disposal activities and landfill operations.

**Policy COS 9.5:** Encourage the use of alternative fuel vehicles throughout the Antelope Valley.

### 5.11.3 METHODOLOGY

#### Construction and Operational Emissions

Construction and operational emissions were calculated by using the California Emissions Estimator Model (CalEEMod) Version 2016.3.1. CalEEMod is a computer program that is used to calculate anticipated emissions associated with land development projects in California. CalEEMod uses pollutant emission rates from the CARB's Emission FACTor model (EMFAC 2014) for on-road vehicles; CARB's OFFROAD 2014 for construction and material handling equipment; and USEPA formulas for non-vehicular emissions. Where appropriate, emission factors, trip distance, and other data in the model are specific to a county or air basin. The Los Angeles County – Mojave Desert data were used for the Project. The model calculates emissions of the following criteria pollutants: VOC, NO<sub>x</sub>, CO, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>.

Specific inputs to CalEEMod for both construction and operations include land uses and acreages associated with the Project. Construction input data include but are not limited to the start and finish dates of construction phases; inventories of construction equipment to be used during each phase; volumes of structures to be demolished; volumes of materials to be imported to and exported from the site; areas to be paved; and areas to be painted. Output emissions data are provided for off-road equipment, on-road vehicles, fugitive dust from grading, and VOCs from asphalt off-gas and architectural coatings.

For the purposes of the air quality modeling assumptions, the Project construction is assumed to begin in 2016, with buildout complete in 2035, although the actual start of construction and buildout are likely to occur later than 2016 and 2035, respectively. The 2035 buildout date is consistent with the Project's Traffic Study (see Section 5.10, Traffic, Access, and Circulation) and also with the CalEEMod model, which does not include operational emissions beyond 2035. For both construction and operational emissions, this is a very conservative approach because both the construction equipment fleet and on-road vehicles are assumed to be "cleaner", that is, to generate less unit emissions, with each future year. As such, assuming development of the Project site occurs sooner than is likely to occur provides a more conservative assessment of both construction and operational emissions.

Operational inputs include the year of analysis and vehicle trip generation rates. Output operational emissions data categories include area, energy, and mobile sources. Area sources are landscape maintenance equipment, consumer products, and architectural coatings used for routine maintenance. Energy emissions are from natural gas consumption. For vehicle



use emissions, traffic data was obtained from the Traffic Study prepared by Stantec (Appendix 5.10-A). The year of analysis for Project buildout is 2035. Average daily trip (ADT) generation rates from the traffic study were entered into the appropriate land use categories in CalEEMod to determine total vehicle trips, vehicle miles traveled, and associated emissions by land use unit type. The Project would generate an estimated 146,154 daily trips at Buildout, with approximately 48 percent (70,246 trips) being internal trips (Stantec 2016). The total estimated weekday Project-generated vehicles miles traveled (VMT) at buildout is 3,438,632 based on the Project-specific internal-external trip proportions (trip types) and average trip distances for the internal and external trips (Stantec 2016). However, the total weekday increase in regional VMT would be 1,921,599 due to changes in regional commuting patterns. The VMT data was used to adjust the CalEEMod trip lengths for consistent VMT results.

The CalEEMod model also includes data to calculate emissions reductions resulting from the implementation of PDFs and mitigation measures (MMs). The methodology for most emissions reductions is based on the August 2010 CAPCOA publication, *Quantifying Greenhouse Gas Mitigation Measures, A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures* (CAPCOA 2010). CAPCOA measure LUT-6, documents that trip generation is less for below market rate (affordable) housing. This adjustment to project operational mobile emissions is based on a minimum of 10 percent of the housing being affordable, as stated in PDF 11-5, which is required to be implemented by MM 21-16 of Section 5.21, Climate Change, the Centennial Affordable Housing Implementation Plan.

### ***Ambient Air Quality Standards – Localized Significance Thresholds***

The SCAQMD developed a method to assess the localized impacts of criteria pollutant emissions from project sites in close proximity to sensitive receptors. This Localized Significance Threshold (LST) method addresses the thresholds (as listed in Table 5.11-7) for Ambient Air Quality for Criteria Pollutants. There are no corresponding significance thresholds in the AVAQMD's California Environmental Quality Act and Federal Conformity Guidelines (AVAQMD 2016b).

In general, the LST method is a table look-up procedure recommended for projects up to five acres in size. For larger projects, project-specific dispersion modeling is recommended to determine project impacts on surrounding sensitive land uses. Therefore, ENVIRON International Corporation (ENVIRON) conducted a screening-level air dispersion modeling evaluation to estimate ambient air concentrations of criteria pollutants at sensitive receptor locations and compared these estimated concentrations with the CAAQS and NAAQS. The USEPA's Industrial Source Complex, Short Term Version 3 (ISCST3) model with USEPA default settings was used to model air emissions transport.

The SCAQMD recommends selecting the closest site expected to have representative data for meteorological input. Due to its proximity to the proposed development and similar topographic characteristics (Centennial and the chosen site are in the valley formed to the east by the Tehachapi Mountains and San Andreas Rift Zone), the meteorological data from SCAQMD recorded at the Lancaster, California Monitoring Station was assumed appropriate

for this analysis. Selection of model parameters, such as terrain and rural/urban coefficients is discussed in the ENVIRON report included in Appendix 5.11-C of this EIR.

NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> were evaluated and compared to the CAAQS, the NAAQS, and the SCAQMD's LSTs. NO<sub>x</sub> emissions were modeled and gradual conversion of emitted NO to NO<sub>2</sub> was assumed (per LST Guidelines). As a conservative assumption for this analysis, 50 percent of NO<sub>x</sub> were assumed to convert to NO<sub>2</sub> (this approximates a travel distance of 1,000 meters [3,280 feet] downwind according to LST Guidelines). VOC emissions were not modeled as there is no State or federal ambient air quality standard for VOCs. CO was not modeled, as CO impacts tend to be highest for traffic at intersections. Pollutant emission rates for on-site emissions were taken from the calculated daily emissions data for construction activity. Calculation of chemical concentrations requires the selection of appropriate concentration averaging times for comparison to the CAAQS and NAAQS. The maximum 1-hour and annual NO<sub>x</sub> concentrations were modeled, as well as the maximum 24-hour average and annual PM<sub>10</sub> and PM<sub>2.5</sub> concentrations. These concentrations, estimated at sensitive receptor locations, were placed every 50 meters (164 feet) along the closest residential, commercial, and institutional boundaries to the construction area.

### ***Carbon Monoxide Hotspot***

For localized CO impacts from mobile sources at congested intersections, an appropriate screening procedure is provided in the procedures and guidelines contained in *Transportation Project-Level Carbon Monoxide Protocol* (the Protocol) to determine whether a project poses the potential for a CO hotspot (UCD ITS 1997). If it is determined that a quantitative analysis is required, the Protocol methods are not used because of emission factors that are outdated. Potential local CO impacts were evaluated by comparing projected traffic conditions with the CO analysis in the SCAQMD's 2003 AQMP.

### ***Exposure to Toxic Air Contaminant Emissions***

At this time, neither the AVAQMD nor the SCAQMD has adopted a quantitative methodology for analyzing short-term construction-related emissions of TACs and/or the exposure thereof. Therefore, Project-generated, construction-related emissions of TACs were assessed in a qualitative manner.

### **Stationary Sources**

The total mass emissions of VOC, NO<sub>x</sub>, PM, and CO generated by potential stationary sources were calculated by ENVIRON based on the limitations on such sources imposed in MM 11-1 (which requires the implementation of PDF 11-1). The stationary sources addressed in the analysis include boilers, emergency generators, spray booths, restaurant broilers, gasoline service stations, solvent storage tanks, small source PM-generators, and dry cleaners. These constitute and/or represent the majority of stationary sources for the wide variety of land uses allowed by the Project. The VOC emissions from proposed wastewater reclamation facilities were also addressed. A detailed description of the methods applied in the stationary source air quality analysis is provided in the ENVIRON Report included in Appendix 5.11-B of this EIR.

### Toxic Air Contaminants

The ENVIRON Stationary Sources Report (Appendix 5.11-B) evaluates the Project's anticipated business park stationary source emissions of TACs to determine whether the incremental risks posed to sensitive receptors (e.g., residents, schools, hospitals, parks) by such stationary sources would exceed the applicable significance thresholds (i.e., has a cancer risk greater than or equal to 10 in 1 million for cancer risks and 1.0 for non-cancer chronic and acute HIs). Although the ENVIRON Stationary Sources Report analyzed TACs based on data from 2008, there have been no substantial changes to information related to TACs, and the analysis remains relevant. Because it is possible that two stationary sources that are located in proximity to each other may result in incremental risks greater than these thresholds, a Project-wide analysis of TAC emissions was completed.

The TAC analysis includes a multi-step risk characterization to quantify the potential for adverse health effects as a result of site-specific exposures to emissions and an evaluation of TACs in commercial, institutional, and residential areas to confirm, with the designation of appropriate buffer areas, that the aggregate incremental cancer and non-cancer health risks from these TAC-emitting sources would be below significance thresholds. A description of the methodology for these analyses is provided in the Appendix 5.11-B.

For TAC-emitting sources in commercial, institutional and residential areas, modeling was conducted to confirm that limitations on equipment types and sizes imposed by MM 11-1 will ensure that the incremental long-term risks posed by each individual source would be less than significant at the maximum point of impact. To account for the possibility of impacts at one receptor from more than one source, the limitations for each individual source are based on a standard at one-tenth of the applicable standard. This is described in more detail in Appendix 5.11-B. In addition, a screening health risk assessment for the wastewater reclamation facilities (WRFs) was conducted using ISCST3 to evaluate the air concentration at the nearest sensitive receptors and the incremental cancer and non-cancer health risks at the maximally exposed receptor location.

### Diesel Particulate Matter

ENVIRON conducted a screening evaluation to estimate the health risk to sensitive receptors associated with diesel PM emissions within 500 feet of SR-138 (based on recommended default separation distances) when locating new sensitive land uses near sources of TACs, including freeways (Appendix 5.11-C). The CARB guidance manual provides recommended buffers between freeways and sensitive receptors of 500 feet, indicating that further analyses may be in order if the proposed sensitive land use is located within this recommended buffer. According to the CARB, sensitive receptors include residences, schools, day care centers, playgrounds (e.g., parks or community areas), and medical facilities.

ENVIRON used CAL3QHCR, a steady-state Gaussian dispersion model, to estimate diesel PM concentrations at sensitive receptors (e.g., existing and planned future residences and locations which could contain schools or hospitals according to the proposed land use plan) located in proximity to SR-138. Diesel PM concentrations were calculated for "With Project" and "Without Project" scenarios.

Two configurations of SR-138 were evaluated: (1) the current configuration, assuming it will not change if the Project is not completed and (2) a realigned and expanded configuration, consistent with the proposed Northwest 138 Corridor Improvement Project. In addition to the locations of potential future sensitive receptors within 500 feet of the freeway, 3 existing residences were identified and were evaluated as discrete receptors.

Cancer risks were calculated for the modeled sensitive receptors assuming Office of Environmental Health Hazard Assessment-recommended (OEHHA-recommended) exposure parameters and toxicity using a 30-year exposure duration, which represents a high-end residency period. Additionally, a 70-year exposure scenario was estimated per OEHHA parameters under their Air Toxics Hot Spots Program (Assembly Bill 2588) to represent a maximum, lifetime exposure.

#### **5.11.4 ENVIRONMENTAL SETTING**

##### **Climate and Meteorological Conditions**

The climate in and around the Project area, as with all of Southern California, is controlled largely by the strength and position of the subtropical high pressure cell over the Pacific Ocean. It maintains moderate temperatures and comfortable humidity, and it limits precipitation to a few storms during the winter “wet” season. Temperatures are normally mild, except in the summer months, which commonly bring substantially higher temperatures.

The Project site is located in the southern foothills of the Tehachapi Range at its confluence with the Coast Range (west of the Project site) and Sierra Pelona Range (south of the Project site). From the area where these ranges join, a series of Coast Range mountains extend southeastward to California’s southern border. The Tehachapi and Coast ranges form a barrier separating the San Joaquin Valley to the north and the Mojave Desert to the east. Similarly, the Sierra Pelona range forms a barrier separating the Mojave Desert to the east from the Santa Clarita Valley and Los Angeles metropolitan area to the south. West of the Coast Range are coastal areas with a predominantly maritime climate, while to the east a continental desert regime prevails. The Project site is located within the transitional zone between these two climate regimes and is considered a temperate climate with cool temperatures and moderate precipitation during the winter and warm, dry summers.

In the winter, when the Pacific high moves south, cool, moist air moves through the region from the north and west. As the air mass is forced above the Tehachapi and Coast ranges, precipitation occurs in the form of rain and episodic hail and/or snow. In the summer, when the Pacific high moves north, most storms are deflected far to the north, and storms from the Gulf of Mexico dissipate before reaching the Project region. These conditions result in warm, dry summers. Temperatures in the area rarely exceed 100 degrees Fahrenheit (°F) in the summer or drop below 20°F in the winter. The average annual temperature measured on Tejon Ranch from 2012 through 2014 was 67°F (WRCC 2015). Average annual precipitation measured on the Tejon Ranch from 2012 through 2014 was 8.05 inches (WRCC 2015).

The San Joaquin Valley's topography has a dominating effect on wind patterns in the Tejon Pass and on the Tejon Ranch. Winds tend to blow from the north somewhat parallel to the valley and mountain range orientation, generally in the winter; however, in the summer when low-pressure systems in the Great Basin form and the Pacific high moves northward, strong winds out of the northwest will also occur.

## **Air Quality Attainment Designations**

Based on monitored air pollutant concentrations, the USEPA and the CARB designate an area's status in attaining the NAAQS and CAAQS, respectively, for the criteria pollutants identified in Table 5.11-1. The Federal CAA specifies dates for achieving compliance with the NAAQS and mandates that States develop SIPs to manage the attainment, maintenance, and enforcement of the NAAQS. Similarly, the CARB requires air districts to prepare plans showing how the area would meet the CAAQS by its attainment dates for all areas designated as being in nonattainment, and these plans become part of California's SIP. The attainment status for the AVAQMD portion of the MDAB and the SoCAB are summarized below. The CARB has not published attainment designations for vinyl chloride.

### ***Antelope Valley Air Quality Management District Attainment Designations***

Table 5.11-2, Designations of Criteria Pollutants in The Antelope Valley Portion of The Mojave Desert Air Basin, lists the current attainment designations for the MDAB. The USEPA designates an area as "unclassifiable" if, based on available information, it cannot be classified as either meeting or not meeting the national primary or secondary ambient air quality standard for the pollutant. For the CARB, an "unclassified" designation indicates that the air quality data for the area are incomplete and do not support a designation of attainment or nonattainment.

Table 5.11-2 shows that the USEPA has designated the AVAQMD portion of MDAB as being in "severe-15 nonattainment" for ambient O<sub>3</sub> concentrations. Pursuant to the approved *2008 Federal Ozone Attainment Plan* and given the "severe-15 nonattainment" designation, the AVAQMD has 15 years from the 2004 plan approval (year 2019) to achieve attainment. To be designated as an "attainment" area by the State, the AVAQMD portion of the MDAB will need to achieve both the one-hour and eight-hour O<sub>3</sub> standards.

The USEPA has designated the AVAQMD portion of the MDAB as being an "unclassifiable" area for PM<sub>10</sub>. The State has designated the AVAQMD portion of the MDAB as being in "nonattainment" for the State PM<sub>10</sub> standard.

**TABLE 5.11-2  
DESIGNATIONS OF CRITERIA POLLUTANTS IN THE ANTELOPE VALLEY  
PORTION OF THE MOJAVE DESERT AIR BASIN**

Pollutant	Attainment Status	
	State	Federal
O <sub>3</sub> (1 hour)	Nonattainment; classified Extreme	No standard
O <sub>3</sub> (8 hour)		Nonattainment; classified Severe-15
PM10	Nonattainment	Unclassifiable/Attainment <sup>a</sup>
PM2.5	Unclassified	Unclassifiable/Attainment
CO	Attainment	Attainment
NO <sub>2</sub>	Attainment	Unclassifiable/Attainment
SO <sub>2</sub>	Attainment	Unclassifiable/Attainment
Lead	Attainment	Unclassifiable/Attainment
Particulate Sulfate	Unclassified	No federal standard
Hydrogen Sulfide	Unclassified	
Visibility Reducing Particles	Unclassified	

O<sub>3</sub>: ozone; PM10: respirable particulate matter with a diameter of 10 microns or less in diameter; PM2.5: fine particulate matter with a diameter of 2.5 microns or less in diameter; CO: carbon monoxide; NO<sub>2</sub>: nitrogen dioxide; SO<sub>2</sub>: sulfur dioxide.

<sup>a</sup> If the air quality in a geographic area meets or is cleaner than the national standard, it is called an attainment area (designated "unclassifiable/attainment"); areas that don't meet the national standard are called nonattainment areas. In some cases, EPA is not able to determine an area's status after evaluating the available information. Those areas are designated "unclassifiable."

Source: AVAQMD 2016b; USEPA 2016c.

### ***South Coast Air Quality Management District Attainment Designations***

Table 5.11-3, Designations of Criteria Pollutants in the South Coast Air Basin, lists the current attainment designations for the SoCAB. As shown, the SoCAB is a nonattainment area for PM10 (State), PM2.5 (State and Federal), and O<sub>3</sub> (State and Federal).

Table 5.11-3 shows that the USEPA has designated the SoCAB as an "extreme nonattainment" area for O<sub>3</sub>, a "nonattainment" area for PM10, a "moderate nonattainment" area for PM2.5, and an "attainment/maintenance" area for CO and NO<sub>2</sub>; the Los Angeles County portion of the SoCAB is designated as a "nonattainment" area for lead. For the federal designations, the qualifiers (i.e., "extreme" and "moderate") affect the required attainment dates as the federal regulations have different requirements for areas that exceed the standards by greater amounts at the time of the attainment/nonattainment designation. The State has designated the SoCAB as being in "nonattainment for" O<sub>3</sub>, PM10, and PM2.5.

**TABLE 5.11-3  
DESIGNATIONS OF CRITERIA POLLUTANTS IN  
THE SOUTH COAST AIR BASIN**

<b>Pollutant</b>	<b>State</b>	<b>Federal</b>
O <sub>3</sub> (1 hour)	Nonattainment	No standard
O <sub>3</sub> (8 hour)		Nonattainment - Extreme
PM <sub>10</sub>	Nonattainment	Attainment/Maintenance
PM <sub>2.5</sub>	Nonattainment	Nonattainment - Moderate <sup>a</sup>
CO	Attainment	Attainment/Maintenance
NO <sub>2</sub>	Attainment	Attainment/Maintenance
SO <sub>2</sub>	Attainment	Attainment
Lead	Attainment	Attainment/Nonattainment <sup>b, c</sup>
Particulate Sulfate	Unclassified	No federal standard
Hydrogen Sulfide	Unclassified	
Visibility Reducing Particles	Unclassified	
<p>O<sub>3</sub>: ozone; PM<sub>10</sub>: respirable particulate matter 10 microns or less in diameter; PM<sub>2.5</sub>: fine particulate matter 2.5 microns or less in diameter; CO: carbon monoxide; NO<sub>2</sub>: nitrogen dioxide; SO<sub>2</sub>: sulfur dioxide; USEPA: U.S. Environmental Protection Agency; SoCAB: South Coast Air Basin; CARB: California Air Resources Board.</p> <p><sup>a</sup> On November 30, 2014, the USEPA proposed a finding that the SoCAB has attained the 1997 PM<sub>2.5</sub> standards. If approved, the SoCAB would remain a nonattainment area for the 2006 PM<sub>2.5</sub> standard. On September 30, 2015 the USEPA proposed a reclassification from Moderate to Serious for the 2006 PM<sub>2.5</sub> standard.</p> <p><sup>b</sup> Los Angeles County is classified as "nonattainment" for lead; the remainder of the SoCAB is in attainment of the federal standard.</p> <p>Source: CARB 2015, 2014; USEPA 2016c.</p>		

The SoCAB is designated as being in attainment of the federal SO<sub>2</sub> and lead NAAQS (except Los Angeles County) as well as the State CO, SO<sub>2</sub>, lead (except Los Angeles County), hydrogen sulfide, and vinyl chloride CAAQS.

## Monitored Air Quality

Air quality at any site is dependent upon regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the air basin and transport of pollutants from other air basins.

Air quality data for the Project region was collected at the Lancaster and Santa Clarita Monitoring Stations. The Lancaster Monitoring Station is approximately 33 miles east of the Project site, located at 43301 Division Street in Lancaster. The Santa Clarita Monitoring Station is approximately 29 miles southeast of the Project site, located at 22224 Placerita Canyon Road in Santa Clarita. Both stations were included for this analysis because, although the Santa Clarita Monitoring Station is closer in proximity to the Project site, the Lancaster

Monitoring Station is more representative of data from the Mojave Desert Air Basin, which is where most of the Project site is located.

As shown in Table 5.11-4, Air Quality Levels Measured at the Lancaster and Santa Clarita Monitoring Stations, the Lancaster monitoring data show that O<sub>3</sub> is the air pollutant of primary concern in the Project area. At the Lancaster Monitoring Station, the State 1-hour O<sub>3</sub> standard was exceeded 9 days in 2013, 3 days in 2014, and 26 days in 2015. The State 8-hour O<sub>3</sub> standard was exceeded 50 days in 2013, 35 days in 2014, and 80 days in 2015. The federal O<sub>3</sub> 8-hour standard was exceeded 34 days in 2013, 17 days in 2014, and 53 days in 2015. O<sub>3</sub> is a secondary pollutant and is not directly emitted from a source; it occurs as the result of chemical reactions between other pollutants, most importantly VOCs and NO<sub>2</sub>, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Because NO<sub>2</sub> is a primary constituent of O<sub>3</sub>, the very low measured concentrations of NO<sub>2</sub> indicate that existing high O<sub>3</sub> levels are primarily the result of transport of O<sub>3</sub> that is formed outside the Antelope Valley.

Particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) is another air pollutant of concern in the area. The State 24-hour PM<sub>10</sub> standard was exceeded for 2 days in 2013 at the Lancaster Monitoring Station. The federal 24-hour PM<sub>2.5</sub> standard was exceeded for 1 day in 2014. No other PM<sub>10</sub> or PM<sub>2.5</sub> standards were exceeded from 2013 to 2015. Particulate levels in the area are due to natural sources (such as wind), grading operations, and motor vehicles.

**TABLE 5.11-4  
AIR QUALITY LEVELS MEASURED AT THE LANCASTER  
AND SANTA CLARITA MONITORING STATIONS**

Pollutant	California Standard	National Standard	Year	Max. Level <sup>a</sup>	Days State Standard Exceeded <sup>b</sup>	Days National Standard Exceeded <sup>b, c</sup>
<b>Lancaster Monitoring Station</b>						
O <sub>3</sub> (1 hour)	0.09 ppm	None	2015	0.132	26	1
			2014	0.101	3	0
			2013	0.108	9	0
O <sub>3</sub> (8 hour)	0.070 ppm	0.070 ppm	2015	0.103	80	53
			2014	0.087	35	17
			2013	0.093	50	34
PM <sub>10</sub> (24 hour)	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	2015	-	-/-	0/-
			2014	-	-/-	0/0
			2013	173.4	2/-	0/-
PM <sub>10</sub> (AAM)	20 µg/m <sup>3</sup>	None	2015	-	-	N/A
			2014	-	-	N/A
			2013	-	-	N/A
NO <sub>2</sub> (1 Hour)	0.18 ppm	0.100 ppm	2015	-	-	-
			2014	0.051	0	0
			2013	0.047	0	0



**TABLE 5.11-4  
AIR QUALITY LEVELS MEASURED AT THE LANCASTER  
AND SANTA CLARITA MONITORING STATIONS**

Pollutant	California Standard	National Standard	Year	Max. Level <sup>a</sup>	Days State Standard Exceeded <sup>b</sup>	Days National Standard Exceeded <sup>b, c</sup>
NO <sub>2</sub> (AAM)	0.030 ppm	0.053 ppm	2015	-	-	-
			2014	0.008	No	No
			2013	0.008	No	No
CO (8 hour)	9.0 ppm	9.0 ppm	2015	-	0	0
			2014	-	0	0
			2013	-	0	0
PM <sub>2.5</sub> (24 Hour)	None	35 µg/m <sup>3</sup>	2015	10.4	N/A	0/-
			2014	42.0	N/A	1/6.9
			2013	11.9	N/A	0/0
PM <sub>2.5</sub> (AAM)	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	2015	-	-	-
			2014	7.2	No	No
			2013	5.8	No	No
<b>Santa Clarita Monitoring Station</b>						
O <sub>3</sub> (1 hour)	0.09 ppm	None	2015	0.126	23	N/A
			2014	0.137	32	N/A
			2013	0.134	30	N/A
O <sub>3</sub> (8 hour)	0.070 ppm	0.070 ppm	2015	0.108	52	37
			2014	0.110	64	45
			2013	0.104	57	40
PM <sub>10</sub> (24 hour)	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	2015	39.0	0/0	0/0
			2014	45.0	0/0	0/0
			2013	41.0	0/0	0/0
PM <sub>10</sub> (AAM)	20 µg/m <sup>3</sup>	None	2015	-	-	N/A
			2014	22.1	-	N/A
			2013	20.6	-	N/A
NO <sub>2</sub> (1 Hour)	0.18 ppm	0.100 ppm	2015	0.065	0	0
			2014	0.058	0	0
			2013	0.065	0	0
NO <sub>2</sub> (AAM)	0.030 ppm	0.053 ppm	2015	0.011	No	No
			2014	0.012	No	No
			2013	0.014	No	No
CO (8 hour)	9.0 ppm	9.0 ppm	2015	-	0	0
			2014	-	0	0
			2013	-	0	0
PM <sub>2.5</sub> (24 Hour)	None	35 µg/m <sup>3</sup>	2015	34.4	N/A	-
			2014	28.9	N/A	-
			2013	29.5	N/A	-

**TABLE 5.11-4  
AIR QUALITY LEVELS MEASURED AT THE LANCASTER  
AND SANTA CLARITA MONITORING STATIONS**

Pollutant	California Standard	National Standard	Year	Max. Level <sup>a</sup>	Days State Standard Exceeded <sup>b</sup>	Days National Standard Exceeded <sup>b, c</sup>
PM2.5 (AAM)	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	2015	-	-	-
			2014	-	-	-
			2013	-	-	-
<p>O<sub>3</sub>: ozone; ppm: parts per million; PM10: respirable particulate matter with a diameter of 10 microns or less; µg/m<sup>3</sup>: micrograms per cubic meter; AAM: annual arithmetic mean; NO<sub>2</sub>: nitrogen dioxide; CO: carbon monoxide; PM2.5: fine particulate matter with a diameter of 2.5 microns or less</p> <p>"-" indicates that the data are not reported or there is insufficient data available to determine the value. N/A indicates that there is no applicable standard.</p> <p><sup>a</sup> California maximum levels were used.</p> <p><sup>b</sup> For annual averaging times, a "Yes" or "No" response is given if the annual average concentration exceeded the applicable standard.</p> <p><sup>c</sup> PM is measured once every 6 days. Where 2 values are shown for PM10 and PM2.5, the first is for the measured value, and the second is the estimated value if monitored every day.</p> <p>Source: CARB 2017</p>						

The air pollutants measured at the Santa Clarita Monitoring Station include O<sub>3</sub>, PM10, NO<sub>2</sub>, CO, and PM2.5. The Santa Clarita monitoring data show that O<sub>3</sub> is the air pollutant of primary concern in the Project area. At the Santa Clarita Monitoring Station, the State 1-hour O<sub>3</sub> standard was exceeded 30 days in 2013, 32 days in 2014, and 23 days in 2015. The State 8-hour O<sub>3</sub> standard was exceeded 57 days in 2013, 64 days in 2014, and 52 days in 2015. The federal O<sub>3</sub> 8-hour standard was exceeded 40 days in 2013, 45 days in 2014, and 37 days in 2015.

No State or federal standards were exceeded for the remaining criteria pollutants monitored. Furthermore, because NO<sub>2</sub> is a primary constituent of O<sub>3</sub>, the very low measured concentrations of NO<sub>2</sub> indicate that existing high O<sub>3</sub> levels are primarily the result of transport of O<sub>3</sub> that is formed outside the Antelope Valley.

## Valley Fever

Valley Fever is the common name (formally known as *Coccidioidomycosis*) for a fungal disease caused by inhalation of *Coccidioides immitis* spores that are carried in dust. In California, the highest incidence of Valley Fever occurs in the San Joaquin (Central) Valley, with over 75 percent of reported cases (CDPH 2016). Valley Fever tends to occur in areas with dry dirt and desert-like weather conditions that can allow the fungus to grow. The fungus is found throughout Los Angeles County, with the highest rates in the San Fernando Valley and Antelope Valley (LADPH 2015). The fungus can become airborne when soil that contains *C. immitis* spores is disturbed, either by natural or anthropogenic (man-made) means, including wind, farming, and construction. Valley Fever is diagnosed by a blood test, a chest x-ray, and other tests, and can be treated with anti-fungal medications. Approximately 60 percent of people exposed to Valley Fever spores develop no symptoms.

If symptoms develop, those individuals generally develop a mild respiratory illness with flu-like symptoms that can last a month or more. Rarely, individuals develop a severe illness such as pneumonia, meningitis, or dissemination when the fungus spreads to other parts of the body. African Americans, Filipinos, pregnant women, children under 5 years of age, the elderly, and immunocompromised individuals are at higher risk for severe disease (LADPH 2016). At highest risk for exposure to Valley Fever are farmers, construction workers, military personnel, archaeologists, and others who are likely to engage in activities that actively disturb soils in areas where Valley Fever may be present.

A more thorough discussion of Valley Fever, including applicable PDFs and MMs is discussed in Section 5.3, Hazards and Fire Safety.

### **Toxic Air Contaminants**

As described in Section 2.0, Environmental Setting, the Project site and surrounding areas remain in a relatively rural and undeveloped condition. As such, there are very few existing sources of TACs. The National Cement Company of California's (NCCC) Lebec Cement Kiln, located more than one mile north of the Project site, was identified as a potential stationary source of TACs in the vicinity of the Project site. Additionally, freeways in the vicinity of the Project site, including SR-138 and Interstate (I) 5, experience daily vehicle traffic that includes diesel trucks and buses considered mobile sources of diesel particulate matter. Both existing and proposed sources of toxic air contaminants have been considered in the air quality analysis below.

### **Sensitive Receptors**

Certain groups of people are more sensitive to airborne pollutants, such as the elderly, children, and persons with respiratory illnesses or impaired lung function because of other illnesses. Sensitive receptors are land uses that provide facilities and/or structures where these sensitive persons live or spend considerable amounts of time. These land uses include, but are not limited to, schools, school yards, day care facilities, hospitals, rest homes, long-term medical facilities, and parks/playgrounds. Residences are also considered to be sensitive receptors because of their potential to contain children and the elderly.

The nearest existing sensitive receptors to the Project site are residential properties near the Project site boundaries on 300<sup>th</sup> Street West, 290<sup>th</sup> Street West, and Malinda Avenue. Additional nearby residences include one located offsite on the south side of SR-138 west of Cement Plant Road and homes between the Quail Lake Sky Park runway and SR-138. The residences, schools, and parks to be built as part of the Project would also be sensitive receptors. Both existing and proposed sensitive receptors on and around the Project site have been considered in the air quality analysis below.

### 5.11.5 PROJECT DESIGN FEATURES

The emission savings from the Project Design Features (PDFs) listed below are quantifiable, and these emissions reductions have been estimated and are described in the analyses below where feasible. Each PDF listed below has a corresponding MM to ensure implementation since there are quantifiable reductions in emissions associated with each PDF.

- PDF 11-1** The Project requires stationary sources to comply with ambient air quality standards and the toxic air contaminant (TAC) emissions thresholds by requiring compliance with the parameters stated in Table 5.11-5, Stationary Source Types, Size Limits, and Quantity Estimates. Should there be a need or request for a stationary source exceeding the prescribed limits, a source-specific air quality analysis in accordance with the applicable Antelope Valley Air Quality Management District (AVAQMD) or South Coast Air Quality Management District (SCAQMD) Rules would be required.
- PDF 11-2** The Green Development Program requires compliance with the California Green Building Standards (CALGreen) Code voluntary measure A5.203.1.2.1 for non-residential buildings. Therefore, the energy efficiency of nonresidential, hotel, and high-rise residential buildings would exceed 2016 Title 24 requirements by 10 percent.
- PDF 11-3** The Green Development Program requires compliance with CALGreen voluntary measure A4.203.1.2.1 for low-rise residential buildings. Therefore, the energy efficiency of these buildings would exceed 2016 Title 24 requirements by 15 percent.
- PDF 11-4** The Project prohibits wood-burning fireplaces. The elimination of wood burning avoids the potential emissions of substantial quantities of respirable particulate matter with a diameter of 10 microns or less (PM<sub>10</sub>), fine particulate matter with a diameter of 2.5 microns or less (PM<sub>2.5</sub>), nitrogen oxides (NO<sub>x</sub>), and volatile organic compounds (VOCs). This PDF extends SCAQMD Rule 445, Wood-Burning Devices, to the entire Project area and to developments at 3,000 or more feet above mean sea level, and applies the requirements and exemptions of SCAQMD Rule 445, with the exception that the exemption for locations at 3,000 or more feet above mean sea level is not applicable. The maximum number of non-wood burning fireplaces will be 13,954, the equivalent of 1 fireplace for each single-family residence.
- PDF 11-5** The Centennial Affordable Housing Implementation Plan (see Appendix 3-H of the *Centennial Specific Plan*, which is in Appendix 4.0-A of this EIR) will be adopted in conjunction with the Project, which includes dedication of a minimum of ten percent of the residential units as affordable housing. A range of employment opportunities will be created within the community; therefore, a range of housing needs will be provided to reduce the number of vehicle trips (particularly long trips outside the Project).

**PDF 11-6** The Project prohibits residences, schools, day care centers or other land uses involving public congregation from being built within 150 feet of the near edge of the State Route (SR) 138 traffic lanes. This requirement will ensure that the risk of exposure to diesel particulate matter (diesel PM) is less than what is allowed by AVAQMD and SCAQMD guidelines.

**TABLE 5.11-5  
STATIONARY SOURCE TYPES, SIZE LIMITS,  
AND QUANTITY ESTIMATES**

Source Type	Description	Maximum Single Source Size/ Configuration <sup>a</sup>	Project-wide Representative Estimate <sup>b</sup>	Assumed Average Size of Single Source	Number of Sources <sup>c</sup>	Notes
Boiler	Includes general purpose heating for schools, hospitals, commercial buildings, light industrial uses.  Does not include industries such as large scale chemical or pharmaceutical manufacturing, large scale agricultural processing plants or breweries (i.e., heat-intensive processes).	58 mmbtu/hr per boiler	700 mmbtu/hr	25 mmbtu/hr	28	A 25 mmbtu/hr boiler is typical for a large hospital and is larger than approximately 70% of the boilers permitted in the SJVAPCD; the Project-wide estimate is based on 28 boilers at average size.
Emergency Generator	Used for emergency back-up power at schools, hospitals, commercial buildings, light industrial uses, cell phone towers, etc.	1,000 hp per generator (Tier 4 Final engine)	12,800 hp	200 hp	64	In the SJVAPCD, the median generator size is 200 hp, and 92% of permitted generators are smaller than 1000 hp (1999); the Project-wide estimate is based on 64 generators of average size. A Tier 4 Final engine is not required to meet the threshold provided the total emissions are lower than those from 1000 hp Tier 4 Final engine operating for 9 hours per year.

**TABLE 5.11-5  
STATIONARY SOURCE TYPES, SIZE LIMITS,  
AND QUANTITY ESTIMATES**

Source Type	Description	Maximum Single Source Size/ Configuration <sup>a</sup>	Project-wide Representative Estimate <sup>b</sup>	Assumed Average Size of Single Source	Number of Sources <sup>c</sup>	Notes
Restaurant with Charbroilers	Includes fast food restaurants such as McDonalds and Wendy's; steakhouses and other restaurants with charbroilers, such as Applebees or TGIFriday's; and school cafeterias.  Does not include cafés, small sandwich shops, and fine dining restaurants without charbroilers.	775 lbs of meat throughput per day per restaurant	13,750 lbs of meat per day	250 lbs of meat per day	55	SCAQMD indicates average beef usage of 233 lbs per day; the Project-wide estimate is based on 55 restaurants of assumed average size.
Spray Booths	Includes small-scale auto detailing, furniture repair and refinishing, antique refurbishing, and other small scale painting activities.  Does not include industries such as vehicle manufacturing, dye production, composite manufacturing, industrial drum refurbishing (i.e., large-scale solvent or paint use).	VOC emissions up to 667 lbs per month per spray booth	VOC emissions up to 13,340 lbs per month	VOC emissions up to 667 lbs per month per spray booth	20	Typical small-scale permit based on SCAQMD permits in Santa Clarita; the Project-wide estimate is based on 20 units of this size.
Gas Stations	Includes all fuel-dispensing facilities.	CARB specifies setback distances	Project-wide throughput of 28.4 MG per year	2.4 MG per year throughput	Project-wide throughput of 28.4 MG per year	CARB reports that 96% of gas stations in California are smaller than 2.4 MG per year throughput. A large gas station (e.g., Costco) has a throughput around 9 MG per year. The Project-wide estimate is based on the assumption that Centennial will have 65,000 drivers logging national average vehicle miles traveled in cars with national average fuel efficiency.

**TABLE 5.11-5  
STATIONARY SOURCE TYPES, SIZE LIMITS,  
AND QUANTITY ESTIMATES**

Source Type	Description	Maximum Single Source Size/ Configuration <sup>a</sup>	Project-wide Representative Estimate <sup>b</sup>	Assumed Average Size of Single Source	Number of Sources <sup>c</sup>	Notes
Storage Tanks (non-fuel dispensing)	Includes most light-industrial uses such as small-scale personal-care product manufacturing and other small users.  Does not include storage tanks for gasoline-dispensing facilities (included above) or oil production equipment and refineries.	<20,000 gallons per storage tank	560,000-gallon capacity	10,000 gallons	56	A survey of SCAQMD permits for Santa Clarita indicated that no permitted tank (for all uses, including fuel distribution) was larger than 20,000 gallons. The Project-wide estimate is based on 56 non-gasoline dispensing tanks that are all the average size of 10,000 gallons.
Other VOC-emitting sources	Includes film-processing facilities; oil-water separators at auto repair facilities; and soil and groundwater remediation systems.	VOC emissions up to 4 tons per year per VOC source	VOC emissions up to 80 tons per year	VOC emissions up to 4 tons per year per VOC source	20	This is the assumed estimate for miscellaneous sources. The Project-wide estimate is based on 20 miscellaneous sources.
Small Source PM-emitting sources	Includes auto repair, metal fabrication and finishing, swimming pool supply, and repair shops.	PM emissions up to 1 lb per day per PM source. The source shall be no closer than 25 feet from the property boundary.	PM emissions up to 23 lbs per day	PM emissions up to 1 lb per day per PM source	23	This is the assumed estimate for miscellaneous sources. The Project-wide estimate is based on 23 miscellaneous sources.
On-site Petroleum Solvent Dry Cleaning	Includes on-site dry cleaning of clothing.  Does not include store-front dry cleaning shops with no on-site cleaning (i.e., cleaning sent to another location).	N/A	2,400 gallons of solvent usage per year	100 gallons of solvent usage per year	24	The average usage for petroleum-based drycleaner is 89 gallons of solvent consumed per year. The Project-wide estimate is based on an average use estimate of 100 gallons and 24 dry cleaners in Centennial.



**TABLE 5.11-5  
STATIONARY SOURCE TYPES, SIZE LIMITS,  
AND QUANTITY ESTIMATES**

<b>Source Type</b>	<b>Description</b>	<b>Maximum Single Source Size/ Configuration<sup>a</sup></b>	<b>Project-wide Representative Estimate<sup>b</sup></b>	<b>Assumed Average Size of Single Source</b>	<b>Number of Sources<sup>c</sup></b>	<b>Notes</b>
TAC-emitting Stationary Sources in Non-Buffer Areas of Business Parks	Includes all potential stationary sources of TACs in non-buffer areas of business parks. Does not include large scale industrial sources (such as foundries or refineries).	Calculated cancer risk of 10 in 1 million at facility boundary	N/A	N/A	N/A	Non-buffer areas of business parks; see Figure 2-3 in Appendix 5.11-B.
<p>mmbtu/hr: million British thermal units per hour; SJVAPCD: San Joaquin Valley Air Pollution Control District; hp: horsepower; lb: pound; SCAQMD: South Coast Air Quality Management District; VOC: volatile organic compound; CARB: California Air Resources Board; MG: million gallons; PM: particulate matter; N/A: not applicable; TAC: toxic air contaminant</p> <p><sup>a</sup> This is the maximum in order to not exceed ambient air quality standards and/or risk thresholds. A larger source could potentially be operated without exceeding ambient air quality and/or risk standards, but would require further evaluation.</p> <p><sup>b</sup> The amount was arrived at by multiplying the assumed average source size/configuration by the representative number of sources expected to locate in Centennial.</p> <p><sup>c</sup> Representative Number of Sources in Centennial Based on Demand Projections.</p> <p>Source: ENVIRON 2009a</p>						

The Project incorporates important characteristics or elements that are quantified and accounted for in the modeling for the Traffic Study, and that would minimize air quality impacts, as summarized in Section 5.10, Traffic, Access and Circulation. The location of the Project and the proposed residential and non-residential uses have been planned for a balance between the number of jobs available and the number of on-site housing units in an effort to encourage local trips. The approximate 10.1 million square feet (sf) of commercial office, shopping center, and industrial land uses will provide approximately 20,809 jobs, many of which are anticipated to be filled by future Centennial residents and would result in trips that are “internal” to the Project site.

Some Centennial residents will be commuting to jobs outside the community and some residents from surrounding areas will commute to Centennial for employment. The Centennial Traffic Study forecasts that around 48 percent of the average daily trips will be internal (Stantec 2016). This is a substantially greater amount of internal trips than would be anticipated in a development with less residential/non-residential balance. The result is a reduction in vehicle miles traveled (VMT) and the associated air pollutant emissions. This internal capture of trips is quantified in the Traffic Study, which is used as a component of the operational emissions calculated by CalEEMod Version 2016.3.1.

#### **5.11.6 THRESHOLD CRITERIA**

Air quality impacts are usually classified as short term and/or long term. Short-term (or temporary) impacts are usually the result of construction or grading operations. Long-term impacts are associated with a project’s emissions from the proposed land uses in their built-out condition. This analysis addresses “criteria” pollutants (the contaminants for which ambient air quality standards have been established) and TACs.

Ambient concentrations of criteria pollutants are monitored throughout the state and nation to determine the general acceptability of the air environment. When ambient air quality standards are exceeded, measures (which are often regional in nature) are implemented to reduce concentrations. Based primarily on measured ambient concentrations, emissions inventories, and projected emissions activities, air quality management districts determine maximum emissions values, applicable to all projects, that would not likely cause or contribute to a new violation of air quality standards; increase the frequency or severity of existing violation(s); and/or delay attainment of an air quality standard or other requirement of the federal attainment plan.

At the local level, pollutant concentrations may be analyzed to ensure that sensitive receptors (e.g., residences, schools, hospitals, and parks) are not subjected to ambient concentrations in excess of State or federal standards as a result of a project’s construction or operation. A pollutant emissions inventory and dispersion modeling effort is often required for larger projects to determine project-specific effects on ambient concentrations in surrounding areas with sensitive receptors.

An analysis of TACs is intended to characterize the potential incremental health risks (both cancer and non-cancer) associated with anticipated long-term ambient concentrations resulting from site-specific exposure to emissions sources. TAC analyses use the results from the dispersion modeling to determine expected incremental exposure and dosage of toxic

contaminants for each receptor. The toxicity information for each TAC is then combined with the expected dosages of respective TACs to determine the potential incremental health risk at a particular location.

### **California Environmental Quality Act Thresholds**

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact if it would:

- Threshold 11-1** Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Threshold 11-2** Expose sensitive receptors to substantial pollutant concentrations.
- Threshold 11-3** Conflict with or obstruct implementation of applicable air quality plans of either the South Coast AQMD (SCAQMD) or the Antelope Valley AQMD (AVAQMD).
- Threshold 11-4** Create objectionable odors affecting a substantial number of people.
- Threshold 11-5** Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

The AVAQMD and the SCAQMD have established CEQA significance thresholds for use by lead agencies in air quality impact analysis as detailed below.

### ***Antelope Valley Air Quality Management District Thresholds***

The AVAQMD's CEQA and Federal Conformity Guidelines (2016) establishes significance thresholds to assess the regional impact of project-related air pollutant emissions in the AVAQMD. Table 5.11-6, Antelope Valley Air Quality Management District Criteria Pollutant Significance Thresholds, summarizes the AVAQMD's mass emissions thresholds, which are presented as both daily and annual values. The AVAQMD guidelines state that a project with "phases shorter than one year can be compared to the daily value" (AVAQMD 2016b). However, the Project, as analyzed, would not have construction or operational phases shorter than one year, and the AVAQMD daily thresholds are not used. A project with emission rates below these thresholds is considered to have a less than significant effect on regional air quality throughout the AVAQMD portion of the MDAB.

**TABLE 5.11-6  
ANTELOPE VALLEY AIR QUALITY MANAGEMENT DISTRICT  
CRITERIA POLLUTANT SIGNIFICANCE THRESHOLDS**

<b>Criteria Pollutant</b>	<b>Annual Threshold (tons)</b>	<b>Daily Threshold (lbs)</b>
Greenhouse Gases (CO <sub>2</sub> e)	100,000	548,000
Carbon Monoxide (CO)	100	548
Oxides of Nitrogen (NO <sub>x</sub> )	25	137
Volatile Organic Compounds (VOC)	25	137
Oxides of Sulfur (SO <sub>x</sub> )	25	137
Particulate Matter (PM <sub>10</sub> )	15	82
Particulate Matter (PM <sub>2.5</sub> )	12	65
Hydrogen Sulfide (H <sub>2</sub> S)	10	54
Lead	0.6	3
lbs: pounds; CO <sub>2</sub> e: carbon dioxide equivalent, Source: AVAQMD 2016b.		

### Toxic Air Contaminants

The AVAQMD's CEQA and Federal Conformity Guidelines establish the significant risk thresholds at 10 in 1 million for cancer risks and 1.0 for non-cancer chronic and acute HIs.

### ***South Coast Air Quality Management District Thresholds***

The SCAQMD has established significance thresholds to assess the regional and localized impacts of Project-related air pollutant emissions. The significance thresholds are updated as needed to appropriately represent the most current technical information and attainment status in the SoCAB. Table 5.11-7, South Coast Air Quality Management District Thresholds of Significance, presents the current significance thresholds. A project with daily emission rates, risk values, or concentrations below these thresholds is generally considered to have a less than significant effect on air quality.

**TABLE 5.11-7  
SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT  
THRESHOLDS OF SIGNIFICANCE**

<b>Mass Daily Thresholds (lbs/day)</b>		
<b>Pollutant</b>	<b>Construction</b>	<b>Operation</b>
VOC	75	55
NO <sub>x</sub>	100	55
CO	550	550
PM <sub>10</sub>	150	150
PM <sub>2.5</sub>	55	55
SO <sub>x</sub>	150	150
Lead	3	3
<b>Toxic Air Contaminants</b>		
TACs <sup>a</sup>	Maximum Incremental Cancer Risk $\geq$ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas $\geq$ 1 in 1 million) Chronic & Acute Hazard Index $\geq$ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
GHG	10,000 MTCO <sub>2e</sub> /yr for industrial facilities	
<b>Ambient Air Quality For Criteria Pollutants<sup>b</sup></b>		
NO <sub>2</sub>	1-hour average $\geq$ 0.18 ppm Annual average $\geq$ 0.03 ppm	
CO	1-hour average $\geq$ 20.0 ppm (State) 8-hour average $\geq$ 9.0 ppm (State/federal)	
PM <sub>10</sub>	24-hour average $\geq$ 10.4 $\mu\text{g}/\text{m}^3$ (construction) 24-hour average $\geq$ 2.5 $\mu\text{g}/\text{m}^3$ (operation) Annual average $\geq$ 1.0 $\mu\text{g}/\text{m}^3$	
PM <sub>2.5</sub>	24-hour average $\geq$ 10.4 $\mu\text{g}/\text{m}^3$ (construction) 24-hour average $\geq$ 2.5 $\mu\text{g}/\text{m}^3$ (operation)	
Sulfate	24-hour average $\geq$ 1.0 $\mu\text{g}/\text{m}^3$	
Lead 30-day average Rolling 3-month average	1.5 $\mu\text{g}/\text{m}^3$ (state) 0.15 $\mu\text{g}/\text{m}^3$ (federal)	
<p>lbs/day: pounds per day; VOC: volatile organic compound; NO<sub>x</sub>: nitrogen oxides; CO: carbon monoxide; SO<sub>x</sub>: sulfur oxides; PM<sub>10</sub>: respirable particulate matter with a diameter of 10 microns or less; PM<sub>2.5</sub>: fine particulate matter with a diameter of 2.5 microns or less; SO<sub>x</sub>: sulfur oxides; TACs: toxic air contaminants; SCAQMD: South Coast Air Quality Management District; GHG: greenhouse gas; MTCO<sub>2e</sub>/yr: metric tons of carbon dioxide equivalent per year; NO<sub>2</sub>: nitrogen dioxide; ppm: parts per million; <math>\mu\text{g}/\text{m}^3</math>: micrograms per cubic meter</p> <p><sup>a</sup> TACs (carcinogenic and noncarcinogenic) <sup>b</sup> Ambient air quality threshold based on SCAQMD Rule 403.</p> <p>Source: SCAQMD 2015</p>		

## 5.11.7 ENVIRONMENTAL IMPACTS

**Threshold 11-1** Would the proposed project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

### On-Site Impacts

#### *Mass Daily and Annual Emissions Standards*

##### Construction-Related Impacts

Temporary impacts would result from Project construction activities. Air pollutants would be emitted by construction equipment and fugitive dust generated during grading of the Project site. Other construction activities that emit pollutants include painting, surface coating, and asphalt paving operations. For this analysis, construction has been divided into four phases: grading, building, application of architectural coatings, and paving. Project emissions were calculated using CalEEMod version 2016.3.1 as described in the Methodology section.

Emissions are evaluated on annual rate (tons per year) in accordance with the AVAQMD criteria pollutant thresholds (Table 5.11-6) and on a daily rate (pounds per day) in accordance with SCAQMD thresholds of significance (Table 5.11-7).

Once construction begins (in Year 1), it will proceed continuously for approximately 20 years, with full buildout completed after 20 years. Construction emissions are calculated for the following construction activities: grading, building, paving, and architectural coating (painting).<sup>4</sup> The rate of construction would vary with a variety of factors including, but not limited to market demand, weather, and as-found site conditions. The estimation of the quantities of grading, building, paving, and painting on a year-by-year basis for a 20-year project would be highly speculative. Therefore, the construction effort is initially evaluated assuming that each construction activity would be spread equally over the applicable years. Additionally, as further explained below, construction emissions are evaluated for a peak grading year.

**Average Year Assumptions.** Grading would occur from Year 1 through Year 18. Preliminary grading engineering design indicates that approximately 127 million cubic yards (mcy) of earth would be moved for the total Project. Based on the preliminary grading estimates, the average daily grading quantity over the 18 years of grading would be approximately 26,500 to 36,500 cubic yards (cy), depending on the number of days of grading. For a conservative estimate, it is assumed that grading would be limited by weather and other factors to 200 days per year, and the average daily grading quantity would be 36,500 cy. Cut and fill would be balanced on the Project site and no off-site export or import is anticipated. Soil movement

---

<sup>4</sup> Emissions modeling often includes demolition and site preparation (clearing and grubbing) activities. Demolition required for the proposed Project would be negligible. Clearing and grubbing would be predominantly grassland, and would occur concurrently with grading.

within the site would be by scraper. Equipment used for the average year grading analysis is shown in Table 5.11-8.

**TABLE 5.11-8  
GRADING, BUILDING, PAVING, AND ARCHITECTURAL COATING EQUIPMENT FOR  
AVERAGE YEAR EMISSIONS ESTIMATES**

Equipment Type	Number of Equipment
<b>Grading</b>	
Scrapers	10
Dozers	7
Compactors	2
Water trucks	2
Graders	1
<b>Building</b>	
Cranes	4
Forklifts	12
Tractor/Loader/Backhoes	12
Welders	4
Generator Sets	4
<b>Paving</b>	
Paving Machine	1
Roller	3
<b>Architectural Coating</b>	
Compressors	4

The Project Applicant/Developer is required to implement dust-control measures as prescribed in AVAQMD Rule 403, Fugitive Dust, and SCAQMD Rule 403, Fugitive Dust. AVAQMD Rule 403 and SCAQMD Rule 403 require that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source.

Two options are presented in SCAQMD Rule 403: monitoring of particulate concentrations or active control. The exact method would be determined at the time of the preparation of the Dust Control Plan. Monitoring involves a sampling network around the Project site with no additional control measures unless specified concentrations are exceeded. The active control option does not require any monitoring, but requires that a list of measures be implemented starting with the first day of construction. Basic measures include pre-watering of grading sites, watering during grading, and watering or chemical treatment of stockpiles. Compliance with these rules will result in reducing short-term particulate pollutant emissions.

SCAQMD Rule 403 requires that “Large Operations” implement additional measures. A Large Operation is defined as “any active operations on a property that contain 50 or more acres

of disturbed surface area or any earth-moving operation with a daily earth-moving or throughput volume of 3,850 cubic meters (5,000 cubic yards) or more 3 times during the most recent 365 day period” (SCAQMD 1976b). Grading of the Project would be considered a Large Project under Rule 403. Therefore, the Project shall be required to implement the applicable actions specified in Table 2 of the Rule, which is included in EIR Appendix 5.11-D. As a Large Operation, the Project shall also be required to do the following:

- Submit a fully executed Large Operation Notification (SCAQMD Form 403N) to the SCAQMD Executive Officer within 7 days of qualifying as a large operation.
- Include, as part of the notification, the name(s), address(es), and phone number(s) of the person(s) responsible for the submittal, and a description of the operation(s), including a map depicting the location of the site.
- Maintain daily records to document the specific dust-control actions taken, maintain such records for a period of not less than three years, and make such records available to the Executive Officer upon request.
- Install and maintain Project signage with Project contact information that meets the minimum standards of the Rule 403 Implementation Handbook, prior to initiating any earth-moving activities.
- Identify a Dust-Control Supervisor that is employed by or contracted with the Property Owner/Developer; is on the site or available on site within 30 minutes during working hours; has the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule requirements; and has completed the AQMD Fugitive Dust Control Class and has been issued a valid Certificate of Completion for the class.
- Notify the SCAQMD Executive Officer in writing within 30 days after the site no longer qualifies as a large operation.

Further, SCAQMD Rule 403 requires that that the Project not “allow track-out to extend 25 feet or more in cumulative length from the point of origin from an active operation” (SCAQMD 1976b). All track-out from an active operation is required to be removed at the conclusion of each workday or evening shift. Any active operation with a disturbed surface area of 5 or more acres or with a daily import or export of 100 cubic yards or more of bulk materials must utilize at least one of the measures listed in Table 3 of SCAQMD Rule 403 at each vehicle egress from the site to a paved public road.

Rule 403 measures include regular watering of active grading areas and unpaved roads, limiting vehicle speeds on unpaved surfaces, stabilizing stockpiled earth, and curtailing grading operations during high wind conditions. Watering of active grading areas is included in the CalEEMod emissions analysis and results in reduced PM10 and PM2.5 emissions. It should be noted that some Project requirements and features, such as watering grading areas, although required Project elements, are shown in the CalEEMod format as mitigation measures.



Building would occur from Year 2 through Year 20. Similar to grading, the intensity of building would vary from a low of approximately 400 residential dwelling units (du) in Year 2 to approximately 1,200 du, which would occur in many years. Conservatively, for emission estimation, the average residential construction is assumed to be 1,018 dwelling units per year. The average non-residential construction is assumed to be 531,400 square feet per year. For purposes of emissions estimation, it is assumed that utilities installation and paving, occur concurrently with building; architectural coating would begin six months after the start of building and continue through buildout.

The Project Applicant/Developer is required to use architectural coatings compliant with AVAQMD Rule 1113 and SCAQMD Rule 1113, which limit the VOC content of architectural coatings. Based on these rules, it was assumed that the average VOC content of architectural coatings would not exceed 50 grams per liter (g/L) for all interior surfaces, 100 g/L for residential exterior surfaces, and 150 g/L for non-residential exterior surfaces. It was also assumed that 50 percent of the non-residential exterior surface would be painted. Equipment used for the building, paving, and architectural coating analysis is shown in Table 5.11-8.

**Average Year Construction Emissions.** Average year construction emissions are the total of Project emissions from the scenario described above that assumes concurrent grading, building construction, architectural coatings, and asphalt paving activities. Table 5.11-9 shows the estimated annual emissions for each year from Year 1 through Year 20 for the average construction year, and emissions are compared to the AVAQMD thresholds. Table 5.11-10 shows the estimated daily emissions for each year from Year 1 through Year 20 for the average construction year, and emissions are compared to the SCAQMD thresholds. CalEEMod input and output data for these emissions are included in Appendix 5.11-A to this EIR.

**TABLE 5.11-9  
AVERAGE YEAR ESTIMATED ANNUAL CONSTRUCTION EMISSIONS  
(AVAQMD THRESHOLDS)**

Year	Emissions (tons/year)					
	VOC	NOx	CO	SOx	PM10	PM2.5
Year 1	1	14	9	<1	9	5
Year 2	5	<b>56</b>	40	<1	12	7
Year 3	13	<b>63</b>	51	<1	12	6
Year 4	15	<b>58</b>	49	<1	12	6
Year 5	14	<b>53</b>	46	<1	11	6
Year 6	14	<b>48</b>	43	<1	11	6
Year 7	13	<b>43</b>	41	<1	11	5
Year 8	13	<b>39</b>	40	<1	11	5
Year 9	13	<b>37</b>	39	<1	10	5
Year 10	12	<b>32</b>	36	<1	10	5
Year 11	12	<b>32</b>	35	<1	10	5
Year 12	12	<b>31</b>	35	<1	10	5
Year 13	12	<b>31</b>	35	<1	10	5
Year 14	12	<b>31</b>	35	<1	10	5
Year 15	12	18	27	<1	9	4
Year 16	12	18	27	<1	9	4
Year 17	12	18	27	<1	9	4
Year 18	12	18	27	<1	9	4
Year 19	10	7	14	<1	2	1
Year 20	10	7	14	<1	2	1
Maximum	15	<b>63</b>	51	<1	12	7
<b>AVAQMD Thresholds (Table 5.11-6)</b>	<b>25</b>	<b>25</b>	<b>100</b>	<b>25</b>	<b>15</b>	<b>12</b>
<b>Exceeds AVAQMD Thresholds?</b>	<b>No</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
<p>lbs/day: pounds per day; VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; AVAQMD: Antelope Valley Air Quality Management District</p> <p><b>Bold</b> indicates emissions exceeding threshold</p> <p>Source: AVAQMD 2016b (thresholds). Emissions calculations can be found in Appendix 5.11-A</p>						

**TABLE 5.11-10  
AVERAGE YEAR ESTIMATED DAILY CONSTRUCTION EMISSIONS  
(SCAQMD THRESHOLDS)**

Year	Emissions (lbs/day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM10	PM2.5
Year 1	36	<b>423</b>	289	<1	72	41
Year 2	56	<b>543</b>	424	1	92	51
Year 3	<b>117</b>	<b>484</b>	400	1	91	49
Year 4	<b>113</b>	<b>445</b>	377	1	88	47
Year 5	<b>110</b>	<b>407</b>	355	1	86	45
Year 6	<b>106</b>	<b>368</b>	335	1	84	43
Year 7	<b>103</b>	<b>329</b>	320	1	82	41
Year 8	<b>101</b>	<b>300</b>	307	1	81	40
Year 9	<b>99</b>	<b>278</b>	297	1	80	39
Year 10	<b>96</b>	<b>241</b>	275	1	78	37
Year 11	<b>96</b>	<b>241</b>	273	1	78	37
Year 12	<b>96</b>	<b>241</b>	271	1	78	37
Year 13	<b>96</b>	<b>241</b>	269	1	78	37
Year 14	<b>95</b>	<b>240</b>	267	1	78	37
Year 15	<b>95</b>	<b>137</b>	211	1	73	33
Year 16	<b>95</b>	<b>137</b>	209	1	73	33
Year 17	<b>95</b>	<b>137</b>	208	1	73	33
Year 18	<b>95</b>	<b>137</b>	207	1	73	33
Year 19	<b>76</b>	57	110	<1	15	5
Year 20	<b>75</b>	52	108	<1	15	4
Maximum	<b>117</b>	<b>543</b>	424	1	92	51
<b>SCAQMD Thresholds (Table 5.11-7)</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Exceeds SCAQMD Thresholds?</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

lbs/day: pounds per day; VOC: volatile organic compound; NO<sub>x</sub>: nitrogen oxides; CO: carbon monoxide; SO<sub>x</sub>: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District; CalEEMod: California Emissions Estimator Model

**Bold** indicates emissions exceeding threshold

Source: SCAQMD 2015 (thresholds). Emissions calculations can be found in Appendix 5.11-A.

As shown in Table 5.11-9, using average year assumptions, estimated construction NO<sub>x</sub> emissions would exceed the AVAQMD annual emissions thresholds from Year 2 through Year 14. The primary source of NO<sub>x</sub> emissions would be the exhaust emissions from diesel-engine equipment used for site grading. Beginning in Year 15, the estimated NO<sub>x</sub> emissions are less than the AVAQMD thresholds and substantially less than in previous years not because of any change in Project activity, but because of a change in the emission factors in the

CalEEMod database. The emission factors assume continuing reductions in NO<sub>x</sub> emissions due to increasing use of newer equipment with cleaner engines (Tier 3, Tier 4 Interim, Tier 4 Final) as required by USEPA regulations. The change is substantial in Year 15 because, prior to Year 10, the model has emission factors for each year and after 2025 the emission factors are in five-year increments. Estimated emissions of VOC, CO, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> would be less than the AVAQMD thresholds. The NO<sub>x</sub> emissions impact would be potentially significant.

As shown in Table 5.11-10, using average year assumptions, estimated construction NO<sub>x</sub> emissions would exceed the SCAQMD daily emissions thresholds from Year 1 through Year 18, the entire grading period. VOC emissions would exceed the daily emissions thresholds from Year 3 through Year 18, which are the years when grading, building, paving, and painting are concurrent activities. The primary sources of VOC emissions would be architectural coatings and exhaust emissions from grading equipment. Estimated emissions of CO, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> would be less than the SCAQMD thresholds. The VOC and NO<sub>x</sub> emissions impacts would be potentially significant.

**Peak Grading Year Assumptions.** Construction emissions, particularly NO<sub>x</sub> emissions, are dominated by the magnitude of grading effort and the emissions of scrapers, dozers, and similar equipment. Preliminary grading engineering design indicates that the peak year for grading would be approximately Year 11 and the grading quantity could be approximately 17 mcy, or an average of 86,000 cy/day. Equipment used for the average year grading analysis is shown in Table 5.11-11.

**TABLE 5.11-11  
GRADING EQUIPMENT FOR PEAK GRADING YEAR**

Equipment type	Number of Equipment
Scrapers	26
Dozers	18
Compactors	5
Water trucks	6
Graders	2

**Peak Grading Year Construction Emissions.** To evaluate the peak grading year scenario, calculations were made using the equipment required for the peak grading year in Table 5.11-11 combined with the average year equipment for building, painting, and paving activities (Table 5.11-8).

The results are in Tables 5.11-12 and 5.11-13, which show annual and daily emissions, respectively.

**TABLE 5.11-12  
ESTIMATED ANNUAL CONSTRUCTION EMISSIONS FOR THE PEAK GRADING YEAR  
(ANTELOPE VALLEY AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS)**

Year	Emissions (tons/year)					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM10	PM2.5
Year 11	16	<b>64</b>	64	<1	<b>22</b>	11
<b>AVAQMD Thresholds (Table 5.11-6)</b>	<b>25</b>	<b>25</b>	<b>100</b>	<b>25</b>	<b>15</b>	<b>12</b>
<b>Exceeds AVAQMD Thresholds?</b>	<b>No</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>Yes</b>	<b>No</b>

lbs/day: pounds per day; VOC: volatile organic compound; NO<sub>x</sub>: nitrogen oxides; CO: carbon monoxide; SO<sub>x</sub>: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; AVAQMD: Antelope Valley Air Quality Management District

**Bold** indicates emissions exceeding threshold

Source: AVAQMD 2016b (thresholds). Emissions calculations can be found in Appendix 5.11-A.

**TABLE 5.11-13  
ESTIMATED DAILY CONSTRUCTION EMISSIONS FOR THE PEAK GRADING YEAR  
(SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT THRESHOLDS)**

Year	Emissions (lbs/day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM10	PM2.5
Year 11	<b>123</b>	<b>490</b>	494	1	<b>172</b>	<b>85</b>
<b>SCAQMD Thresholds (Table 5.11-7)</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Exceeds SCAQMD Thresholds?</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

lbs/day: pounds per day; VOC: volatile organic compound; NO<sub>x</sub>: nitrogen oxides; CO: carbon monoxide; SO<sub>x</sub>: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District; CalEEMod: California Emissions Estimator Model

**Bold** indicates emissions exceeding threshold

Sources: SCAQMD 2015 (thresholds). Emissions calculations can be found in Appendix 5.11-A.

Estimated emissions for the peak grading year would be substantially greater than for an average year. Peak grading year annual emissions of VOC, CO, SO<sub>x</sub>, and PM2.5 would remain below AVAQMD thresholds; there would be potential significant impacts for annual NO<sub>x</sub>, and PM10 emissions. Peak grading year daily emissions of CO and SO<sub>x</sub> would remain below SCAQMD thresholds. There would be potential significant impacts for daily VOC, NO<sub>x</sub>, PM10, and PM2.5 emissions.

To reduce NO<sub>x</sub> and VOC emissions without reducing the quantity or operating hours of construction equipment, which would extend the duration of grading, equipment with newer, low-emissions engines should be used. MM 11-2 requires the use of construction

equipment with Tier 4 Final diesel engines and on-road trucks with 2010 or newer engines to the extent that the equipment is available.

Project emissions that could occur with the use of Tier 4 Final construction equipment, as required by MM 11-2, are shown in Table 5.11-14 and Table 5.11-15 for the average construction year and in Table 5.11-16 and Table 5.11-17 for the peak grading year.

**TABLE 5.11-14  
ESTIMATED ANNUAL CONSTRUCTION EMISSIONS  
WITH IMPLEMENTATION OF MITIGATION (TIER 4 FINAL  
EQUIPMENT, IF AVAILABLE) FOR THE AVERAGE YEAR (AVAQMD THRESHOLDS)**

Year	Emissions (tons/year)					
	VOC	NOx	CO	SOx	PM10	PM2.5
Year 1	<1	1	5	<1	9	5
Year 2	1	4	26	<1	12	7
Year 3	8	8	41	<1	12	6
Year 4	10	8	40	<1	12	6
Year 5	10	7	40	<1	11	6
Year 6	10	7	39	<1	11	6
Year 7	10	7	38	<1	11	5
Year 8	10	6	38	<1	11	5
Year 9	10	6	38	<1	10	5
Year 10	10	6	37	<1	10	5
Year 11	10	6	37	<1	10	5
Year 12	10	6	37	<1	10	5
Year 13	10	6	36	<1	10	5
Year 14	10	6	36	<1	10	5
Year 15	10	6	36	<1	9	4
Year 16	10	6	36	<1	9	4
Year 17	10	6	36	<1	9	4
Year 18	10	6	35	<1	9	4
Year 19	9	3	15	<1	2	1
Year 20	9	3	14	<1	2	1
Maximum	10	8	41	<1	12	7
<b>AVAQMD Thresholds (Table 5.11-6)</b>	<b>25</b>	<b>25</b>	<b>100</b>	<b>25</b>	<b>15</b>	<b>12</b>
<b>Exceeds AVAQMD Thresholds?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
lbs/day: pounds per day; VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; AVAQMD: Antelope Valley Air Quality Management District Sources: AVAQMD 2016b (thresholds). Emissions calculations can be found in Appendix 5.11-A.						

**TABLE 5.11-15  
ESTIMATED DAILY CONSTRUCTION EMISSIONS  
WITH IMPLEMENTATION OF MITIGATION (TIER 4 FINAL  
EQUIPMENT, IF AVAILABLE) FOR THE AVERAGE YEAR (SCAQMD THRESHOLDS)**

Year	Emissions (lbs/day)					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Year 1	5	18	160	<1	22	10
Year 2	16	62	308	1	35	15
Year 3	<b>82</b>	61	316	1	37	15
Year 4	<b>81</b>	59	308	1	37	15
Year 5	<b>80</b>	56	303	1	37	15
Year 6	<b>79</b>	54	298	1	37	15
Year 7	<b>79</b>	52	294	1	37	15
Year 8	<b>78</b>	47	290	1	37	15
Year 9	<b>78</b>	47	287	1	37	15
Year 10	<b>78</b>	46	284	1	37	15
Year 11	<b>77</b>	46	282	1	37	15
Year 12	<b>77</b>	45	280	1	37	15
Year 13	<b>77</b>	45	278	1	37	15
Year 14	<b>77</b>	45	277	1	37	15
Year 15	<b>76</b>	44	275	1	37	14
Year 16	<b>76</b>	44	273	1	37	14
Year 17	<b>76</b>	43	272	1	37	14
Year 18	<b>76</b>	43	271	1	37	14
Year 19	71	25	112	<1	15	4
Year 20	71	25	111	<1	15	4
<b>Maximum</b>	<b>82</b>	62	316	1	37	15
<b>SCAQMD Thresholds (Table 5.11-7)</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Exceeds SCAQMD Thresholds?</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
lbs/day: pounds per day; VOC: volatile organic compound; NO <sub>x</sub> : nitrogen oxides; CO: carbon monoxide; SO <sub>x</sub> : sulfur oxides; PM <sub>10</sub> : respirable particulate matter with a diameter of 10 microns or less; PM <sub>2.5</sub> : fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District, CalEEMod: California Emissions Estimator Model <b>Bold</b> indicates emissions exceeding threshold Sources: SCAQMD 2015 (thresholds). Emissions calculations can be found in Appendix 5.11-A.						

**TABLE 5.11-16  
ESTIMATED ANNUAL CONSTRUCTION EMISSIONS  
WITH IMPLEMENTATION OF MITIGATION (TIER 4 FINAL  
EQUIPMENT, IF AVAILABLE) FOR THE PEAK GRADING YEAR (AVAQMD THRESHOLDS)**

Year	Emissions (tons/year)					
	VOC	NOx	CO	SOx	PM10	PM2.5
Year 11	11	9	66	<1	9	4
<b>AVAQMD Thresholds (Table 5.11-6)</b>	<b>25</b>	<b>25</b>	<b>100</b>	<b>25</b>	<b>15</b>	<b>12</b>
<b>Exceeds AVAQMD Thresholds?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
lbs/day: pounds per day; VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; AVAQMD: Antelope Valley Air Quality Management District Sources: AVAQMD 2016b (thresholds). Emissions calculations can be found in Appendix 5.11-A.						

**TABLE 5.11-17  
ESTIMATED DAILY CONSTRUCTION EMISSIONS  
WITH IMPLEMENTATION OF MITIGATION (TIER 4 FINAL  
EQUIPMENT, IF AVAILABLE) FOR THE PEAK GRADING YEAR (SCAQMD THRESHOLDS)**

Year	Emissions (lbs/day)					
	VOC	NOx	CO	SOx	PM10	PM2.5
Year 11	83	72	506	1	70	30
<b>SCAQMD Thresholds (Table 5.11-7)</b>	<b>75</b>	<b>100</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Exceeds SCAQMD Thresholds?</b>	<b>Yes</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>
lbs/day: pounds per day; VOC: volatile organic compound; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; SCAQMD: South Coast Air Quality Management District; CalEEMod: California Emissions Estimator Model <b>Bold</b> indicates emissions exceeding threshold Sources: SCAQMD 2015 (thresholds). Emissions calculations can be found in Appendix 5.11-A.						

As shown in Table 5.11-14 and Table 5.11-16, the use of all Tier 4 Final construction equipment would reduce annual NOx emissions for both average grading years and the peak grading year to less than the AVAQMD significance thresholds.

As shown in Table 5.11-15 and Table 5.11-17, the use of all Tier 4 Final construction equipment would reduce daily NOx emissions to less than the SCAQMD significance threshold for both the average grading years and the peak grading year. VOC emissions reductions resulting from the use of Tier 4 Final equipment would exceed the SCAQMD thresholds for both the average and peak grading years.



In summary, construction emissions of VOC would be significant and would be unavoidable because (1) it cannot be known if Tier 4 Final construction equipment could be feasibly and reasonably provided for enough construction equipment to result in emissions less than AVAQMD thresholds for all years and (2) even if Tier 4 Final construction equipment would be available, the SCAQMD daily VOC emissions threshold may be exceeded in some average years.

#### Operational Impacts – Buildout

Long-term operational criteria pollutant emissions are generated by area, energy, and mobile sources. Project regional area, energy, and mobile source emissions were calculated using CalEEMod, as described in the Methodology section above.

As previously described, but repeated here for continuity, area sources include landscape maintenance equipment, consumer products, and architectural coatings used for routine maintenance. Energy emissions are from natural gas consumption. The operational buildout analysis assumes the Project would include 13,954 single-family residences, 5,379 multi-family residences, 7.4 million square feet (sf) of business park uses, 1 million sf of commercial uses, 1.6 million sf of institutional/civic uses, elementary schools for 8,000 students, a high school for 3,500 students, and other land uses as described in Chapter 4.0, Project Description and the Project Traffic Study (Stantec 2016). Buildout is assumed to be complete in 2035. Land use details are included in the CalEEMod data included in Appendix 5.11-A.

The default natural gas use and resulting emissions calculations are modified by application of the 2016 State Energy Efficiency Standards for Residential and Nonresidential Buildings. As stated in PDF 11-2 which, through MM 21-2 of Section 5.21, Climate Change, is required to be implemented, the Green Development Program requires compliance with CALGreen voluntary measure A5.203.1.2.1 for non-residential buildings. As stated by PDF 11-3 and required by MM 21-3 of Section 5.21, Climate Change, the Project must comply with CALGreen voluntary Tier 1 measures to exceed the 2016 code for residential buildings. The combined effect is a 32.4 percent reduction from the CalEEMod base data for Title 24 natural gas uses.

Fireplace emissions are calculated in accordance with PDF 11-4, which is required by the implementation of MM 11-3, which assumes a maximum of 13,954 natural gas fireplaces and no wood-burning fireplaces.

Mobile source emissions are based on trip generation data from the Traffic Study. CalEEMod has input options to generate trip and vehicle miles traveled (VMT) reductions for mixed-use projects, increased density, neighborhood walkability, and similar features. For the Project, features related to the mixed-use character of the Project that would reduce trips and VMT have been included in the Traffic Study. The Traffic Study also includes regional traffic modeling results that indicate that implementation of the Project would result in an estimated 1,921,599 VMT weekday increase over existing conditions. The CalEEMod trip distances were modified to yield a VMT increase consistent with the Traffic Study. As described in Section 5.11.3, trip generation for affordable housing is less than for market rate

housing. This trip generation and corresponding emissions reduction is not included in the traffic analysis and is made manually due to defects in this element of CalEEMod (SCAQMD 2016b).

Estimated annual and maximum daily operational emissions at buildout are shown in Tables 5.11-18 and 5.11-19.

**TABLE 5.11-18  
ESTIMATED ANNUAL OPERATIONAL EMISSIONS  
(AVAQMD THRESHOLDS)**

Source	Emissions (tons/year)					
	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM10	PM2.5
Area Sources	<b>225</b>	11	<b>147</b>	<1	2	2
Energy Sources	3	23	11	<1	2	2
Mobile Sources	<b>25</b>	<b>71</b>	<b>387</b>	2	<b>235</b>	<b>63</b>
<b>Total Operational Emissions*</b>	<b>253</b>	<b>105</b>	<b>545</b>	2	<b>238</b>	<b>67</b>
<b>AVAQMD Thresholds(Table 5.11-6)</b>	<b>25</b>	<b>25</b>	<b>100</b>	<b>25</b>	<b>15</b>	<b>12</b>
<b>Exceeds AVAQMD Thresholds?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>

VOC: volatile organic compounds; NO<sub>x</sub>: nitrogen oxides; CO: carbon monoxide; SO<sub>x</sub>: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less; AVAQMD: Antelope Valley Air Quality Management District.

\* Totals may not add due to rounding.

**Bold** indicates emissions exceeding threshold Sources: AVAQMD 2016b (thresholds). Emissions calculations can be found in Appendix 5.11-A

**TABLE 5.11-19  
ESTIMATED MAXIMUM DAILY OPERATIONAL EMISSIONS  
(SCAQMD THRESHOLDS)**

Source	Emissions (lbs/day)					
	VOC	NOx	CO	SOx	PM10	PM2.5
<i>Winter Season</i>						
Area Sources	<b>1,278</b>	<b>250</b>	<b>1,690</b>	2	28	28
Energy Sources	14	<b>124</b>	61	1	10	10
Mobile Sources	<b>168</b>	<b>489</b>	<b>2,461</b>	11	<b>1,551</b>	<b>417</b>
<i>Total Winter Season Operational Emissions*</i>	<b>1,461</b>	<b>863</b>	<b>4,212</b>	14	<b>1,589</b>	<b>455</b>
<i>Summer Season</i>						
Area Sources	<b>1,278</b>	<b>250</b>	<b>1,690</b>	2	28	28
Energy Sources	14	<b>124</b>	61	1	10	10
Mobile Sources	<b>173</b>	<b>472</b>	<b>2,636</b>	12	<b>1,551</b>	<b>417</b>
<i>Total Summer Season Operational Emissions*</i>	<b>1,465</b>	<b>846</b>	<b>4,387</b>	14	<b>1,589</b>	<b>455</b>
<b>Higher of Winter or Summer</b>	<b>1,465</b>	<b>863</b>	<b>4,387</b>	14	<b>1,589</b>	<b>455</b>
<b>SCAQMD Thresholds (Table 5.11-7)</b>	<b>55</b>	<b>55</b>	<b>550</b>	<b>150</b>	<b>150</b>	<b>55</b>
<b>Exceeds SCAQMD Thresholds?</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>
lbs/day: pounds per day, VOC: volatile organic compounds, NOx: nitrogen oxides, CO: carbon monoxide, SOx: sulfur oxides, PM10: respirable particulate matter with a diameter of 10 microns or less, PM2.5: fine particulate matter with a diameter of 2.5 microns or less, SCAQMD: South Coast Air Quality Management District. * Totals may not add due to rounding. <b>Bold</b> indicates emissions exceeding threshold Sources: SCAQMD 2015 (thresholds). Emissions calculations can be found in Appendix 5.11-A.						

As shown in Table 5.11-18 and Table 5.11-19, the estimated operational emissions would substantially exceed both the AVAQMD annual emissions thresholds and the SCAQMD daily emissions thresholds for VOC, NOx, CO, PM10, and PM2.5. The SOx thresholds would not be exceeded. Vehicle emissions would be the dominant source of NOx, CO, PM10, and PM2.5 emissions and a secondary source of VOC emissions. The dominant source of VOC emissions would be consumer products at 200 tons per year (tons/year) and 1,096 pounds per day (lbs/day). Operational emissions would be a significant impact.

As noted above, the primary area emissions sources are consumer products and landscape maintenance equipment. There are no feasible mitigation measures for consumer product VOC emission reductions. However, it should be noted that State consumer products regulations were updated in January 2015, requiring reduced VOC emissions. Therefore, the CalEEMod forecasts of consumer products VOC emissions may be assumed to be higher than would occur. With respect to landscape equipment, MM 11-5 would be incorporated into the Project, requiring that all multi-family residential buildings and all non-residential buildings

with adjacent landscaping be provided with exterior electrical receptacles to encourage the use of electric landscaping equipment instead of gasoline powered equipment.

As required by MM 10-1 from Section 5.10, Traffic, Access, and Circulation, the mixed-use character of the Project, the jobs-housing balance, and the Mobility Plan with Transportation Demand Management (TDM) features would provide a very transportation-efficient Project with an estimated 48 percent of the trip generation being short-distance internal trips. As part of the TDM strategy to reduce the dependence on the private automobile, the Project Applicant/Developer will create and operate an ongoing Transportation Management Association (TMA) to serve the residents and employees of businesses in the Project area or will be organized in conjunction with an existing organization in the Antelope Valley or Santa Clarita area. As further discussed in Section 5.10, it is anticipated that a total of 200 per weekday vehicle trips to and from the Santa Clarita Valley and 110 per weekday trips to and from the Antelope Valley would be reduced by commuter buses and rideshare programs.

However, in an effort to further reduce mobile emissions by encouraging alternative transportation modes, reducing single-occupant commuting, and electric-powered vehicles, MM 11-4, MM 11-5 and MM 11-6 would be incorporated into the Project. These three MMs require preferential parking for alternative-fueled vehicles and electric vehicle charging facilities for non-residential buildings, residential buildings, parking garages, and parking lots. MM 11-4 also requires preferential parking for carpool vehicles and charging facilities for some non-residential buildings. MM 11-5 and MM 11-6 also require bicycle parking for residential buildings and parking facilities.

The reductions that would result from implementation of MM 11-4 through MM 11-6 are not reasonably quantified. However, the reductions would not be of a magnitude to reduce the operational emissions to a less than significant level.

#### Combined Construction and Operational Emissions during Development

During Project development, the initial phases of the Project would be occupied while construction continues on future phases. In accordance with recent SCAQMD recommendations, a calculation of combined construction and operational emissions is provided for information. As a reasonable worst-case scenario, it is assumed that the Project would be 90 percent operational in Year 18 and consequently 90 percent of operational phase emissions were combined with construction emissions occurring in Year 18. The estimated Year 18 combined annual and daily emissions are shown in Table 5.11-20 and Table 5.11-21, respectively.

**TABLE 5.11-20  
ESTIMATED ANNUAL COMBINED EMISSIONS  
(AVAQMD THRESHOLDS)**

Source	Emissions (tons/year)					
	VOC	NOx	CO	SOx	PM10	PM2.5
<b>Unmitigated Emissions</b>						
Year 18 Construction	12	18	27	<1	9	4
Year 18 Operations	<b>228</b>	<b>95</b>	<b>491</b>	2	<b>214</b>	<b>60</b>
<b>Combined Year 18 Emissions</b>	<b>240</b>	<b>113</b>	<b>518</b>	2	<b>223</b>	<b>64</b>
<b>AVAQMD Operations Thresholds</b>	25	25	100	25	15	12
<b>Exceeds Thresholds</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>
<b>Mitigated Emissions</b>						
Year 18 Construction – Tier 4 Final equipment	10	6	35	<1	9	4
Year 18 Operations	<b>228</b>	<b>95</b>	<b>491</b>	2	<b>214</b>	<b>60</b>
<b>Combined Year 18 Emissions – construction w/Tier 4 Final equipment</b>	<b>238</b>	<b>101</b>	<b>526</b>	2	<b>223</b>	<b>64</b>
<b>AVAQMD Operations Thresholds</b>	25	25	100	25	15	12
<b>Exceeds Thresholds</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	<b>No</b>	<b>Yes</b>	<b>Yes</b>
VOC: volatile organic compounds; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less. Note: Totals may not add due to rounding. <b>Bold</b> indicates emissions exceeding threshold Sources: AVAQMD 2016b (thresholds). Emissions calculations can be found in Appendix 5.11-A						

**TABLE 5.11-21  
ESTIMATED ANNUAL MID-PROJECT COMBINED EMISSIONS  
(SCAQMD UNITS [LBS/DAY])**

Source	Emissions (lbs/day)					
	VOC	NOx	CO	SOx	PM10	PM2.5
<b>Unmitigated Emissions</b>						
Year 18 Construction	<b>94</b>	<b>137</b>	207	1	73	33
Year 18 Operations	<b>1,319</b>	<b>761</b>	<b>3,948</b>	13	<b>1,430</b>	<b>410</b>
<b>Combined Year 11 Emissions</b>	<b>1413</b>	<b>898</b>	<b>4155</b>	2	<b>1503</b>	<b>443</b>
<b>SCAQMD Operations Thresholds</b>	55	55	550	150	150	55
<b>Exceeds Threshold</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	No	<b>Yes</b>	<b>Yes</b>
<b>Mitigated Emissions</b>						
Year 11 Construction	<b>75</b>	43	272	1	37	14
Year 11 Operations	<b>1,319</b>	<b>761</b>	<b>3,948</b>	13	<b>1,430</b>	<b>410</b>
<b>Combined Year 11 Emissions – construction</b>	<b>1,394</b>	<b>804</b>	<b>4,220</b>	2	<b>1,467</b>	<b>424</b>
<b>SCAQMD Operations Thresholds</b>	55	55	550	150	150	55
<b>Exceeds Threshold</b>	<b>Yes</b>	<b>Yes</b>	<b>Yes</b>	No	<b>Yes</b>	<b>Yes</b>
lbs/day: pounds per day; VOC: volatile organic compounds; NOx: nitrogen oxides; CO: carbon monoxide; SOx: sulfur oxides; PM10: respirable particulate matter with a diameter of 10 microns or less; PM2.5: fine particulate matter with a diameter of 2.5 microns or less. Note: Totals may not add due to rounding. <b>Bold</b> indicates emissions exceeding threshold Sources: SCAQMD 2015 (thresholds). Emissions calculations can be found in Appendix 5.11-A						

As shown in Table 5.11-20, Year 18 combined construction and operations annual emissions would exceed the operational emissions thresholds established by the AVAQMD. As shown in Table 5.11-21, Year 18 combined construction and operations daily emissions would exceed the SCAQMD significance thresholds for the operations phase. The exceedance of the significance thresholds for both of the air districts are due to the larger proportion of emissions generated during the operations phase. The finding of significant impacts for the combined construction and operations phases are consistent with the finding of significant impacts for emissions occurring for solely for the operations phase of the Project.

### Stationary Sources

An Air Quality Impact Analysis (AQIA) was prepared by ENVIRON International (now Ramboll Environ) in 2009 to assess the impacts of stationary sources of emissions that would be allowed and could locate on the Project site. Each substantial stationary source would be required to obtain a Permit to Construct and a Permit to Operate in accordance

with AVAQMD Regulation II, Permits, and included in Rules 201 through 226 or SCAQMD Regulation II, Permits, and included Rules 201 through 223. Based on the results of the AQIA, the stationary source size limits included in PDF 11-1 (Table 5.11-5) were established. The analysis of individual sources is described in Appendix 5.11-B. In addition to assessing individual sources, the aggregate total emissions from these anticipated sources were calculated, and are shown in Table 5.11-22, Aggregate Emissions from Stationary Sources. Natural gas fired boilers used for general purpose heating in facilities like schools, hospitals, commercial buildings, and light industrial uses account for all the estimated stationary source CO emissions, 99.4 percent of the NOx emissions, and 76 percent of the PM10 emissions. The other sources of PM10 emissions with more than ten percent of the total are charbroilers used in restaurants. The principal single stationary source type contributor of VOC emissions is spray booths, which account for approximately 36 percent of the emissions. The remaining VOC emissions would be generated by smaller sources including gas stations, boilers, dry cleaners, and light industrial processes. Stationary sources would be operated according to permits issued by AVAQMD or SCAQMD, and the District's permitting process for stationary sources requires offsetting emissions and compliance with emission reduction mandates for criteria pollutants to attain regional ambient air quality goals.

**TABLE 5.11-22  
AGGREGATE EMISSIONS FROM STATIONARY SOURCES**

Emissions Source	Pollutant Emissions			
	VOC	NO <sub>x</sub>	CO	PM <sub>10</sub>
<b>Annual Emissions (tons/year)</b>				
Natural Gas-Fired Boilers	16.5	33.7	920.0	22.8
Emergency Generators	0.0	0.2	0.3	0.0
Dry Cleaners	8.2	0.0	0.0	0.0
Spray Booths	80.0	0.0	0.0	0.0
Service Stations	25.5	0.0	0.0	0.0
Non-Gasoline Underground Storage Tanks	14.5	0.0	0.0	0.0
Other VOC Emitters	80.0	0.0	0.0	0.0
Small PM <sub>10</sub> Sources	0.0	0.0	0.0	4.2
Charbroilers	0.8	0.0	0.0	3.2
<i>Total Aggregate Emissions</i>	<i>225.5</i>	<i>33.9</i>	<i>920.3</i>	<i>30.2</i>
<b>Daily Emissions (lbs/day)</b>				
<i>Total Aggregate Emissions</i>	<i>1,235.6</i>	<i>185.8</i>	<i>5,042.7</i>	<i>165.4</i>
VOC: volatile organic compounds; NO <sub>x</sub> : nitrogen oxides; CO: carbon monoxide; PM <sub>10</sub> : respirable particulate matter with a diameter of 10 microns or less				
Source: ENVIRON 2009a (Appendix 5.11-B).				

***Impact Summary: Mass Daily and Annual Thresholds.*** Based on the AVAQMD annual thresholds and SCAQMD mass daily thresholds, construction-related emissions of VOC and NO<sub>x</sub> would result in significant impacts. MM 11-1 and MM 11-2 would be implemented to reduce emissions; however, the impacts would remain significant and unavoidable and full implementation of MM 11-2 would result in a significant and unavoidable CO impact for the SCAQMD threshold. Long-term operational emissions of CO, VOCs, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> would result in significant impacts. MM 11-3 would be implemented to reduce emissions; however, the impacts would remain significant and unavoidable.

## Ambient Air Quality Standards

### ***Construction-Related Impacts***

As described in the Methodology section above, ENVIRON used ISCST3 (Version 02035) with the USEPA's default model settings to model the transport of NO<sub>x</sub> (which is converted to NO<sub>2</sub>), PM<sub>10</sub>, and PM<sub>2.5</sub> emissions to sensitive receptors. The impacts were evaluated and compared to the CAAQS, NAAQS, and SCAQMD Localized Significance Thresholds (LSTs) (see EIR Appendix 5.11-C).



It is assumed that construction of each phase would occur sequentially so that construction phases will not overlap and residents of occupied phases would not be exposed to emissions from more than one adjacent phase. In the ENVIRON analysis, the previous project was evaluated in four phases. Ambient air concentrations resulting from Phase Two construction emissions were evaluated at the boundary of Phase One. Emissions from Phase Three construction were evaluated at the boundaries of Phases One and Two, and emissions from Phase Four construction were evaluated at the boundaries of Phases One, Two, and Three. Additionally, a grid of receptors with 500-meter (1,640-foot) spacing was placed over the entire site.<sup>5</sup> Although the phasing for the Project differs from the phasing for the previous project, the concept of air quality impacts from a phase under construction to an occupied phase is the same. The input emissions data for the ambient air quality standard analysis is based on the construction emissions data. The NO<sub>x</sub> emissions data for the previous project and the currently proposed Project are generally the same. The PM<sub>10</sub> and PM<sub>2.5</sub> emissions for the Project are substantially less than for the previous project, thus making the PM<sub>10</sub> and PM<sub>2.5</sub> results very conservative<sup>6</sup>. The results are provided below in Table 5.11-23, Ambient Concentrations at Sensitive Receptors during Phase Two, Three, and Four Construction.

**TABLE 5.11-23  
AMBIENT CONCENTRATIONS AT SENSITIVE RECEPTORS  
DURING PHASE TWO, THREE, AND FOUR CONSTRUCTION**

Regulated Pollutant	Averaging Time	Federal Standard (µg/m <sup>3</sup> )	State Standard (µg/m <sup>3</sup> )	LST Background Concentration (µg/m <sup>3</sup> )	LST Threshold Concentration (µg/m <sup>3</sup> )	Maximum Estimated Concentration at Nearest Sensitive Receptor (µg/m <sup>3</sup> )*		
						Phase Two	Phase Three	Phase Four
NO <sub>2</sub>	AAM	100	56	-	56.0	0.5	0.8	0.8
	1hour	-	338	188	150.0	36	38	60
PM <sub>10</sub>	AAM	-	20	-	20.0	5.8	11.2	7.0
	24hour	150	50	-	10.4	<b>90</b>	<b>159</b>	<b>136</b>
PM <sub>2.5</sub>	AAM	15	12	-	12.0	1.3	2.5	1.5
	24hour	35	-	-	10.4	<b>19</b>	<b>34</b>	<b>29</b>

LST: Localized Significance Threshold; µg/m<sup>3</sup>: micrograms per cubic meter; NO<sub>2</sub>: nitrogen dioxide; AAM : annual arithmetic mean; - : no standard or LST value; PM<sub>10</sub>: respirable particulate matter with a diameter of 10 microns or less; PM<sub>2.5</sub>: fine particulate matter with a diameter of 2.5 microns or less

\* Values in excess of State, federal or SCAQMD standards are displayed in **bold text** in these columns.

Source: ENVIRON 2009b (Appendix 5.11 C)

<sup>5</sup> The construction phases and sensitive receptor locations are shown in Figure 2-1 of EIR Appendix 5.11-B.

<sup>6</sup> PM emissions for the previous project were calculated using the then-current Urbemis emissions model. Studies conducted for the now-current CalEEMod emissions model resulted in a revised methodology for PM emissions and substantially reduced emissions compared to Urbemis results. With respect to NO<sub>x</sub> emissions, although unmitigated emissions from the current project and the previous project are similar, the implementation of MM 11-2 would reduce Project NO<sub>x</sub> emissions substantially compared to the emissions used in the ENVIRON local impacts analysis.

As identified in Table 5.11-23 above, estimated NO<sub>2</sub> concentrations would be less than State, federal, and SCAQMD LST standards, but ambient concentrations at sensitive receptor locations may exceed the 24-hour standards for PM<sub>10</sub> and PM<sub>2.5</sub> during construction. It is noted that, if construction activities were localized to one or several planning areas within a construction phase that are near already-established sensitive receptors, the resultant concentrations could be higher. This would be a significant and unavoidable impact. AVAQMD Rule 403 requires a dust control plan to be prepared for any residential developments that result in a disturbed surface area of 10 acres or more or 5 acres or more for non-residential development. As such, the Project Applicant/Developer shall prepare a Supplementary Dust Control Plan for approval by the County to minimize PM<sub>10</sub> and PM<sub>2.5</sub> emissions and the transport of those emissions towards sensitive receptors. Measures in the Supplementary Dust Control Plan may include, but not be limited to additional watering of active grading areas and disturbed areas; stopping operations when winds exceeding ten miles per hour are in the direction from the grading towards the receptors; and/or other measures to minimize fugitive dust. With incorporation of Rule 403, impacts would remain significant and unavoidable because the dust suppression resulting from the Supplementary Dust Control Plan cannot be quantified at this time.

***Impact Summary: Ambient Air Quality Standards – Construction.*** Construction emissions could cause a potential temporary exceedance of federal, State, and SCAQMD PM<sub>10</sub> and PM<sub>2.5</sub> standards at Project residences that would be completed and occupied; with consideration of AVAQMD and SCAQMD dust control rules, this would be a significant and unavoidable impact.

### ***Operations***

The stationary sources analyzed above for mass emissions are limited by size and quantity as described in MM 11-1. The limitations are based on compliance with ambient air quality standards. In addition to the stationary sources, operational mobile and area sources would be dispersed throughout the Project area and would make contributions to local ambient pollutant concentrations. The ENVIRON AQIA for stationary sources, described above, includes an assumed background concentration that would account for the effects of mobile and area sources.

Of the eight stationary source types that are analyzed in the ENVIRON Report, only the natural gas fired boilers, restaurant broilers, emergency generators, and small source particular matter generators have the potential to impact ambient air quality standards. Boilers and emergency generators emit NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>, all of which have short-term ambient air quality limits. Broilers only emit particulates and VOCs. All other sources, including the wastewater reclamation facilities (WRFs), emit only VOCs, for which there are no State or federal ambient air quality standards. While NO<sub>x</sub> and PM<sub>10</sub> also have annual limits, the short-term limits drive the ambient air quality standards' compliance, as demonstrated when applying USEPA factors for scaling concentrations over different averaging times. The AQIA accounts for the possibility of concurrent impacts at a receptor from more than one source by limiting the impact to one-quarter of the allowable increase in the ambient concentration. Additional details are in Appendix 5.11-B.

The stationary source limits of MM 11-1, which requires the implementation of PDF 11-1 and Table 5.11-5, are based on compliance with ambient air quality standards with conservative margins. Therefore, emissions from operational on-site sources would not exceed ambient air quality standards. The impact would be less than significant; no mitigation is required.

***Impact Summary: Ambient Air Quality Standards – Stationary Sources.*** The Project would involve the use of stationary sources (natural gas-fired boilers, emergency generators, broilers, and small source particulate matter generators) that emit NO<sub>x</sub>, CO, and PM<sub>10</sub>. Analysis of potential impacts concludes that this impact would be less than significant with the limitations on stationary sources included MM 11-1.

### ***Mobile Sources – Carbon Monoxide Hotspots***

The ambient air quality standard for CO is analyzed when there is a potential for severe traffic congestion at high-volume, signalized intersections. Localized areas where ambient concentrations exceed federal and/or State standards for CO are termed CO “hotspots”. According to the *Transportation Project-Level Carbon Monoxide Protocol* (the Protocol), projects may worsen air quality if they worsen traffic flow, defined for signalized intersections as increasing average delay at intersections operating at Level of Service (LOS) E or F or causing an intersection that would operate at LOS D or better without the Project, to operate at LOS E or F with the Project (UCD ITS 1997).

The Project Traffic Study lists two signalized intersections that would operate at LOS E or F with conditions that would worsen in the 2035 With Project Scenario when compared to the 2035 No Project Scenario (Stantec 2016):

- I-5 Southbound Ramps and SR-126 in the PM peak hour
- I-5 Southbound Ramps and Valencia Boulevard in the AM and PM peak hours

The SCAQMD’s analysis prepared for CO attainment in the SoCAB can be used to evaluate the potential for CO exceedances. CO attainment was thoroughly analyzed as part of the SCAQMD’s 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan) (SCAQMD 2003a). As discussed in the 1992 CO Plan, peak CO concentrations in the SoCAB are due to unusual meteorological and topographical conditions, and not due to the impact of particular intersections. Considering the region’s unique meteorological conditions and the increasingly stringent CO emissions standards, CO modeling was performed as part of 1992 CO Plan and subsequent plan updates and AQMPs. In the 1992 CO Plan, a CO hot spot analysis was conducted for four busy intersections in the SoCAB at the peak morning and afternoon time periods.

The intersections evaluated included Long Beach Boulevard and Imperial Highway (Lynwood); Wilshire Boulevard and Veteran Avenue (Westwood); Sunset Boulevard and Highland Avenue (Hollywood); and La Cienega Boulevard and Century Boulevard (Inglewood). These analyses did not predict a violation of CO standards. The busiest intersection evaluated in the 1992 CO Plan and subsequent 2003 AQMP was at Wilshire

Boulevard and Veteran Avenue, which had a daily traffic volume of approximately 100,000 vehicles per day. The 2003 AQMP estimated that the 1-hour concentration for this intersection was 4.6 parts per million (ppm), which indicates that the most stringent 1-hour CO standard (20.0 ppm) would likely not be exceeded until the daily traffic at the intersection exceeded more than 400,000 vehicles per day. The maximum modeled 8-hour concentrations at this intersection were 5.8 ppm in 1997, decreasing to 2.8 ppm in 2005, compared with the 8-hour standard of 9 ppm. The Los Angeles County Metropolitan Transportation Authority evaluated the LOS in the vicinity of the Wilshire Boulevard/Veteran Avenue intersection and found it to be LOS E at peak morning traffic and LOS F at peak afternoon traffic.

Based on the data in the Project's Traffic Study, under 2035 With Project conditions, the average daily trips at the I-5 Southbound Ramps and SR-126 intersection is estimated at approximately 64,700 average daily trips (ADT) and the volume at the I-5 Southbound Ramps and Valencia intersection is estimated at approximately 61,700 ADT. These volumes are substantially below the daily traffic volumes that would be expected to generate CO exceedances as evaluated in the 2003 AQMP. There is no reason unique to the local meteorology or topography to conclude that the CO concentrations at these intersections would exceed the 1-hour CO standard if modeled in detail, as based on the studies undertaken for the 2003 AQMP. Moreover, vehicle standards have become increasingly more stringent since 1992 and background CO concentrations are less than in 1992; thus, this analysis is very conservative.

Therefore, the Project would not result in the creation of a CO hot spot and the impacts would be less than significant.

***Impact Summary: Ambient Air Quality Standards – Mobile Sources – CO Hotspots.*** The Project would not contribute to traffic conditions that would cause a CO hot spot. The impact would be less than significant.

## **Off-Site Impacts**

### ***Construction***

Construction of the off-site Project features described in Section 4.7 of the EIR (i.e., roadway improvements, water infrastructure, and utilities connections) would generate short-term mass emissions. These construction activities and their associated emissions would be a small part of the estimated on-site emissions, quantified above in Table 5.11-10 through Table 5.11-17. MM 11-2 would be applicable to off-site construction activities. Separately, these emissions would not exceed applicable standards. However, these activities would occur concurrently with on-site construction and would add a small increment to calculated annual and peak-day significant and unavoidable construction emissions impacts.

---

### ***Operational Impacts***

Upon completion of construction, the Project's off-site roadway, water infrastructure, and utility improvements would not generate criteria air pollutants. There would be no impact.

***Impact Summary: Off-Site Impacts.*** Off-site construction would add to concurrent on-site significant and unavoidable impacts. There would be no operational impact from off-site features.

### **Threshold 11-2      Would the proposed project expose sensitive receptors to substantial pollutant concentrations?**

As previously described, sensitive receptors include, but are not limited to, residences, schools, school yards, day care facilities, hospitals, rest homes, long-term medical facilities, and parks/playgrounds. The nearest existing sensitive receptors to the Project site are residential properties near the Project site boundaries on 300<sup>th</sup> Street West, 290<sup>th</sup> Street West, and Malinda Avenue. Additional nearby residences include one located offsite on the south side of SR-138 west of the Cement Plant Road and homes between the Quail Lake Sky Park runway and SR-138. The residences, schools, and parks to be built as part of the Project would be sensitive receptors.

The following impact categories are addressed: construction emissions; valley fever; criteria pollutant emissions from on-site stationary sources; CO Hotspots; toxic air contaminants from on-site stationary sources; toxic air contaminants from existing off-site sources; and diesel particulate matter exposure from vehicles on SR-138.

### **On-Site Impacts**

#### ***Construction Emissions***

The impacts of construction emissions of criteria pollutants to sensitive receptors are analyzed above under Threshold 11-1, Ambient Air Quality Standards – Construction. The analysis indicates that Project construction activities occurring subsequent to the completion and occupation of earlier Project phases could result in exceedance of federal, State, or SCAQMD LST ambient air quality standards for 24-hour concentrations of PM<sub>10</sub> and PM<sub>2.5</sub> at on-site receptors. Therefore, these receptors could be temporarily exposed to substantial concentrations of PM<sub>10</sub> or PM<sub>2.5</sub> during the later phases of construction. This would be a significant impact. Dust-control measures and Tier 4 Final construction equipment (MM 11-2) would reduce PM<sub>10</sub> and PM<sub>2.5</sub> emissions but it cannot be demonstrated that the reductions would reduce concentrations to less than the applicable standards. The short-term impact would be significant and unavoidable.

Diesel PM, a TAC, would be emitted during construction due to the operation of heavy equipment at the site. Because diesel PM is considered a carcinogen, long-term exposure to diesel exhaust emissions have the potential to result in adverse health impacts. Neither the AVAQMD nor the SCAQMD has adopted procedures for quantitative analysis of short-term construction-related TAC exposure. Although construction of the Project would occur over a period of many years, use of diesel-powered construction equipment in any single area

would likely occur for no more than a few months and would cease when construction is completed in that area. Further, there will be limited periods when construction would be near adjacent residences.

The dose to which the receptors are exposed is the primary factor used to determine health risk.<sup>7</sup> Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the Maximally Exposed Individual (MEI). The risks estimated for an MEI are higher if a fixed exposure occurs over a longer period. According to the OEHHA, health risk assessments, which determine the exposure of sensitive receptors to toxic emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period or duration of activities associated with a project. Therefore, if the duration of proposed construction activities near a sensitive receptor was 12 months, the exposure would be less than 1½ percent of the total exposure period used for health risk calculation (i.e., 70 years).

Based on the relatively short exposure time, diesel PM generated by Project construction would not create conditions where the probability for the MEI to contract cancer is greater than ten in one million, which is the threshold the AVAQMD and SCAQMD uses for cancer risk. Likewise, the probability of construction or operations to generate ground-level concentrations of non-carcinogenic TACs that exceed a Hazard Index greater than one for the MEI is very low. Additionally, with ongoing implementation of federal and State requirements for cleaner-burning fuels, diesel engine retrofits, and new low-emission diesel engine types, the diesel PM emissions of individual equipment would be substantially reduced over future years as Project construction is implemented. This impact would be less than significant; no mitigation is required.

***Impact Summary: Exposure to Construction Emissions.*** During construction of the Project, construction emissions of PM<sub>10</sub> and PM<sub>2.5</sub> could exceed the federal and State ambient air quality standards and SCAQMD-established local significance thresholds, exposing sensitive receptors to substantial pollutant concentrations. This impact would be significant and would be reduced with implementation of MM 11-2; however, they would not reduce impacts to a level considered less than significant. Exposure of sensitive receptors to diesel PM would be less than significant.

### ***Valley Fever***

As discussed above, Valley Fever spores have the potential to be found in soils in the Antelope Valley. The site is currently a large expanse of undeveloped land, which experiences periodic high winds and supports widespread grazing and some agricultural activity. These existing conditions result in (1) disturbance of existing soils on the site due to animal activity; (2) dust formation associated with this disturbance and high wind events; and (3) a resultant risk of Valley Fever for residents in the Project area. However, earth disturbing activities, including grading that would be required for site development, would have a more intensive

---

<sup>7</sup> "Dose" is a function of the concentration of a substance or substances in the environment and the extent of exposure that a person has with the substance.

surface disturbance and would increase the risk of Valley Fever exposure if spores are present on the Project site and become airborne in fugitive dust.

The Los Angeles County Department of Public Health (DPH) divides the County into Service Planning Areas (SPA) for the purposes of tracking and reporting trends of many diseases in Los Angeles County. The Antelope Valley is included within SPA1, which reported the highest incidence rate of reported cases of Valley Fever in Los Angeles County in 2014, at 26.2 cases per 100,000 people. The Centennial Project site is within the farthest western portion of SPA 1, and is adjacent to SPA 2 (San Fernando Valley), which had a lower incidence rate of 5.7 cases per 100,000 people (LADPH 2016).

For the purposes of this analysis, it is assumed that Valley Fever spores are located within soils on the Project site. Of all construction activities that would occur on the Project site, grading is the most likely to generate airborne dust, and is therefore the most likely phase of construction to potentially release Valley Fever spores into the air. Therefore, the Project's construction workers would be at the highest risk for Valley Fever exposure, and there would be an increased risk to the existing population in the immediate vicinity of the Project area.

The control of fugitive dust is the key to preventing exposure to Valley Fever spores during ground-disturbing construction activities. Fugitive dust control measures would be required and implemented on the Project pursuant to the AVAQMD Rule 403, Fugitive Dust, and SCAQMD Rule 403, Fugitive Dust. Both of these rules require that dust be controlled so as not to be visible beyond the property line, and are enforced by the AVAQMD and SCAQMD. AVAQMD Rule 403 and SCAQMD Rule 403 control measures include watering exposed surfaces and haul roads three times daily; replacing ground cover in disturbed areas quickly; covering stock piles with tarps; and limiting speeds on unpaved roads to 15 miles per hour. The rules include comprehensive sets of best available control measures that reduce fugitive dust generation and are required for all projects within the AVAQMD's and SCAQMD's jurisdictions. Additional discussion about AVAQMD Rule 403 and SCAQMD Rule 403 is included under Threshold 11-1.

SCAQMD Rule 403 also requires that each large project identify a Dust-Control Supervisor that is employed by or contracted with the Property Owner/Developer and is on the site or within 30 minutes of the site during working hours; has the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule 403 requirements; and has both completed the SCAQMD Fugitive Dust Control Class and been issued a valid Certificate of Completion for the class. In order to ensure implementation of Rule 403 requirements, MM 3-1, in Section 5.3 Hazards and Fire Safety requires that prior to beginning any on-site construction activity, a Dust-Control Supervisor be retained who will be on the site within 30 minutes of the start of work taking place each morning; will have the authority to expeditiously employ sufficient dust mitigation measures to ensure compliance with all Rule 403; and will have completed the SCAQMD Fugitive Dust Control Class and has been issued a valid Certificate of Completion for the class.

In order to further protect construction workers from infection from Valley Fever, MM 3-2 (in Section 5.3) requires the following measures:

- Hire workers from Los Angeles and/or Kern County populations, or other areas where Valley Fever is endemic, where possible, since it is more likely that they have been previously exposed to the fungus and are therefore immune.
- Prior to Project construction initiation, and for any personnel additions after initial Project construction initiation, the following California Department of Public Health (CDPH) materials on Valley Fever (or the most updated materials applicable to Los Angeles County) shall be distributed to worksite supervisors:
  - CDPH pamphlet entitled “Preventing Work-Related Coccidioidomycosis (Valley Fever)” available at:  
<http://www.cdph.ca.gov/programs/hesis/Documents/CocciFact.pdf>. (CDPH 2013a)
- Prior to Project construction initiation, and for any personnel additions after initial Project construction initiation, the following CDPH materials on Valley Fever (or the most updated materials applicable to Los Angeles County) shall be distributed to construction workers:
  - CDPH pamphlet entitled “Valley Fever Fact Sheet” available at:  
<http://www.cdph.ca.gov/HealthInfo/discond/Documents/VFGeneral.pdf>. (CDPH 2013b)
  - CDPH pamphlet entitled “Hoja de datos de la Fiebre del Valle (Valley Fever Fact Sheet in Spanish)” available at:  
<http://www.cdph.ca.gov/HealthInfo/discond/Documents/HojaDeDatosDeLaFiebreDelValle.pdf> (CDPH 2013c).
  - CDPH pamphlet entitled “Fact Sheet Valley Fever (Valley Fever Fact Sheet in Tagalog),” available at:  
<http://www.cdph.ca.gov/HealthInfo/discond/Documents/TagalogGeneralValleyFeverFactSheet.pdf> (CDPH 2013d).
- Require crews to use masks or respirators that are adequate to restrict inhalation of particulates during Project clearing, grading, and excavation operations in accordance with California Division of Occupational Safety and Health regulations.
- During rough grading and construction, the access way into the Project site from adjoining paved roadways shall be paved or treated with environmentally safe dust-control agents.

While construction workers would be at highest risk, on-site populations would also be at risk for exposure during interim phases of development, depending on the proximity to on-site construction activities. As described in PDF 3-1, as implemented through MM 3-3 (in Section 5.3, Hazards and Fire Safety), prior to sale, lease, or rental of any property, all



residents would be provided with a notice disclosing this potential risk and describing strategies to avoid potential exposure to Valley Fever spores during construction or other earth-moving activities. Additionally, as required by AVAQMD Rule 403, a Supplementary Dust Control Plan is required to minimize emissions of respirable particulate matter near sensitive receptors. Measures in the supplementary plan may include, but not be limited to additional watering of active grading areas and disturbed areas; stopping operations when winds exceeding ten miles per hour are in the direction from the grading towards the receptors; and/or other effective measures.

At the completion of construction activities, risks of exposure to Valley Fever would be reduced for those living on the Project site and adjacent to the Project site due to the replacement of undeveloped land with urban development, irrigated landscaping, and paved areas, that would have reduced risks of fugitive dust generation and the associated risk of Valley Fever. Valley Fever spores have a reduced chance of becoming airborne in areas that are irrigated, vegetated with groundcover, covered with hardscapes or pavement, or urbanized with relatively little undisturbed soil (KCPHSD2015). Therefore, once the Project is completed and the landscaping is established, residents and visitors on the Project site would not have an increased risk of exposure to Valley Fever when compared to the existing conditions.

Therefore, with implementation of PDF 3-1 (from Section 5.3, Hazards and Fire Safety), AVAQMD and SCAQMD Rule 403 requirements, MM 3-1, and MM 3-2 (from Section 5.3), the potential for exposure to Valley Fever spores from construction of the Project would be reduced to the maximum extent feasible and would be considered a less than significant impact.

***Impact Summary: Exposure to Valley Fever.*** During construction of the Project, implementation of AVAQMD and SCAQMD Rules for fugitive dust control, and MMs 3-1 and 3-2 (from Section 5.3, Hazards and Fire Safety) would result in a less than significant impact for exposure of construction workers, site occupants, and adjacent off-site persons to Valley Fever. Additionally, implementation of PDF 3-1, as implemented through MM 3-3, would result in a less than significant impact to future on-site residents.

## Operations

### ***Criteria Pollutant Emissions from On-Site Stationary Sources***

The potential for the Project's stationary sources during operations to exceed ambient air quality standards is analyzed above under Threshold 11-1 (see Operations, Ambient Air Quality Standards –Stationary Sources). The analysis concludes that, with the limitations on the number and size of Project stationary sources through MM 11-1, the emissions from these sources would not exceed established ambient air quality standards and therefore would result in a less than significant impact.

***Impact Summary: Criteria Pollutant Emissions from On-Site Stationary Sources.***

Stationary source sizes would be limited by MM 11-1. Emissions would not exceed applicable standards. Exposure of sensitive receptors to stationary source criteria pollutants would be less than significant.

***Mobile Sources – Carbon Monoxide Hotspots***

The potential for sensitive receptors to be exposed to substantial concentrations of vehicle-generated CO is analyzed above under Threshold 11-1, Ambient Air Quality Standards – Mobile Sources – CO Hotspots. The analyses conclude that there would be no potential CO hotspot.

***Impact Summary: Mobile Sources – CO Hotspots.*** The Project would not create or contribute to off-site traffic conditions that would cause a CO hotspot. Exposure of sensitive receptors to CO concentrations would be less than significant.

***Toxic Air Contaminant Emissions from On-site Stationary Sources***

This analysis of toxic air contaminants is based on the *Centennial Air Quality Analysis for Stationary Sources* prepared by ENVIRON (2009a) and is included as EIR Appendix 5.11-B. Carcinogenic risks (i.e., cancer risks) are estimated as the incremental probability that an individual will develop cancer over a lifetime as a direct result of exposure to potential carcinogens. The estimated risk may be expressed as a unitless probability (e.g., 10 in 1 million or  $10^{-5}$ ), which is how they are expressed in this EIR discussion. By contrast, hazard indices (HIs) express the potential for chemicals to result in non-cancer health impacts, and non-carcinogenic chemicals should not be present at levels that may have the potential to cause adverse health effects (i.e., HI greater than one). HIs are expressed using decimal notation (e.g., 0.001) and express the fraction of the threshold concentration that may have the potential to cause adverse health effects.

Pursuant to SCAQMD Rule 1401(d)(1) and AVAQMD Rule 1401(E)(3)(e), the risks associated with potential exposure to emissions from a source equipped with the best available control technology for toxics (T-BACT) and from all emissions sources included within a “project” are acceptable if the incremental cancer risk is less than ten in one million, and one in one million for sources not equipped with T-BACT. Ten in one million is the limit stated in the AVAQMD and SCAQMD CEQA significance thresholds.

In the *Centennial Air Quality Analysis for Stationary Sources*, ENVIRON confirms that the *Centennial Specific Plan’s* limitations on Project TAC-emitting stationary sources would ensure that upper bound risks posed to sensitive receptors are not in excess of the significance thresholds.

**Evaluation of Toxic Air Contaminant Emissions in Business Parks**

The 2009 *Centennial Air Quality Analysis for Stationary Sources* includes an analysis of TAC emissions in the Project Business Park areas. The analysis is based on a previous design and plans for the Project; however, the changes in the Project site and design relative to this

analysis are minor and the analysis is sufficient to evaluate potential impacts. Land use designations from the previous Centennial Land Use Plan were used to identify the locations of proposed business parks and nearby residential and other sensitive receptors. In the previous Land Use Plan, buffer areas between business park locations and sensitive receptors were established. In order to determine the number of potential TAC emission sources, these business parks were subdivided into roughly three-acre sites. For this analysis, it was assumed that each three-acre site contained one air emission source located at the center of each site. Health impacts were evaluated at the property lines of any sensitive receptor land use designations adjacent to the business parks.

TAC emissions of 165 generic sources were scaled to the maximum emissions allowed by the limits in the Project to determine the aggregate cancer risk and non-cancer hazard index at each sensitive receptor. The modeling of composite emissions from all 165 TAC sources confirmed that none of the adjacent sensitive receptors would exceed a cancer risk of 10 in 1 million or have a chronic non-cancer hazard index of 1.0.

The modeling assumes that the buffer areas would not contain TAC emission sources or sensitive receptor uses. The modeling analysis demonstrates that this restriction ensures that the 10 in 1 million threshold for the aggregate sensitive receptor cancer risk and 1.0 threshold for chronic non-cancer risk are not exceeded at adjacent sensitive source receptor areas. In order to ensure that the Project's future tract maps incorporate this required buffer area, MM 11-7 requires the establishment of buffer areas in the Project equivalent to those used for the TAC modeling.

The establishment of buffer areas does not, however, preclude the use of these buffer zones for other commercial entities, provided they are not potential sources of TAC emissions. Additionally, there may be limitations on locations where schools or daycare centers could be located within the business parks, depending on the aggregate cancer risk and chronic non-cancer hazard index within the business park subdivision. Under a worst-case scenario, no schools or daycare centers should locate in any business park areas; however, since Centennial will likely build out with sources in the business park with lower emissions than those projected by this report, the Project does not, and need not contain an absolute ban. Rather, additional analyses are required before these uses can locate there so that the actual health risks can be assessed. MM 11-8 requires this analysis and identifies required performance standards to ensure that impacts are reduced to a less than significant level. Additionally, in order to comply with the CARB recommendation that distribution centers should be at least 1,000 feet from sensitive receptors, MM 11-9 requires Distribution Centers to be located within the business park areas south of State Route (SR) 138 and at least 1,000 feet from existing sensitive receptors and lands designated for sensitive land uses. Distribution centers would not be allowed in other areas within the Project site.

It should be noted that the ENVIRON analysis presents a conservative, worst-case assessment of the maximum expected cancer risk and chronic non-cancer risk due to business park TAC emissions at any sensitive receptor location. It assumes that each allowable location for TAC emissions would use toxic chemicals at the maximum allowable rate. It is likely that the chemical use at some of these locations would be below the maximum rate, and the resultant risks would also be lower.

---

### Evaluation of Toxic Air Contaminant Emissions in Commercial, Institutional, and Residential Areas

There are several discrete types of equipment with TAC emissions levels less than those described previously for stationary sources that would be permitted in the commercial and institutional areas on the Project site. These types of equipment include natural gas-fired boilers (a surrogate for any gas-fired equipment), emergency generators, gasoline service stations, spray booths, storage tanks, petroleum-solvent dry cleaners, small-source particulate matter (PM) generators, and wastewater reclamation facilities (WRFs). A modeling analysis was performed to confirm that the aggregate risk from these TAC-emitting sources remains below significance thresholds. In order to account for the possibility of a receptor being exposed to impacts from more than one source, individual units are limited in size by the Project to those that would result in risks less than one-tenth of the significance threshold (i.e., cancer risk of no more than 1 in 1 million and an HI of no more than 0.1) at its point of maximum impact (PMI). The methodology for conducting this analysis is described in Appendix 5.11-B.

If the Project were to include TAC emissions sources that do not meet the recommended sizes and operations, there would be a potential that the aggregate risk from these TAC-emitting sources would exceed identified significance thresholds. MM 11-1 requires compliance with these parameters which are included in Table 5.11-5. As stated in MM 11-1, should there be a need or request for a stationary source exceeding the prescribed limits, a source-specific air quality analysis in accordance with the applicable AVAQMD or SCAQMD Rules would be required.

Two WRFs would be constructed (one to the west and one to the east of the West Branch of the Aqueduct) to provide tertiary treated recycled water for community landscaping throughout the Project site. WRFs emit TACs; the types and relative quantities emitted depend on the chemical makeup of the influent wastewater sent to the treatment plant.

A screening health risk assessment was conducted to evaluate the air concentration at the nearest sensitive receptors to the WRFs. (The modeling methodology is described in Appendix 5.11-B.8) Because the future operating characteristics of the WRFs can be estimated (thus not requiring a safety factor to account for uncertainty) and because the plants would be located in institutional areas where there are not expected to be other TAC-emitting equipment contributing to composite risks, the relevant thresholds for the WRFs are 10 in 1 million for cancer risk and 1.0 for the chronic non-cancer HI. Cancer risk calculations were conservatively calculated for a maximum resident period of 70 years. The results of the screening analysis demonstrate that the estimated incremental cancer risk, chronic and acute health indexes from all WRFs would be less than the significance thresholds at the maximally exposed sensitive receptor location. Impacts from TAC emissions generated by the WRFs would be less than significant.

---

8 The location of the west WRF would be slightly different than the location shown in Appendix 5.11-B, but the TAC analysis is valid for either location.

---

## Off-Site Impacts

### *Construction*

Construction of the off-site Project features described in Section 4.7 of the EIR (i.e., roadway improvements, water infrastructure, and utilities connections) would generate short-term diesel PM TAC emissions. As described above for on-site construction, the duration of construction activities near any sensitive receptor would be small when compared to the exposure durations considered for a potential health risk. Off-site construction activities would be much less in magnitude and duration than on-site construction. Therefore, the TAC impact from off-site construction would be less than significant.

### *Operational Impacts*

Upon completion of construction, the Project's off-site roadway, water infrastructure, and utility improvements would not generate TACs. There would be no impact.

***Impact Summary: Toxic Air Contaminants.*** MM 11-1 prescribes limits on larger sources and all TAC sources are limited by AVAQMD Rule 1401 and SCAQMD Rule 1401. The analysis demonstrates that, with implementation of MM 11-7, MM 11-8, and MM 11-9, impacts of these sources would be less than the applicable incremental cancer risk and non-cancer health index thresholds. Exposure of sensitive receptors to TACs from on-site sources would be less than significant

### *Toxic Air Contaminant Emissions from Existing Off-Site Sources*

The National Cement Company's Lebec Plant was identified as the only stationary source in the Project vicinity with the potential to emit TACs. Due to the plant's proximity to the Centennial Project, it was deemed appropriate to assess any potential impact to the Project site associated with the Plant. In November 2005, ENVIRON prepared a technical memorandum entitled "Evaluation of Air Impacts for the National Cement Company of California's Lebec Kiln Permit Modification From a 25 percent Tire-Derived-Fuel Permit Limit to a 50% Limit" (see Appendix 5.11-C). As part of the evaluation, ENVIRON conducted a health risk analysis (HRA) to evaluate the human health impact from increasing the percentage of tire-derived-fuel (TDF) used at the NCCC facility at Lebec. In that HRA, ENVIRON used standard methods developed by the OEHHA (e.g., Hot Spots Analysis Reporting Program [HARP]) to evaluate cancer risks and non-cancer health hazards at the closest potential future Project residence, which is located at the northernmost point of the Project site (i.e., the portion of Centennial closest to the Plant).

Based on the results presented in the HRA, the estimated cancer risks and chronic and acute non-cancer HIs at the future Project residences and other sensitive uses (after Centennial Buildout) are below the AVAQMD's and SCAQMD's thresholds for significant risk (i.e., 10 in 1 million for cancer risk and 1.0 for HI). The cancer risk at the northernmost portion of the Project site was estimated to be 0.15 in 1 million; the chronic and acute non-cancer hazard indices estimated for this location were 0.01 and 0.12, respectively. Based on the results

presented in the HRA, the Plant at Lebec is not expected to cause unacceptable risks to future residents at Centennial (ENVIRON 2009b).

In December 2008, the OEHHA modified the acute and chronic non-cancer reference exposure levels (RELs) for formaldehyde and acrolein to reflect the current understanding of their non-cancer effects. Both RELs were increased, reflecting the fact that both compounds are considered to have lower non-cancer toxicity than previously believed. Since the HRA was last updated in December 2005, these revised RELs are not reflected in the HIs calculated in that HRA. If the analyses were updated with the new RELs, the resulting chronic and acute hazard indices (HIs) at the nearest residence will be less than the 0.01 and 0.12, respectively, which are the previous estimates. For the other chemicals identified in the HRA, ENVIRON determined that no OEHHA-published toxicity values have been modified since the HRA was issued (ENVIRON 2009b). Therefore, absent an increase in the emissions from the NCCC facility or a change in process that alters the emissions makeup, the health risks presented in the HRA would likely be lower and conclusions reached still continue to be valid.

***Impact Summary: Toxic Air Contaminants – Off-Site Sources.*** The TAC risks from the National Cement Plant at Lebec to the Project site would be less than the applicable AVAQMD and SCAQMD CEQA significance thresholds. The impact would be less than significant.

### ***Diesel Particulate Matter Exposure from Vehicles on State Route 138***

The CARB publication, *Air Quality and Land Use Handbook: A Community Perspective* recommends default separation distances when locating new sensitive land uses near sources of TACs, including freeways. The CARB guidance recommends 500-foot buffers between freeways and sensitive receptors, indicating that further analyses may be necessary if the proposed sensitive land use is located within this recommended buffer. The bases for this recommendation include epidemiological studies demonstrating additional cancer and non-cancer health risks associated with proximity to roadways, and attributing the risk to diesel PM. The CARB guidance manual states that the highest concentration of pollutants emitted from freeways dissipates rapidly within the first 300 feet of a freeway. According to CARB, California freeway studies also show an approximate 70 percent drop off in particulate pollution levels at 500 feet, and lifetime cancer risk from exposure to diesel PM is expected to be lowered proportionately. The guidance manual does not provide a quantitative acceptable threshold of risks from diesel PM from freeways in its recommendations of buffer distances between freeways or high traffic roadways and sensitive land uses, nor does it discuss the important factor of meteorology, which substantially affects pollutant concentrations if receptors are upwind or downwind of a freeway.

MM 11-10 requires the implementation of PDF 11-6, which prohibits the development of residences, schools, day care centers, or other land uses involving public congregation within 150 feet from the near edge of the traffic lanes of SR-138.

As discussed in the Methodology section and Appendix 5.11-C, ENVIRON conducted dispersion modeling to estimate diesel PM air concentrations at sensitive receptors (e.g., planned future residences and institutional locations that could contain schools or hospitals) located adjacent to SR-138. Concentrations were evaluated for two scenarios: “With Project” and “Without Project”. The With Project scenario includes a realigned and expanded SR-138 configuration, consistent with the proposed Northwest 138 Corridor Improvement Project (described in Section 4.5.5 of this EIR). The Northwest 138 Corridor Improvement Project evaluates operational improvements for SR-138 from I-5 to SR-14. Metro and Caltrans are preparing a Draft EIR/EIS for alternative improvements to this highway that would include a 6-lane freeway (with a curve correction) that includes a 22-foot median in the vicinity of the Project site (Metro 2015). The Without Project scenario would not change the current roadway configuration.

Because the Project would generate traffic on SR-138, the receptors evaluated included 3 existing residences within 500 feet of SR-138, as well as the proposed residential and institutional areas that could be located within 150 feet of the freeway. Cancer risks were calculated for the modeled sensitive receptors assuming a 30-year exposure duration, which represents a high-end residency period, and a 70-year exposure scenario, which represents a maximum, lifetime exposure. The health risks associated with non-carcinogenic effects were evaluated by comparing the maximum annual concentration to the OEHHA-established non-cancer chronic REL.

As discussed in greater detail in Appendix 5.11-C, *Centennial Supplemental Air Quality Analysis*, of this EIR, the analysis of diesel PM risks from SR-138 to future sensitive receptor areas shows incremental cancer risks for the 70-year exposure duration below 10 in 1 million at locations greater than 150 feet from the travel lanes. The estimated hazard index for all proposed sensitive receptors was less than one. As more stringent vehicular greenhouse gas emission and criteria air pollution standards take effect, the number of diesel powered vehicles on roadways as well as emissions from remaining newer diesel engines will further reduce diesel-related health risks. Therefore, the analysis confirms that the 150-foot buffer limitation established by MM 11-10 would ensure that diesel PM TAC impacts would be less than significant. In addition, MM 11-11 requires that prior to future tract map approvals, if any sensitive receptors (e.g. residential, day care, schools, hospitals) would be located within 500 feet of the SR-138, an additional dispersion modeling study must be conducted to estimate diesel PM air concentrations. If the study finds that diesel PM TAC emissions would be significant at the location of a proposed sensitive receptor, then effective construction measures must be implemented into the structures to mitigate for interior air quality, such as MERV13 filters or equivalent protections against TACs from vehicle emissions.

The results for the three existing residences are summarized in Table 5.11-24, Incremental Health Risks from Diesel PM to Existing Residences.

**TABLE 5.11-24  
INCREMENTAL HEALTH RISKS FROM DIESEL  
PARTICULATE MATTER TO EXISTING RESIDENCES**

Residence ID*	Incremental Cancer Risks (Per One Million)		Incremental Chronic Hazard Index
	30-Year	70-Year	
1	0.2	0.6	0.0003
2	-1.1	-2.5	-0.002
3	0.2	0.5	0.0003
* Residence locations are shown in Appendix 5.11-C. Source: Environ 2009b			

As shown in Table 5.11-24, the highest estimated cancer risk at any of the 3 existing residences is 0.6 in 1 million at Residence 1; the increase is for 70-year exposure. The risks to Residence 2 would decrease with the Project, as the new location of SR-138 would be slightly further from the residence than the current location.

***Impact Summary: Toxic Air Contaminants – Diesel PM from SR-138.*** The Project would include land use areas that could allow sensitive receptors to be located adjacent to SR-138. Vehicles on SR-138 emit diesel PM, which is a TAC. MM 11-10 prohibits the development of sensitive receptors within 150 feet of SR-138. MM 11-11 requires additional TAC study for sensitive receptors within 500 feet of the SR-138. With these measures, exposure of sensitive receptors to TACs from SR-138 would be less than significant.

**Threshold 11-3**      **Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?**

### On-Site Impacts

Section 15125 of the State CEQA Guidelines requires an EIR to discuss any inconsistencies between the Project and applicable regional plans, which include air quality management plans and the State Implementation Plan (SIP). As discussed above, both the AVAQMD and SCAQMD have adopted air quality management plans that include strategies for reducing nonattainment criteria pollutant emissions to meet the NAAQS and CAAQS by a specified date. The AVAQMD *Federal 8-Hour Ozone Attainment Plan (Western Mojave Desert Non-Attainment Area)* and the SCAQMD 2012 AQMP are the most recent AQMPs for the respective Districts. Both documents rely on Southern California Association of Government (SCAG) growth forecasts to predict baseline inventories for mobile, area, and stationary sources. The analysis below discusses the Project's consistency with the assumptions and objectives of these applicable air quality plans and whether implementation of the Project would interfere with the AVAQMD's or SCAQMD's ability to comply with State and federal air quality standards.



The AVAQMD's CEQA and Federal Conformity Guidelines state "A project is deemed to not exceed this threshold, and hence not be significant, if it is consistent with the existing land use plan. Zoning changes, specific plans, general plan amendments and similar land use plan changes which do not increase dwelling unit density, do not increase vehicle trips, and do not increase vehicle miles traveled are also deemed to not exceed this threshold" (AVAQMD 2016b).

Population associated with the Project was not in the 2004 SCAG growth forecasts, upon which the basic AVAQMD *Federal 8-Hour Ozone Attainment Plan* was based. However, the 2008, 2012, and 2016 SCAG growth forecasts have accounted for the Project and emissions associated with the Project will be accounted for in future SCAQMD and AVAQMD AQMPs that are adopted prior to the buildout for the Project. AQMP revisions are required at least once every three years. Therefore, revised plans, which would include the Project's population and emissions forecasts, would be in place prior to the initial occupancy of Project facilities.

The SCAQMD guidelines also specify that, for consistency with the AQMP, a project will not result in an increase in the frequency or severity of existing air quality violations; will not cause or contribute to new violations; and will not delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP. Construction-related emissions are assumed to occur throughout the geographic region covered by the AQMP, and the AQMP is focused on operational emissions. As described under Threshold 11-1, the limitations for specific sources specified in MM 11-1 are sufficient to ensure that any individual source or a combination of adjacent sources would not result in a violation of an ambient air quality standard. Sources larger than the limitations set forth in the *Centennial Specific Plan* could be operated without exceeding air quality standards; however, the MM 11-1 requires an additional assessment of the potential impacts of that source prior to its operation. As discussed above, Project operational emissions are also consistent with the population, housing, and employment assumptions in the SCAG RTP/SCS, which is the criteria emission estimates included in the AQMP. Therefore, the Project would not conflict with the AQMP population projections at the time of Project implementation, operational impacts would be less than significant.

## Off-Site Impacts

Construction and operation of the off-site Project features are not population-generating land uses; therefore, these components would be consistent with the AVAQMD and SCAQMD AQMPs. There would be no impacts related to consistency of off-site Project features with the applicable air quality plans.

***Impact Summary:*** The Project and the associated population and emissions are in current SCAG growth forecasts, and will be included in future AQMPs. There would be no conflict with AQMPs and the impact would be less than significant.

---

**Threshold 11-4      Would the proposed project create objectionable odors affecting a substantial number of people?****On-Site Impacts*****Construction Phases***

Project construction would use equipment and activities that would generate odors typical during construction and not extraordinarily objectionable. Potential construction odors include on-site construction equipment's diesel exhaust emissions as well as roofing, painting, and paving operations. Because the Project is new development (as opposed to infill), it is likely that most construction activities will occur at some distance from occupied residences and businesses. However, there will be situations where construction activity odors will be noticed. These odors would be temporary and would dissipate rapidly from the source with an increase in distance. Therefore, the impacts would be short-term; would not affect a substantial number of people; and would be less than significant.

***Long-Term Impacts***

During long-term Project operations, some odors associated with residential uses would be expected to occur, such as from cooking and gardening. However, those odors are not considered significant on a local or regional scale. Local odors would be no different than in any other residential area with supporting services and would not be considered significant.

The most likely potential nuisance odors would be from the industrial or utility sources, including the WRFs and the Materials Recovery Facility/Transfer Station (MRF/TS). The two WRFs would be located along the northern edge of the Project site; see Exhibit 4-14, Centennial Project – Conceptual Wastewater System. The location of the MRF/TS, if constructed, has not been determined, but would be located within the Utility land use designation.

Anaerobic microbial decomposition of material in the wastewater and solid waste stream could generate emissions of hydrogen sulfide, which has a characteristic rotten egg odor, and other odorous compounds. Hydrogen sulfide is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation. Breathing hydrogen sulfide at levels above the State standard will result in exposure to a very disagreeable odor. In 1984, a CARB committee concluded that the ambient standard for hydrogen sulfide is adequate to protect public health and to significantly reduce odor annoyance. Decomposition of nitrogen compounds in wastewater can also generate emissions of ammonia, which has a pungent odor.

Prior to their construction and operation, the WRFs and the MRF/TS would be required to obtain construction and operation permits from the SCAQMD or AVAQMD, depending on the location of each facility, to ensure that their air quality and odor impacts would be less than significant. To minimize odors from these facilities to less than significant levels, state-of-the-art design and odor-control measures would be implemented where necessary. Examples of effective odor-control technologies include covering and/or enclosing odorous processes,

applying negative air pressure with blowers, and installing odor-control devices such as biofilters, chemical scrubbers, or activated carbon filters. Digester gas, which is primarily methane, can be either flared or used as an industrial fuel. Digester gas combustion would destroy odorous compounds. Both the SCAQMD and AVAQMD have regulations that prohibit off-site odors generated by any source. Any detectable odors outside the boundary of either the WRFs or the MRF/TS would be a violation of the air districts' rules and regulations.

## Off-Site Impacts

Project off-site roadway, water infrastructure, and utility improvements would not generate odors and would not require air quality permits for their operation. The off-site wells would not generate odors and would not require air quality permits for their operation. There would be no permanent population at the wells to be exposed to objectionable odors in the area. Construction of the proposed wells may result in short-term odors typical of construction, including diesel and paving odors in the immediate vicinity of the construction area. There would be no substantial populations nearby to be exposed to these odors. Therefore, there would be no impacts related to generating odors or to introducing a future population to nuisance odors or hazardous air emissions.

***Impact Summary:*** Construction activity odors would be temporary and would not be experienced by a substantial number of people. The WRFs and the MRF/TS would be facilities with the potential to emit objectionable odors. The Project must comply with review and permitting by the AVAQMD or SCAQMD, as applicable, with respect to odor impacts. Construction and operational on-site and off-site odor impacts would be less than significant.

**Threshold 11-5**      **Would the proposed project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?**

## On-Site and Off-Site Impacts

As previously identified in Table 5.11-2, the MDAB is in nonattainment for PM<sub>10</sub> and O<sub>3</sub>. As previously identified in Table 5.11-3, the Los Angeles County portion of the SoCAB is in nonattainment for PM<sub>10</sub>, PM<sub>2.5</sub>, lead, and O<sub>3</sub>. The Project would contribute PM<sub>10</sub>, PM<sub>2.5</sub>, and O<sub>3</sub> precursors (i.e., VOC and NO<sub>x</sub>) to the area during short-term construction and long-term operational activities. Lead emissions would be negligible. However, even with the inclusion of mitigation measures for direct impacts, the Project's emissions would be cumulatively considerable.

The AVAQMD CEQA guidelines state that "cumulative impacts are similar to direct and indirect impacts of the project, which the project contributes to" (AVAQMD 2016b). In the case of a subdivision project, a given project has a cumulative impact with all other subdivision projects, from the standpoint of each type of impact (e.g., cumulative

construction emissions, residential natural gas consumption, solvent use, transportation emissions, congestion).The SCAQMD considers the thresholds for project-specific impacts and cumulative impacts to be the same (SCAQMD 2003b).<sup>9</sup>

Construction annual emissions of NO<sub>x</sub>, an O<sub>3</sub> precursor, would be directly significant and therefore, cumulatively considerable and significant. Construction daily emissions of O<sub>3</sub> precursors VOC and NO<sub>x</sub>, would be directly significant and therefore, cumulatively considerable and significant. Even with the inclusion of mitigation measures for direct impacts, these Project emissions would be cumulatively considerable. Construction mass emissions of PM<sub>10</sub> and PM<sub>2.5</sub> would not be directly or cumulatively significant.

Even with the inclusion of mitigation measures, long-term operational emissions of PM<sub>10</sub>, PM<sub>2.5</sub>, and O<sub>3</sub> precursors VOC and NO<sub>x</sub>, would be directly significant and therefore, cumulatively considerable and significant.

### 5.11.8 MITIGATION MEASURES

**MM 11-1** The Project's plans and specifications shall require stationary sources to comply with the parameters stated in Stationary Source Types, Size Limits, and Quantity Estimates, which is included as Attachment A to the Project's Mitigation Monitoring and Reporting Program. Should there be a need for a stationary source exceeding the prescribed limits, the Project Applicant/Developer shall apply for source-specific permit from the Antelope Valley Air Quality Management District (AVAQMD) or South Coast Air Quality Management District (SCAQMD), as applicable.

**MM 11-2** The Project's plans and specifications shall include the following measures to minimize nitrogen oxide (NO<sub>x</sub>) and volatile organic compound (VOC) emissions during construction:

- All off-road diesel-powered construction equipment greater than 50 horsepower shall meet U.S. Environmental Protection Agency (USEPA) Tier 4 Final emission standards to the extent that the equipment is available. In addition, all construction equipment shall be outfitted with Best Available Control Technology (BACT) devices certified by the California Air Resources Board (CARB). Any emissions-control device used by the contractor shall achieve emissions reductions that are no less than what could be achieved by a Level 3 diesel emissions control strategy for a similarly sized engine as defined by CARB regulations. If Tier 4 Final equipment is not available, the Project Applicant/Developer shall provide the County with documentation showing the reasons for non-availability.
- Alternatively, construction equipment may be selected according to the Green Construction Policy used by the Los Angeles County Metropolitan Transportation Authority or the ports of Los

<sup>9</sup> The only exception is the hazard index significance threshold for toxic air contaminants.

Angeles/Long Beach. These policies include provisions to ‘step down’ from Tier 4 equipment to Tier 3 or Tier 2 if specified criteria are met.

- Require the use of 2010 and newer diesel haul trucks (e.g., material delivery trucks and soil import/export). If the Project Applicant/Developer determines that 2010 model year or newer diesel trucks cannot be obtained, trucks that meet USEPA 2007 model year NOx emissions requirements shall be required. If 2010 model year or newer diesel trucks are not available, the Project Applicant/Developer shall provide the County with documentation showing the reasons for non-availability.
- A copy of each unit’s certified tier specification, BACT documentation, and CARB or District operating permit shall be provided to the County at the first occurrence of mobilization of each applicable unit of equipment.
- Construction contractors shall ensure construction equipment is properly serviced and maintained to the manufacturer’s standards.
- Construction contractors shall limit non-essential idling of construction equipment to no more than five consecutive minutes.

**MM 11-3** The Project’s plans and specifications shall prohibit wood-burning fireplaces as required by SCAQMD Rule 445 in single-family residences throughout the entire Project site, including at residences that are 3,000 or more feet above mean sea level at which the SCAQMD prohibition would otherwise not apply. Natural gas fireplaces shall be limited to a total of 13,954.

**MM 11-4** The Project’s plans and specifications for non-residential buildings shall demonstrate that the following features have been incorporated into the building designs. Proof of compliance shall be provided to the County prior to the issuance of occupancy permits.

- For buildings with over 10 tenant-occupants, changing/shower facilities shall be provided as specified in Section A5.106.4.3, Nonresidential Voluntary Measures, of the CALGreen Code as follows: for 11 to 100 tenant-occupants, one unisex shower; for 101 to 200 tenant-occupants, one shower per gender; and for over 200 tenant-occupants, one shower per gender for each 200 additional tenant-occupants.
- Preferential parking for low-emitting, fuel-efficient, and carpool/van vehicles shall be provided as specified in Section A5.106.5.1, Nonresidential Voluntary Measures, of the CALGreen Code as follows: two for 10 to 15 spaces; four for 26 to 50 spaces; six for 51 to 75 spaces; nine for 76 to 100 spaces; eleven for 101 to 150 spaces; 18 for 151 to 200 spaces; and at least 10 percent of total for 201 and more spaces.

- Facilities shall be installed to support future electric vehicle charging at each non-residential building with 30 or more parking spaces. Installation shall be consistent with Section A5.106.5.3, Nonresidential Voluntary Measures (Tier 1), of the CALGreen Code. The facilities shall meet Section 406.9 (Electric Vehicle) of the *California Building Code* and as follows:

**Single charging space requirements.** When only a single charging space is required, install a listed raceway capable of accommodating a dedicated branch circuit. The raceway shall not be less than trade size 1. The raceway shall be securely fastened at the main service or subpanel and shall terminate in close proximity to the proposed location of the charging system into a listed cabinet, box or enclosure.

**Multiple charging spaces required.** When multiple charging spaces are required, plans shall include the location(s) and type of electrical vehicle supply equipment (EVSE), raceway method(s), wiring schematics and electrical calculations to verify that the electrical system has sufficient capacity to charge simultaneously all the electric vehicles (EV) at all designated EV charging spaces at their full rated amperage. Plan design shall be based on Level 2 EVSE at its maximum operating ampacity. Provide raceways from the electrical service panel to the designated parking areas which are required to be installed at the time of construction.

**MM 11-5** The Project's plans and specifications for residential buildings shall demonstrate that the following features have been incorporated.

- Visitor parking shall include preferentially located parking spaces for alternative-fueled vehicles.
- Exterior electrical receptacles and natural gas or propane hookups.
- Bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen Code, as follows:

**Short-term bicycle parking.** Provide permanently anchored bicycle racks within 100 feet of the visitor's entrance, readily visible to passers-by, for five percent of visitor motorized vehicle parking capacity within a minimum of one two-bike capacity rack.

**Long-term bicycle parking for multifamily buildings.** Provide on-site bicycle parking for at least one bicycle per every two dwelling units. Acceptable parking facilities shall be conveniently reached from the street and may include, but not limited to:

- Covered, lockable enclosures with permanently anchored racks for bicycles.
- Lockable bicycle rooms with permanently anchored racks.
- Lockable, permanently anchored bicycle lockers.

**Long-term bicycle parking for hotel and motel buildings.** Provide one on-site bicycle parking space for every 25,000 square feet, but not less than two. Acceptable parking facilities shall be conveniently reached from the street and may include, but not be limited to:

1. Covered, lockable enclosures with permanently anchored racks for bicycles.
2. Lockable bicycle rooms with permanently anchored racks.
3. Lockable, permanently anchored bicycle lockers.

**MM 11-6** The Project's plans and specifications for parking structures and parking lots with 20 or more parking spaces shall demonstrate that the following features have been incorporated into the parking facility.

- The parking facility shall include a minimum of five percent preferentially located parking spaces for alternative-fueled (electric, natural gas, or similar low-emitting technology) vehicles.
- The parking facility shall include at least one electric vehicle charging station. Electrical lines shall be designed and sized to add additional charging stations for up to three percent of the total parking spaces when a demand is demonstrated. The design and installation shall be consistent with Section A4.106.8.2, Residential Voluntary Measures, of the CALGreen Code as follows:

**Single charging space requirements.** When only a single charging space is required, install a listed raceway capable of accommodating a dedicated branch circuit. The raceway shall not be less than trade size 1 (nominal 1-inch inside diameter). The raceway shall be securely fastened at the main service or subpanel and shall terminate in close proximity to the proposed location of the charging system into a listed cabinet, box or enclosure.

**Multiple charging spaces required.** When multiple charging spaces are required, plans shall include the location(s) and type of electrical vehicle supply equipment (EVSE), raceway method(s), wiring schematics and electrical calculations to verify that the electrical system has sufficient capacity to charge simultaneously all the electric vehicles at all designated EV charging spaces at their full rated amperage. Plan design shall be based on Level 2 EVSE at its maximum operating ampacity. Only underground raceways and related underground equipment are required to be installed at the time of construction.

- For residential parking facilities, bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen Code.

- MM 11-7** The Project's plans and specifications for business park or water reclamation facility land uses shall demonstrate that buffer areas adjacent to proposed business parks in compliance with the Air Quality Analysis for Stationary Sources Allowed by the Centennial Specific Plan, (see Appendix 5.11-B of this EIR) have been incorporated into the design plans. The buffer areas shall prohibit uses that are potential sources of toxic air contaminants and shall prohibit uses that include sensitive receptors, except as allowed through written evidence that the sensitive use would not be exposed to Toxic Air Contaminants with pollutant concentrations resulting in a cancer risk greater than or equal to 10 in 1 million for health risks and 1.0 for non-cancer chronic and acute hazard indices (HIs).
- MM 11-8** Prior to approval of any tract map that includes an air quality sensitive use (e.g., school, hospital, daycare center) within a designated business park, the Project Applicant/Developer shall provide written evidence to the County that the sensitive use would not be exposed to Toxic Air Contaminants with pollutant concentrations resulting in a cancer risk greater than or equal to 10 in 1 million for health risks and 1.0 for non-cancer chronic and acute hazard indices (HIs).
- MM 11-9** The Project's plans and specifications shall demonstrate that all distribution centers are within the business park areas south of State Route (SR) 138 and are located at least 1,000 feet from existing sensitive receptors and lands designated for sensitive land uses. Distribution centers shall not be allowed in other areas within the Project site.
- MM 11-10** The Project's plans and specifications shall demonstrate that any land uses involving the public congregation of sensitive receptors (e.g. residential, schools, hospital, daycare center) are not within 150 feet of the near edge of the SR-138 traffic lanes.
- MM 11-11** Prior to the approval of any tract map that includes an air quality sensitive receptor (e.g. residential, day care, schools, hospital) located within 500 feet of the SR-138, the Project Applicant/Developer shall provide a dispersion analysis to calculate the health risks from vehicle emissions from SR-138. If the study concludes that health risks would be significant at the location of a proposed sensitive receptor, then effective design measures must be implemented into the structures to mitigate for interior air quality, such as ventilation systems that include MERV13 filters or equivalent protections against TACs from vehicle emissions. Confirmation of compliance shall be provided to the County prior to occupancy that include sensitive receptors within 500 feet of the SR-138.



### 5.11.9 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With implementation of identified MMs, the following impacts would remain significant and unavoidable:

- Construction emissions would exceed the AVAQMD annual NO<sub>x</sub> emissions threshold and the daily SCAQMD VOC and NO<sub>x</sub> thresholds. VOC and NO<sub>x</sub> (both O<sub>3</sub> precursors) would be directly significant and therefore, cumulatively considerable and significant.
- Long-term operational emissions, including area, energy, and mobile sources, of CO, VOC, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> would exceed AVAQMD mass annual emissions thresholds of significance and SCAQMD mass daily emissions thresholds of significance.
- Construction near previously completed and occupied residences could result in exceedance of ambient air quality standards and exposure of sensitive receptors to substantial local pollutant emissions of PM<sub>10</sub> and PM<sub>2.5</sub>.

### 5.11.10 REFERENCES

- Antelope Valley Air Quality Management District (AVAQMD). 2016a (February, access date). Regulation II: Permits. Lancaster, CA: AVAQMD. <http://avaqmd.ca.gov/regulation-ii-permits>.
- . 2016b (August). *Antelope Valley California Environmental Quality Act (CEQA) and Federal Conformity Guidelines*. Lancaster, CA: AVAQMD. <https://avaqmd.ca.gov/files/e5b34d385/AV%20CEQA%20Guides%202016.pdf>.
- . 2015a (October 22, last accessed). Rules and Plans Overview. Lancaster, CA: AVAQMD. <http://avaqmd.ca.gov/rules-plans>.
- . 201b (July). *8-hour Reasonably Available Control Technology State Implementation Plan Analysis (RACT SIP Analysis)*. Lancaster, CA: AVAQMD. <https://www.arb.ca.gov/planning/sip/planarea/antaqmp/2015ract.pdf>.
- . 2008. (May 20, adopted). *AVAQMD Federal 8-Hour Ozone Attainment Plan (Western Mojave Desert Non-attainment Area)*. Lancaster, CA: AVAQMD. <https://avaqmd.ca.gov/files/f1327d674/AV%2008%20Ozone%20Plan%20Final.pdf>.
- . 2005 (August, adopted). *List and Implementation Schedule for District Measures to Reduce PM Pursuant to Health & Safety Code §39614(d)*. Lancaster, CA: AVAQMD. <https://avaqmd.ca.gov/files/4a77d7781/AVPMMeasuresListfnl.pdf>.
- . 2004 (April, adopted). *AVAQMD 2004 Ozone Attainment Plan (State and Federal)*. Lancaster, CA: AVAQMD. <https://avaqmd.ca.gov/files/a0d235cdd/AVOzonePlanFinal.pdf>.

- 
- . 1990 (as amended through 2006). Rule 1401: New Source Review for Toxic Air Contaminants. Lancaster, CA: AVAQMD. <https://avaqmd.ca.gov/files/8e1294bb5/AV1401.pdf>.
- . 1977 (as amended through 2013). Rule 1113: Architectural Coatings. Lancaster, CA: AVAQMD. [https://www.arb.ca.gov/drdb/av/suphtml/1113\\_s\\_03-18-03.pdf](https://www.arb.ca.gov/drdb/av/suphtml/1113_s_03-18-03.pdf).
- . 1976 (February, as amended through 2010). Rule 403: Fugitive Dust. Lancaster, CA: AVAQMD. <https://avaqmd.ca.gov/files/14c64d1ae/AV403.pdf>.
- California, State of. 2016a (access date). *California Code of Regulations* (Title 13, Motor Vehicles; Article 1, Motor Vehicles; Section 2485, Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling). Sacramento, CA: the State.
- . 2016b (access date). *California Code of Regulations* (Title 14, Natural Resources; Division 6, Resources Agency; Chapter 3, Guidelines for Implementation of the California Environmental Quality Act). Sacramento, CA: the State.
- California Air Pollution Control Officers Association (CAPCOA). 2010 (August). *Quantifying Greenhouse Gas Mitigation Measures, A Resource for Local Government to Assess Emissions Reductions from Greenhouse Gas Mitigation Measures*. Sacramento, CA: CAPCOA. <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>.
- California Air Resources Board (CARB). 2017 (February 3, last accessed). iADAM: Air Quality Data Statistics. Sacramento, CA: CARB. <http://www.arb.ca.gov/adam/>.
- . 2016a (May 4). Ambient Air Quality Standards. Sacramento, CA: CARB. <https://www.arb.ca.gov/research/aaqs/aaqs2.pdf>.
- . 2016b (February, access date). Glossary of Air Pollution Terms. Sacramento, CA: CARB. <http://www.arb.ca.gov/html/gloss.htm>.
- . 2015 (December, last updated). Air Quality Standards and Area Designations. Sacramento, CA: CARB. <http://www.arb.ca.gov/desig/desig.htm>.
- . 2014 (February 25). Executive Order R-14-001: Relating to 2013 Amendments to Area Designations for State Ambient Air Quality Standards. Sacramento, CA: CARB. <http://www.arb.ca.gov/regact/2013/area13/area13eo.pdf>.
- . 2009 (November 24, last reviewed). History of Hydrogen Sulfide Ambient Air Quality Standard. Sacramento, CA: CARB. <http://www.arb.ca.gov/research/aaqs/caaqs/h2s/h2s.htm>.
- . 2005 (April). *Air Quality and Land Use Handbook: A Community Health Perspective*. Sacramento, CA: CARB. <http://www.arb.ca.gov/ch/handbook.pdf>.

---

California Building Standards Commission (CBSC). 2016 (February, access date). Welcome to the California Building Standards Commission. Sacramento, CA: CBSC. <http://www.bsc.ca.gov/>.

———. 2016b (accessed August 6). California Green Building Standards Code (Part 11 of Title 24, California Code of Regulations). <http://www.bsc.ca.gov/Home/CALGreen.aspx>.

California Department of Public Health (CDPH).

2016 (January). *Valley Fever Fact Sheet*. Sacramento, CA: CDPH. <https://archive.cdph.ca.gov/HealthInfo/discond/Documents/VFGeneral.pdf>.

California Energy Commission (CEC) 2015a (Accessed October 27). 2016 Building Energy Efficiency Standards, Frequently Asked Questions. Sacramento, CA: CEC. [http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016\\_Building\\_Energy\\_Efficiency\\_Standards\\_FAQ.pdf](http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf).

———. 2015b. (June 10). 2016 Building Energy Efficiency Standards, Adoption Hearing. [http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2015-06-10\\_hearing/2015-06-10\\_Adoption\\_Hearing\\_Presentation.pdf#page=8](http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2015-06-10_hearing/2015-06-10_Adoption_Hearing_Presentation.pdf#page=8)

California Natural Resources Agency (CNRA). 2009 (December 30). CEQA Guidelines, 2009 SB 97 Rulemaking. Sacramento, CA: CNRA. <http://resources.ca.gov/ceqa/guidelines/>.

ENVIRON International Corporation (ENVIRON). 2009a (September). *Air Quality Analysis for Stationary Sources Allowed by the Centennial Specific Plan*. San Francisco and Emeryville, CA: ENVIRON (Appendix 5.11-B).

———. 2009b (June). *Centennial Supplemental Air Quality Analysis*. Emeryville, CA: ENVIRON (Appendix 5.11-C).

Kern County Public Health Services Department (KCPHSD). 2015. Valley Fever Website: Prevention. Kern County, CA: KCPHSD. <http://kerncountyvalleyfever.com/what-is-valley-fever/prevention/>

Los Angeles, County of, Department of Public Health (LADPH). 2016 (February 18). *2014 Annual Morbidity Report and Special Studies Report*. Sacramento, CA: LADPH. <http://www.publichealth.lacounty.gov/acd/reports/annual/2014Annual.pdf>

———. 2015 (Last accessed June 22). Acute Communicable Disease Control: Coccidioidomycosis Los Angeles, CA: LADPH. <http://www.lapublichealth.org/acd/Diseases/Cocci.htm>.

Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.

- 
- . 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.
  - . 2004 (March 2004). *Notice of Preparation: Centennial Specific Plan Project Description* (Project Number 02-232, Specific Plan, Conditional Use Permits, Oak Tree Permit, Zone Change, Development Agreement, Vesting Tentative Tract Map Numbers 60020, 60021, 60023, and Vesting Tentative Parcel Map Number 60022). Los Angeles, CA: DRP (Appendix 2.0-A).
- Los Angeles County Metropolitan Transportation Authority (METRO). 2011 (July 21). Green Construction Policy. Los Angeles, CA: Metro. [http://media.metro.net/projects\\_studies/sustainability/images/Green\\_Construction\\_Policy.pdf](http://media.metro.net/projects_studies/sustainability/images/Green_Construction_Policy.pdf).
- Placeworks. 2017. *Centennial Specific Plan*. Santa Ana, CA: Placeworks.
- South Coast Air Quality Management District (SCAQMD). 2017 (March). Final 2016 Air Quality Management Plan. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/2016-air-quality-management-plan/final-2016-aqmp/final2016aqmp.pdf?sfvrsn=15>.
- . 2016a (December 14). Notice of Public Hearing, Proposed 2016 Air Quality Management Plan for the SCAQMD. Diamond Bar, CA: SCAQMD.
  - . 2016b (September 2). Personal communication. Email from Barbara Radlein (SCAQMD Program Supervisor, CEQA Special Projects) to James Kurtz (Psomas Former Director of Acoustic Studies) entitled RE: CalEEMod – below market rate housing.
  - . 2015 (March). SCAQMD Air Quality Significance Thresholds. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2>.
  - . 2013 (updated February). Final 2012 AQMP (February 2013). Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/final-2012-air-quality-management-plan>.
  - . 2008 (as amended through 2013). Rule 445: Wood-Burning Devices. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-445.pdf?sfvrsn=8>.
  - . 2003a. 2003 Air Quality Management Plan. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan/2003-aqmp>.
  - . 2003b (September 5). Attachment to BOARD MEETING DATE: September 5, 2003, AGENDA NO. 29. White Paper on Regulatory Options for Addressing Cumulative

- Impacts from Air Pollution Emissions. Diamond Bar, CA: SCAQMD.  
<http://www.aqmd.gov/home/governing-board/agendas-minutes>.
- . 1990 (June, as amended through 2015). Rule 1401: New Source Review of Toxic Air Contaminants. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/reg-xiv/rule-1401.pdf?sfvrsn=4>.
- . 1977 (September, as amended through September 2013). Rule 1113: Architectural Coatings. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/reg-xi/r1113.pdf>.
- . 1976a (May 7, adopted). Rule 402: Nuisance. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-402.pdf?sfvrsn=4>.
- . 1976b (May, as amended through 2005). Rule 403: Fugitive Dust. Diamond Bar, CA: SCAQMD. <http://www.aqmd.gov/docs/default-source/rule-book/rule-iv/rule-403.pdf?sfvrsn=4>.
- Southern California Association of Governments (SCAG). 2015 (December). 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy. Los Angeles, CA: SCAG. <http://scagrtpscs.net/Documents/2016/draft/d2016RTPSCS.pdf>.
- . 2012 (April). 2012–2035 Regional Transportation Plan/Sustainable Communities Strategy. Los Angeles, CA: SCAG. <http://rtpscs.scag.ca.gov/Pages/2012-2035-RTP-SCS.aspx>.
- Stantec. 2016 (January 22). *Centennial Specific Plan Traffic Study*. Irvine, CA: Stantec (Appendix 5.10-A).
- University of California Davis (UCD), Institute of Traffic Studies (ITS) 1997 (December, as revised). *Transportation Project-Level Carbon Monoxide Protocol* (Prepared for Environmental Program California Department of Transportation by V.J. Garza, P. Graney, and D. Sperling with revisions by D. Niemeier, D. Eisinger, T. Kear, D. Chang, and Y. Meng). Davis, CA: ITS. [http://www.dot.ca.gov/hq/env/air/documents/COProtocol\\_searchable.pdf](http://www.dot.ca.gov/hq/env/air/documents/COProtocol_searchable.pdf).
- U.S. Environmental Protection Agency (USEPA). 2017 (February 3, last accessed). Particulate Matter (PM) Basics. Washington, D.C.: USEPA. <https://www.epa.gov/pm-pollution/particulate-matter-pm-basics#PM>.
- . 2016a (February 23, last updated). Health and Environmental Effects of Particulate Matter (PM) . Washington D.C.: USEPA. <https://www.epa.gov/pm-pollution/health-and-environmental-effects-particulate-matter-pm>.
- . 2016b (February 14, last updated). Status of SIP Requirements for Designated Areas. Washington D.C.: USEPA. [http://www3.epa.gov/airquality/urbanair/sipstatus/reports/ca\\_areabypoll.html](http://www3.epa.gov/airquality/urbanair/sipstatus/reports/ca_areabypoll.html).

- . 2016c (September 22, last updated). Nonattainment Areas for Criterial Pollutants (Green Book). Washington D.C.: USEPA. <https://www.epa.gov/green-book>.
- . 2016d (accessed May 7). Pacific Southwest, Region 9, Air Actions, California, South Coast Air Actions. Washington D.C.: USEPA. <https://www3.epa.gov/region9/air/actions/southcoast/index.html#pm25>.
- . 2014 (December 9). Clean Data Determination for 1997 PM<sub>2.5</sub> Standards; California—South Coast; Applicability of Clean Air Act Requirements. *Federal Register* 79(236): 72999–73007. Washington, D.C.: USEPA. <http://www.gpo.gov/fdsys/pkg/FR-2014-12-09/pdf/2014-28709.pdf#page=1>.
- . 2006. September 2006 Revisions to the National Ambient Air Quality Standards for Particle Pollution. Washington D.C.: USEPA. [https://www.epa.gov/sites/production/files/2016-04/documents/20061013\\_presentation\\_overview.pdf](https://www.epa.gov/sites/production/files/2016-04/documents/20061013_presentation_overview.pdf).
- U.S. National Archives and Records Administration. 2016 (current as of February 18). *Code of Federal Regulations* (Title 40: Protection of Environment; Part 300, National Oil and Hazardous Substances Pollution Contingency Plan). Washington, D.C.: U.S. National Archives and Records Administration. <http://www.ecfr.gov/cgi-bin/text-idx?SID=94592ab37b45fbc6323956142a57e5c6&mc=true&node=pt40.28.300&rgn=div5>.
- Western Regional Climate Center (WRCC). 2015. (May 19). Tejon Ranch, CA—Monthly Average of Average Daily Temperature. Reno, NV: WRCC. <http://www.wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca8839>.

## 5.12 NOISE

### 5.12.1 INTRODUCTION

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that noise issues be evaluated as part of the environmental documentation process. The noise impacts of the Project are analyzed at a Project-level of detail; direct and indirect impacts are addressed for each threshold criteria for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively.

#### Summary

The Project would generate an estimated 75,908 external daily trips at buildout; these vehicles would primarily use State Route (SR) 138, Interstate (I) 5, SR-14, and SR-99. The addition of Project traffic to existing traffic would increase the traffic volumes on these roadways and, therefore, the traffic noise at adjacent receptors. Traffic noise increases would exceed the 3 A-weighted decibels (dBA) Community Noise Equivalent Level (CNEL) criterion at identified receptors on SR-138, between Gorman Post Road and Old Ridge Route Road, resulting in a significant impact. The impact would be considered significant and unavoidable because feasible mitigation to reduce these impacts is not within County jurisdiction. Noise-reduction measures would involve alterations to private property and/or within California Department of Transportation (Caltrans) right-of-way, which are not in the County's or the Project Applicant's control. It should be noted that the forecasted noise increase is 3.3 dBA, and a noise increase of 3 dBA, when occurring instantaneously, is barely perceptible to most people. Project-generated traffic noise increases at Project buildout on other parts of SR-138 would not exceed 2.5 dBA CNEL. Project-generated traffic noise increases at Project buildout on I-5, SR-14, and SR-99 would be less than 1.0 dBA CNEL. Traffic noise increases due to the Project would occur gradually over the buildout period of approximately 20 years.

Project-generated traffic would potentially expose people at proposed residential, hotel, school, and religious facilities on the Project site to noise levels in excess of the applicable State and County standards. The impact would be less than significant with implementation of mitigation measure (MM) 12-1, which would require the completion of an acoustical analysis that address each proposed residential, hotel, school, and place of worship that may be significantly affected by traffic noise to verify that the facilities include the appropriate noise-reduction features to meet interior and exterior noise standards.

The Project would include a number of land uses where installed equipment or activities may generate noise levels that could result in a significant impact at areas adjacent to or within the Project site. Maximum noise levels for these noise sources are prescribed by the County Code (i.e., the Noise Ordinance). However, the land uses proposed as part of the Project are routinely constructed in Southern California and are able to meet the applicable noise standards through use of common, feasible methods and materials, including utilizing design features such as building setbacks from the sensitive receptors; noise barriers;

building orientation relative to the sensitive receptor; sound-rated windows; upgraded exterior wall and/or roof construction. The impact would be less than significant with implementation of MM 12-2, which would require the completion of an acoustical analysis for each proposed business park use, school, community use area, park and recreation area, transportation center, animal control facility, utility, commercial development, and manufacturing/industrial development to verify the facility has been properly designed to comply with the noise ordinance.

Construction of the Project and off-site Project features would increase the ambient noise levels in the Project vicinity above levels that exist without the Project. Noise levels at off-site receptors and future on-site receptors would fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. Additionally, while the total construction period is approximately 20 years, an audible increase in the ambient noise level due to construction experienced at any individual receptor would be relatively short-term and temporary. Noise from mobile equipment would be loudest during site preparation and grading activities. Because of the large size of the Project site and distance between grading activities and sensitive receptors, mobile equipment noise levels would not exceed County standards and would be less than significant. There is a potential for stationary construction equipment (e.g. air compressors, generators, and cranes) to generate noise exceeding the noise ordinance limit. MM 12-3 would be incorporated into the Project and would require stationary equipment to operate at a distance of greater than 450 feet or to provide an enclosure or similar noise attenuation to limit the average hourly daytime noise level to 60 dBA or less. With the incorporation of MM 12-3, the temporary increase in ambient noise levels due to on-site construction stationary sources would be less than significant. Blasting may be required in portions of the Project site during the construction period, but the noise impact would be less than significant.

No pile driving is currently anticipated for the Project. However, if pile driving is required, there would be a potential significant impact. MM 12-4 would require a vibration analysis prior to any pile-driving activities to ensure that vibration impacts would not exceed County standards and would be less than significant. The County vibration standard could also be exceeded if vibratory rollers, scrapers, and bulldozers operate near occupied residences. MM 12-5 restricts the use of this equipment and impacts would be less than significant with mitigation.

The Project would not expose persons to significant noise impacts from aviation activities from public airports, military overflights, Quail Lake Skypark, or the Fire Station 77 heliport.

## **Section Format**

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce significant impacts; and level of significance after mitigation, if any. This information is presented in the following format (please refer to Section 2.0, Introduction, and



Section 5.0, Environmental Setting, Impacts, and Mitigation, for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Relevant Plans, Policies, and Regulations
- Environmental Setting
- Project Design Features
- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- References

## References

Although all references cited for preparation of this analysis are listed in Section 5.12.9, the primary technical references for this section are listed below.

1. Wieland Acoustics, Inc. 2011 (May). *Environmental Noise Study for the Proposed Centennial Specific Plan and Phase I Implementation in the County of Los Angeles*. Irvine, CA: Wieland Acoustics (Appendix 5.12-A).
2. Stantec Consulting Services, Inc. 2016 (April). *Centennial Specific Plan Traffic Study*. Irvine, CA: Stantec. (Appendix 5.10-A).

The Wieland Acoustics study was prepared between 2005 and 2011 to identify and assess potential noise and vibration impacts associated with construction and operation of the Project. Because many existing noise conditions have not substantially changed since 2011, currently relevant data from the Wieland Acoustics study has been retained for this EIR. BonTerra Psomas conducted noise monitoring at the Project site in 2015 to ascertain baseline noise levels, and this noise monitoring data can be found in Appendix 5.12-B.

### 5.12.2 RELEVANT PLANS, POLICIES, AND REGULATIONS

#### Federal

No federal plans or policies have been identified that relate to noise.

---

## State

### ***California Noise Insulation Standards***

Title 24 of the *California Code of Regulations*, also known as the California Building Standards Code or, more commonly, as the California Building Code, requires that residential structures other than detached single-family dwellings be designed to prevent exterior noise intrusion so that the interior day-night average sound level ( $L_{dn}$ ) or CNEL attributable to exterior sources does not exceed 45 dBA in any habitable room with closed windows (CBSC 2015).

### ***California Code of Regulations for School Site Standards***

The *California Code of Regulations* (5 CCR 14010) includes standards for school site selection. These standards state that the site shall not be adjacent to a road or freeway that any site-related traffic and sound level studies have determined will have safety problems or sound levels that would adversely affect the educational program. It should be noted, however, that these regulations do not quantify an adverse sound level.

### ***California Noise/Land Use Compatibility Guidelines***

Noise compatibility guidelines from the State General Plan Guidelines, as included in the County of Los Angeles General Plan Environmental Impact Report (EIR) and Antelope Valley Area Plan (AVAP EIR) are shown below in Table 5.12-1, California Land Use Compatibility Guidelines (DRP 2014, 2015b). The noise compatibility guidelines are intended to be incorporated into land use planning decisions to reduce future noise and land use incompatibilities. For example, as shown below in Table 5.12-1, a CNEL at multiple-family homes that does not exceed 65 dBA is considered normally acceptable, while levels exceeding 75 dBA would be considered clearly unacceptable. These guidelines are primarily used to assess transportation noise impacts to new development.

**TABLE 5.12-1  
CALIFORNIA LAND USE COMPATIBILITY GUIDELINES**

Land Use Category	Community Noise Exposure						
	L <sub>dn</sub> or CNEL, dB						
	55	60	65	70	75	80	85
Residential (Low-Density Single-Family, Duplex, Mobile Homes)	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Residential (Multiple-Family Homes)	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Transient Lodging (Motels, Hotels)	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Schools, Libraries, Churches, Hospitals, Nursing Homes	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Auditoriums, Concert Halls, Amphitheaters	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Sports Arena, Outdoor Spectator Sports	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Playgrounds, Neighborhood Parks	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Golf Courses, Riding Stables, Water Recreation, Cemeteries	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Office Buildings, Business, Commercial and Professional	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
Industrial, Manufacturing, Utilities, Agriculture	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded	Shaded
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable			
With no special noise reduction requirements assuming standard construction.	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirement is made and needed noise insulation features included in the design.	New construction is discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.	New construction or development should generally not be undertaken.				
L <sub>dn</sub> : Day-Night Average Sound Level; CNEL: Community Noise Equivalent Level; dB: decibel Source: DRP 2014, 2015b.							

## County

### *Los Angeles County Code*

The County Code (Chapter 12.08, Noise Control) provides noise limits for stationary noise sources, construction, and vibration. It also establishes uniform minimum noise insulation performance standards to protect noise-sensitive receptors from traffic, rail, aircraft, and industrial noise sources (see Title 26, Building Code; Chapter 12, Interior Environment, Section 1207, Sound Transmission).

### Stationary Noise Sources

Section 12.08.390 of the County Code places limits on exterior noise levels emitted from stationary sources as experienced at various receptors. These limits are shown in Table 5.12-2, Los Angeles County Exterior Noise Standards for Stationary Noise Sources.

**TABLE 5.12-2  
LOS ANGELES COUNTY EXTERIOR NOISE STANDARDS  
FOR STATIONARY NOISE SOURCES**

Land Use of Receptor Property	Daytime Noise Level at Receptor (7:00 AM to 10:00 PM)	Nighttime Noise Level at Receptor (10:00 PM to 7:00 AM)
Noise-sensitive areas <sup>a</sup>	45 dBA	45 dBA
Residential properties	50 dBA	45 dBA
Commercial properties	60 dBA	55 dBA
Industrial properties	70 dBA	70 dBA
dBA: A-weighted decibel		
<sup>a</sup> "Noise-sensitive areas" are not specifically defined in the County Code. Typical noise-sensitive uses can include schools, day-care centers, hospitals, and other uses.		
Source: County of Los Angeles Code, Section 12.08		

The standards identified in Table 5.12-2 may not be exceeded for a cumulative period of more than 30 minutes in any hour (min/hr); however, higher noise levels are permitted for cumulative periods shorter than 30 minutes within an hour. Specifically, these standards are increased by 5 decibels (dB) for a cumulative period of no more than 15 minutes in any hour, by 10 dB for a cumulative period of no more than 5 minutes in any hour, and by 15 dB for a cumulative period of no more than 1 minute in any hour. At no time may the intruding noise exceed the exterior noise standards plus 20 dB. For instance, an intruding noise level (e.g., a pump or fan), when measured on a residential property, may not exceed 50 dBA for more than 30 minutes per hour (min/hr); 55 dBA for more than 15 min/hr; 60 dBA for more than 5 min/hr; more than 65 dBA for more than 1 min/hr; or 70 dBA for any length of time. For any source of sound that emits a pure tone or impulsive noise, the standards in Table 5.12-2 are reduced by 5 dB (*Los Angeles County Code*, Sections 12.08.390 and 12.08.410).

If the existing ambient noise level exceeds the noise standard, the existing ambient noise level then becomes the standard to which noise exceedances are compared. For measurement locations on the boundary of two different land use zones, the exterior noise standard is the arithmetic average of the noise standards for both zones. However, when an intruding noise source originates on an industrial property and is impacting another noise zone, the applicable exterior noise standard is the daytime (i.e., 7:00 AM to 10:00 PM) standard indicated in Table 5.12-2 for the receptor property (*Los Angeles County Code*, Section 12.08.390).

Section 12.08.450 of the County Code prohibits the operation of any forced-air blower in a tunnel car wash between the hours of 7:00 PM and 8:00 AM that exceeds 60 dBA at a residential property line or 65 dBA at a commercial/industrial property line.

Section 12.08.460 of the County Code prohibits the loading, unloading, opening, closing, or other handling of boxes, crates, containers, building materials, garbage cans, or similar objects between the hours of 10:00 PM and 6:00 AM in such a manner as to cause a noise disturbance.

Section 12.08.530 of the County Code prohibits the operation of any air conditioning or refrigeration equipment that exceeds 55 dBA at any point on a neighboring property; 50 dBA at the center of a neighboring patio; and 50 dBA outside the neighboring living area window nearest the equipment location.

Section 12.08.570 of the County Code specifically exempts many activities from the provisions of the noise ordinance, including the following: (1) activities conducted on public playgrounds and public or private school grounds, including but not limited to school athletic and school entertainment events and (2) all legal vehicles operating in a legal manner within the public right-of-way or on private property. Some activities, including construction and residential air conditioning equipment, are exempt from the exterior noise standards because they are regulated by specific County Code sections, as discussed below.

### Construction Noise

Construction noise limits are addressed in Section 12.08.440 of the County Code. This section prohibits daily construction work between the hours of 7:00 PM and 7:00 AM or at any time on Sundays or holidays when the sound would create a noise disturbance across a residential or commercial property line. In addition, the maximum construction noise level may not exceed the limits identified in Table 5.12-3, Los Angeles County Construction Noise Limits, when measured at the affected buildings.

**TABLE 5.12-3  
LOS ANGELES COUNTY CONSTRUCTION NOISE LIMITS**

	<b>Single-Family Residential</b>	<b>Multi-Family Residential</b>	<b>Semi-Residential and Commercial</b>	<b>Business Structures</b>
<b>Mobile Equipment</b>				
Daily, except Sundays and legal holidays, 7 AM to 8 PM	75 dBA	80 dBA	85 dBA	85 dBA
Daily, 8 PM to 7 AM and all day Sunday and legal holidays	60 dBA	64 dBA	70 dBA	85 dBA
<b>Stationary Equipment</b>				
Daily, except Sundays and legal holidays, 7 AM to 8 PM	60 dBA	65 dBA	70 dBA	N/A
Daily, 8 PM to 7 AM and all day Sunday and legal holidays	50 dBA	55 dBA	60 dBA	N/A
dBA: A-weighted decibels; N/A: not applicable Source: County of Los Angeles Code, Section 12.08.				

### Interior Noise Levels

Section 1207.11.2 of the County Code states, “Interior noise levels attributable to exterior sources shall not exceed 45 dB in any habitable rooms, classrooms, and all rooms used in patient care and worship. The noise metric shall be either the day-night average sound level ( $L_{dn}$ ) or the community noise equivalent level (CNEL), consistent with the noise element of the local general plan”. Section 1207.12 describes the content of the acoustical analysis report required for evidence of compliance with the requirements of Section 1207.

### Vibration

In addition to the noise standards, the County Code also provides vibration standards. Section 12.08.560 of the County Code prohibits the operation of any device that creates vibration velocity levels of more than 0.01 inch per second (in/sec) over the frequency range of 1 to 100 Hertz (Hz) at or beyond the property boundary of the source if on private property, or at 150 feet from the source if on a public space or public right-of-way.

### ***County of Los Angeles General Plan***

The *County of Los Angeles General Plan* addresses noise issues that affect the County. Because the *Antelope Valley Area Plan* does not have policies that explicitly address noise, the policies from the *County of Los Angeles General Plan's* Noise Element are included below and a consistency analysis of the Project's specific goals and policies with the County's relevant plans, policies, and regulations is provided in the Land Use, Entitlements, and Planning section (Section 5.8) of this document.

**Policy N 1.1:** Utilize land uses to buffer noise-sensitive uses from sources of adverse noise impacts.

**Policy N 1.2:** Reduce exposure to noise impacts by promoting land use compatibility.

**Policy N 1.3:** Minimize impacts to noise-sensitive land uses by ensuring adequate site design, acoustical construction, and use of barriers, berms, or additional engineering controls through Best Available Technologies (BAT).

**Policy N 1.5:** Ensure compliance with the jurisdictions of State Noise Insulation Standards (Title 24, California Code of Regulations and Chapter 35 of the Uniform Building Code), such as noise insulation of new multifamily dwellings constructed within the 60 dB (CNEL or L<sub>dn</sub>) noise exposure contours.

**Policy N 1.6:** Ensure cumulative impacts related to noise do not exceed health-based safety margins.

**Policy N 1.9:** Require construction of suitable noise attenuation barriers on noise sensitive uses that would be exposed to exterior noise levels of 65 dBA CNEL and above, when unavoidable impacts are identified.

**Policy N 1.10:** Orient residential units away from major noise sources (in conjunction with applicable building codes).

**Policy N 1.11:** Maximize buffer distances and design and orient sensitive receptor structures (hospitals, residential, etc.) to prevent noise and vibration transfer from commercial/light industrial uses.

**Policy N 1.12:** Decisions on land adjacent to transportation facilities, such as the airports, freeways and other major highways, must consider both existing and future noise levels of these transportation facilities to assure the compatibility of proposed uses.

### 5.12.3 ENVIRONMENTAL SETTING

#### Terminology

Noise has been defined as unwanted sound, and it is known to have several adverse effects on people. From these known effects of noise, criteria have been established to help protect public health and safety and to prevent disruption of certain human activities. These criteria are based on known impacts of noise on people such as hearing loss, speech interference, sleep interference, physiological responses, and annoyance. Each of these potential noise effects is briefly discussed in the following descriptions.

- **Hearing loss** is not a concern in community noise situations such as residential developments. The potential for noise-induced hearing loss is more commonly associated with occupational noise exposures in heavy industry or very noisy work environments. Typical neighborhood noise levels, including very noisy airport environments, are not loud enough to cause hearing loss.

- **Speech interference** is one of the primary concerns in environmental noise problems. Normal conversational speech is in the range of 60 Dba to 65 dBA and any noise in this range or louder may interfere with speech. There are specific methods of describing speech interference as a function of distance among speaker, listener, and voice level.
- **Sleep interference** is a major noise concern for traffic noise. Sleep-disturbance studies have identified that interior noise levels have the potential to cause sleep disturbance. Sleep disturbance does not necessarily mean awakening from sleep, but can also refer to altering the pattern and stages of sleep.
- **Physiological responses** are those measurable effects of noise on people that are realized as changes in pulse rate, blood pressure, or other physical responses. While such effects can be induced and observed, the extent to which these physiological responses cause harm or are a sign of harm is not known.
- **Annoyance** is the most difficult of all noise responses to describe. Annoyance is a very subjective characteristic and can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing capability. In general, annoyance occurs when one person finds noise irritating over a period of time.

### ***Decibels***

Sound pressure levels are described in units called decibels (dB). In order to provide a finer resolution, each decibel is further subdivided by 10. Since decibels are logarithmic units, sound pressure levels cannot be added or subtracted by ordinary arithmetic means.

For example, if 1 automobile produces a sound pressure level of 70 dB when it passes an observer, 2 cars passing simultaneously would not produce 140 dB. In fact, they would combine to produce 73 dB. This same principle can be applied to other traffic quantities and/or noise sources as well. In other words, doubling the traffic volume on a street will increase the traffic noise level by 3 dB. Conversely, reducing the traffic volume by 50 percent will reduce the traffic noise level by 3 dB.

### ***A-Weighting***

Sound pressure level alone (i.e., decibels) is not a reliable indicator of loudness as perceived by human hearing. The frequency, or pitch, of a sound also has a substantial effect on how humans will respond to a noise level. Human hearing is limited not only to the range of audible frequencies, but also in the way it perceives the sound pressure level in that range. In general, the healthy human ear is most sensitive to sounds between 1,000 Hertz<sup>1</sup> (Hz) and 5,000 Hz, and perceives both higher and lower frequency sounds of the same magnitude with less intensity.

In order to approximate the frequency response of the human ear to a given sound pressure level, a series of sound pressure level adjustments, called A-weighting, is applied. The A-weighted noise scale approximates the frequency response of the average young ear when

---

<sup>1</sup> A hertz is a unit of frequency. The number of hertz equals the number of cycles per second.



listening to most ordinary everyday sounds. When people make relative judgments of the loudness or annoyance of a sound, their judgments correlate well with A-weighted sound levels. Noise levels using A-weighted measurements are written dB(A) or dBA. Table 5.12-4, Noise Levels for Common Activities, shows the relationship of various noise levels, in dBA, to commonly experienced indoor and outdoor activities.

**TABLE 5.12-4  
NOISE LEVELS FOR COMMON ACTIVITIES**

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
-	110	Rock Band
Jet Fly-over at 300 m (1,000 ft)	100	-
Gas Lawn Mower at 1 m (3 ft)	90	-
Diesel Truck at 15 m (50 ft) at 80 km/hr (50 mph)	80	Food Blender at 1 m (3 ft); Garbage Disposal at 1 m (3 ft)
Noisy Urban Area, Daytime Gas Lawn Mower at 30 m (100 ft)	70	Vacuum Cleaner at 3 m (10 ft)
Commercial Area, Heavy Traffic at 90 m (300 ft)	60	Normal Speech at 1 m (3 ft)
Quiet Urban Daytime	50	Large Business Office Dishwasher in Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (Background)
Quiet Suburban Nighttime	30	Library
Quiet Rural Nighttime	20	Bedroom at Night, Concert Hall (Background)
-	10	Broadcast/Recording Studio
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

dBA: A-weighted decibels; m: meter; ft: feet; km/hr: kilometers per hour; mph: miles per hour  
Source: Caltrans 2013a.

The A-weighted sound level of traffic and other long-term noise-producing activities within and around a community varies considerably with time. Measurements of this varying noise level are accomplished by recording values of the A-weighted level during representative periods in a specified portion of the day.

### ***Equivalent Noise Level***

The equivalent noise level ( $L_{eq}$ ) is a steady-state sound level that contains the same total energy as a time-varying signal over a given sample period.  $L_{eq}$  is the “energy” average noise level during the time period of the sample and can be measured for any time period, but is typically measured for one hour. This one-hour noise level is the energy average of all the events and background noise levels that occur during that time period.  $L_{eq(24)}$ , for example, represents the average noise level over a 24-hour period.

---

### ***Community Noise Equivalent Level***

It is recognized that a given level of noise may be more or less tolerable depending on the duration or time of exposure experienced by an individual. There are numerous measures of noise exposure that consider not only the A-level variation of noise, but also the duration or time of the disturbance. For example, a passing fire engine with sirens will temporarily elevate ambient noise levels and may be annoying for only a short duration of time. The degree of disturbance from a passing fire engine may also depend on whether it occurs at 2:00 PM or 2:00 AM.

The State Department of Aeronautics and the California Commission on Housing and Community Development have adopted the CNEL. This measure weights the average noise levels for the evening hours (7:00 PM to 10:00 PM), increasing them by 5 dB, and weights the late evening and morning hour noise levels (10:00 PM to 7:00 AM) by 10 dB. The daytime noise levels are combined with these weighted levels and are averaged to obtain a CNEL value. Exhibit 5.12-1, Common CNEL Noise Exposure Levels at Various Locations, provides a frame of reference for outdoor CNELs at typical locations. Acceptable CNELs can vary based on the affected land use and adopted standards for a given area, as shown in Table 5.12-1.

### ***Single Noise Event Level***

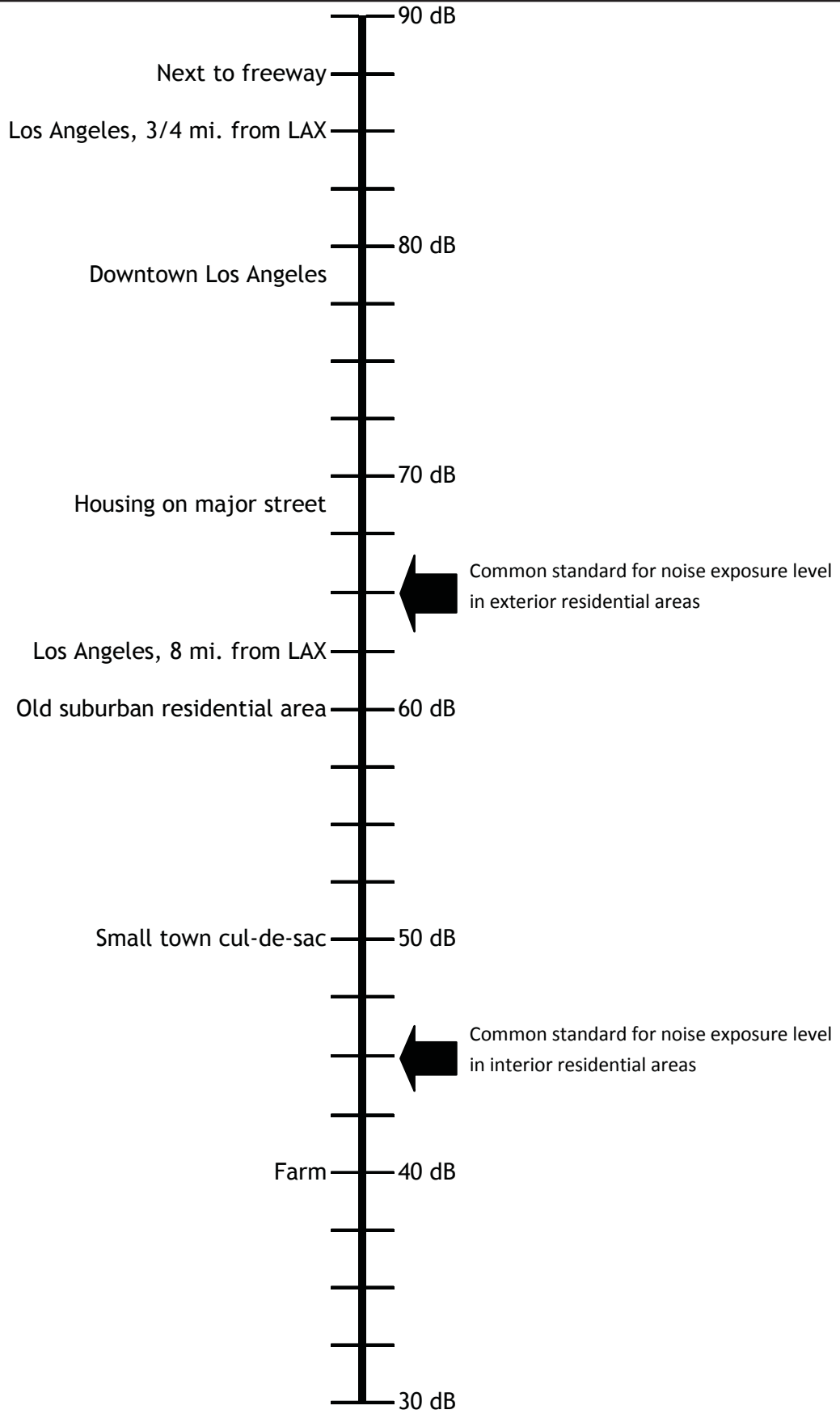
The single noise event level (SEL) represents the cumulative (not average) sound exposure during a particular noise event, integrated into a one-second timeframe. This measurement is typically used to characterize impulse sounds that last less than two seconds.

## **Methodology**

This analysis assesses potential noise impacts from existing and Project-related traffic, stationary noise sources, and construction.

The study area for the traffic noise impact analysis was defined by the roadway segments identified in the *Centennial Specific Plan Traffic Study* (Stantec 2015) (see Appendix 5.10-A). Traffic noise levels were calculated using the Federal Highway Administration's (FHWA's) Highway Traffic Noise Prediction Model (RD-77-108). The FHWA model determines a predicted noise level through a series of adjustments to a reference sound level. These adjustments account for traffic flows, speed, truck mix, varying distances from the roadway, length of exposed roadway, and noise shielding. The calculations do not take into account the effect of any noise barriers or topography that may affect ambient noise levels.

For stationary and construction noise sources, the distance from the noise source to a receptor is a primary consideration in determining the actual noise level experienced at the receptor. Most reference noise levels are specified at a distance of 50 feet from the source. The calculation of noise from a point source (e.g., construction or heating, ventilation, and air conditioning [HVAC] equipment) at other distances uses the following equation:



Source: Wieland Associates, Inc. 2011

## Common CNEL Noise Exposure Levels at Various Locations Exhibit 5.12-1

*Centennial Project*



$$L_D = L_{50} - 20 \log (D/50), \text{ where}$$

$L_D$  is the noise level at a distance  $D$  from the noise source,

$L_{50}$  is the noise level at a distance of 50 feet from the source, and

20 is a factor used for a “hard” (i.e., non-absorptive) surface between the source and receptor.

This equation is the mathematical expression for a noise level being reduced by 6 dBA for each doubling of distance from the source. For “soft” (i.e., absorptive) surfaces such as grassland the 20 factor is replaced by 25, and the noise level is reduced by approximately 7.5 dBA for each doubling of distance. For very long distances, atmospheric absorption reduces noise at an approximate rate of 1 dBA per 1,000 feet.

Construction equipment can be considered to operate in two modes: stationary and mobile. Noise impacts from stationary equipment are assessed from the center of the equipment, while noise impacts for mobile construction equipment are assessed as emanating from the center of the equipment activity or construction site. For construction equipment, the average noise level ( $L_{eq}$ ) is related to the maximum noise level ( $L_{max}$ ) by the following equation:

$$L_{eq} = L_{max} + 10 \log (UF), \text{ where,}$$

$L_{eq}$  is the average noise level from a piece of construction equipment at 50 feet,

$L_{max}$  is the maximum noise level from a piece of construction equipment at 50 feet, and

UF is the acoustic utilization factor.

The  $L_{max}$  and UF data for construction equipment are tabulated in the impact analysis in Section 5.12.6.

## Sensitive Receptors

Certain land uses are particularly sensitive to noise and vibration. These uses include residential, schools, libraries, churches, nursing homes, hospitals, and open space/recreation areas where quiet environments are necessary for enjoyment, public health, and safety. Commercial and industrial uses are generally not considered noise- and vibration-sensitive uses, unless noise and vibration would interfere with their normal operations and business activities (DPR 2015).

The nearest existing sensitive receptors to the Project site are residential properties near the Project site boundaries on 300<sup>th</sup> Street West, 290<sup>th</sup> Street West, and Malinda Avenue. Additional nearby residences include one located off site on the south side of SR-138 (west of the Cement Plant Road) and homes between the Quail Lake Skypark runway and SR-138. The locations of these sensitive receptors are shown in Exhibit 5.12-2, Noise Measurement

---

Locations. Additional existing sensitive receptors that could be affected by Project-generated traffic noise are residences and other land uses near SR-138, I-5, SR-14, and SR-99.

The residences and schools to be built as part of the Project would be considered sensitive noise and vibration receptors.

Noise measurements were taken using a Larson Davis Laboratories Model 831 (LD 831) integrating sound level meter. The microphones were mounted approximately five feet above the ground and equipped with a windscreen during all measurements. The meter was calibrated before and after use with a Larson Davis Model CAL200 acoustical calibrator to ensure that the measurements would be accurate. The sound level meters were programmed to record noise levels in “slow” mode in A-weighted form. The duration of short-term measurements was determined by the variability of the noise source; noise was measured until the average noise level was relatively steady and representative of one hour of monitoring.

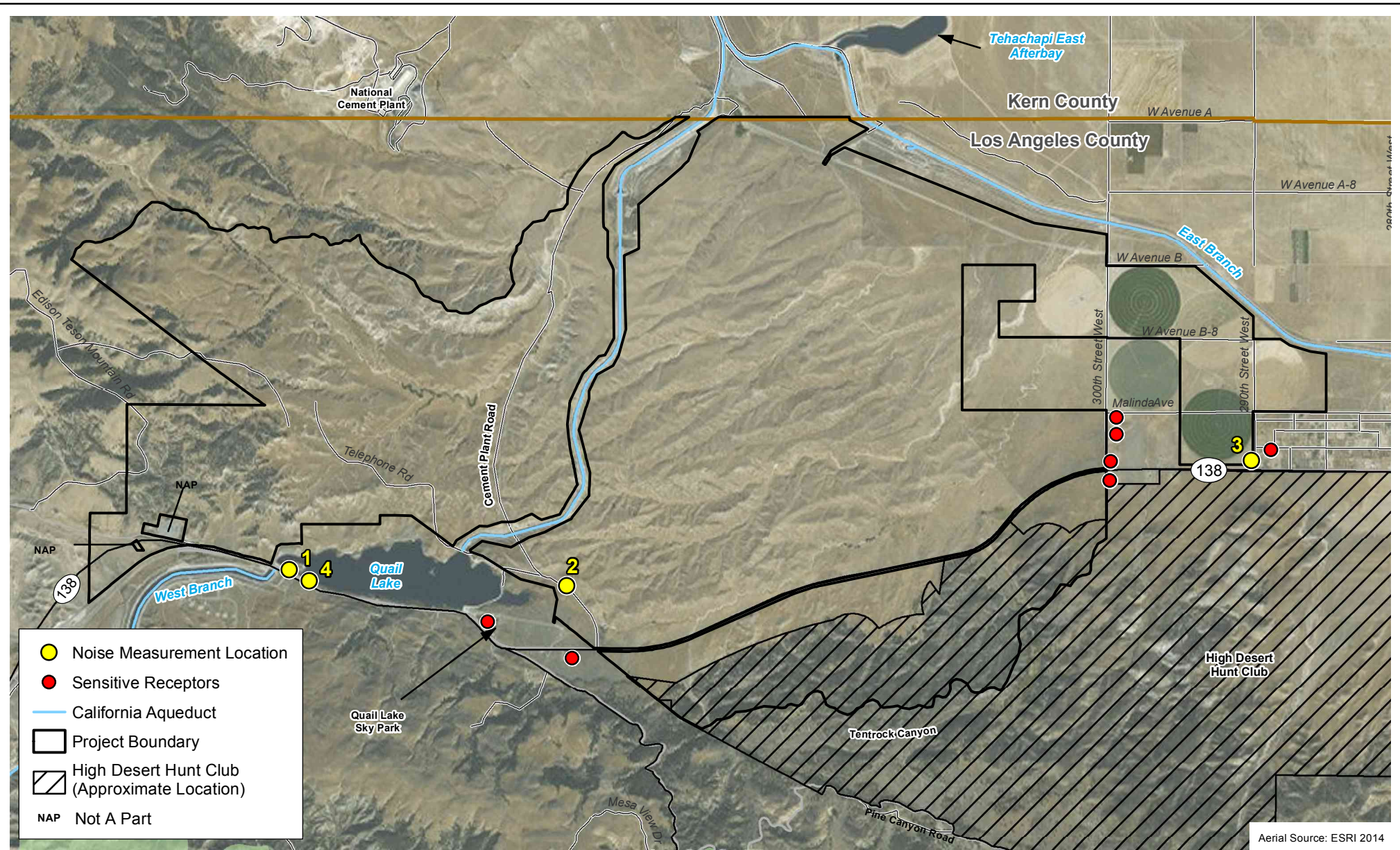
### **Existing Noise Sources**

Traffic on local streets and nearby highways is the predominant source of existing noise in the Project area. Other noise sources include activities at the Oso Pumping Station, the Alamo Power Plant, the Bailey Electric Substation, the National Cement Plant, the Quail Lake Skypark Airport, the High Desert Hunt Club, and military overflight activity. These noise sources are described below and their locations are depicted on Exhibits 3-2 and 5.20-1.

To characterize the existing noise environment, noise level measurements were taken on August 5, 2015 (short-term) and between August 5 and 7, 2015 (40-hour) using the LD 831 sound level meter as described above. Measurements were taken at four locations in the Project site study area, as shown in Exhibit 5.12-2, Noise Measurement Locations, and Table 5.12-5, Existing Measured Noise Levels.



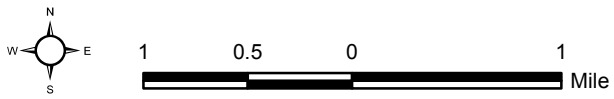
D:\Projects\CEN\Centennial\MXD\EIREx\_Noise\_Locations\_20151019.mxd



# Noise Measurement Locations

# Exhibit 5.12-2

Centennial Project



**TABLE 5.12-5  
EXISTING MEASURED NOISE LEVELS**

Location ID	Location Description	Time Started/ Duration <sup>a</sup>	Major noise sources	Noise Level (dBA)			Comments
				L <sub>eq</sub>	L <sub>max</sub>	L <sub>min</sub>	
1	Southwest portion of the Project site, approximately 50 feet north of SR-138.	9:24 AM/53 min	Traffic from SR-138; adjacent parking lot	65	82	34	N/A
2	Along Cement Plant Rd, approximately 0.4 mile north of SR-138.	11:52 AM/1 hr 22 min	Trucks driving on Cement Plant Rd	53	74	25	SR-138 inaudible.
3	Southeast portion of the Project site, approximately 300 feet north of the SR-138 and 290 <sup>th</sup> St West intersection.	1:33 PM AM/21 min	Moderate winds	45	63	37	Inaudible sounds from residences east of 290 <sup>th</sup> St West.
4	Along the southwest edge of Quail Lake, approximately 85 feet north of SR-138.	2:37 PM/40 hrs 43 min	1-minute data	80	27	CNEL is 64 dBA	
			Hourly averages	63	53		

dBA: A-weighted decibels; L<sub>eq</sub>: average noise level; L<sub>max</sub>: maximum noise level; L<sub>min</sub>: minimum noise level; SR: State Route; min: minutes; N/A: none applicable; hr: hour(s)CNEL: Community Noise Equivalent Level;

<sup>a</sup> Locations 1 through 3 monitored on August 5, 2015; Location 4 monitored between August 5 and 7, 2015

Noise measurement data in Appendix 5.12-B.

### ***Traffic Noise Levels***

Existing traffic noise levels were estimated using an FHWA highway traffic noise model, as discussed above, adjacent to selected segments of the following roadways in the Project vicinity: I-5, SR-138, SR-14, and SR-99. The noise estimate is based on traffic volumes, speeds, truck mix, site conditions, and distance from the roadway to the receptor. Traffic volumes were derived from the traffic study prepared for the Project (Stantec 2015; see Appendix 5.10-A). The results of the traffic noise model are summarized in Table 5.12-6, Existing Traffic Noise Levels. This table describes the CNEL at the distance of the nearest noise-sensitive receptor (if any) from the centerline of the highway and the distances to the 60, 65, and 70 CNEL noise contours. The CNEL values described, although generally representative of existing traffic noise levels, do not consider any barrier effects that may be provided by topography, which would attenuate (reduce) actual noise levels.

**TABLE 5.12-6  
EXISTING TRAFFIC NOISE LEVELS**

Expressway-Freeway/Segment	CNEL at Receptor (dB)	Distance to CNEL Contour from Highway Centerline (feet)		
		70 dB	65 dB	60 dB
<b>SR-138</b>				
Btw. Jct I-5 and Gorman Post Rd	No Receptor <sup>a</sup>	72	227	717
Btw. Gorman Post Rd and Old Ridge Route Rd	67	73	232	734
Btw. Old Ridge Route Rd and 300 <sup>th</sup> St West	70	70	223	704
Btw. 300 <sup>th</sup> St West and 245 <sup>th</sup> St West	69	70	223	704
Btw. 245 <sup>th</sup> St West and 190 <sup>th</sup> St West	68	70	223	704
Btw. 190 <sup>th</sup> St West and 110 <sup>th</sup> St West	64	70	223	704
Btw. 110 <sup>th</sup> St West and 60 <sup>th</sup> St West	71	70	223	704
Btw. 60 <sup>th</sup> St West and Jct SR-14 North	63	70	223	704
<b>I-5</b>				
Btw. SR-99 and Laval Rd/Wheeler Ridge Rd	No Receptor <sup>a</sup>	>1,000.0	>1,000.0	>1,000.0
Btw. Laval Rd/Wheeler Ridge Rd and Grapevine	No Receptor <sup>a</sup>	>1,000.0	>1,000.0	>1,000.0
Btw. Grapevine Rd and Fort Tejon Rd	78	>1,000.0	>1,000.0	>1,000.0
Btw. Fort Tejon Rd and Lebec Rd	80	>1,000.0	>1,000.0	>1,000.0
Btw. Lebec Rd and Frazier Mtn Park Rd	79	>1,000.0	>1,000.0	>1,000.0
Btw. Frazier Mtn Park Rd and Gorman Rd	80	>1,000.0	>1,000.0	>1,000.0
Btw. Gorman Rd and N Jct SR-138	76	>1,000.0	>1,000.0	>1,000.0
Btw. N Jct SR-138 and Quail Lake Rd	No Receptor <sup>a</sup>	>1,000.0	>1,000.0	>1,000.0
Btw. Quail Lake Rd and S Jct SR-138	No Receptor <sup>a</sup>	>1,000.0	>1,000.0	>1,000.0
Btw. S Jct SR-138 and Smokey Bear Rd	81	>1,000.0	>1,000.0	>1,000.0
Btw. Smokey Bear Rd and Vista Del Lago Rd	No Receptor <sup>a</sup>	>1,000.0	>1,000.0	>1,000.0
Btw. Vista Del Lago Rd and Templin Hwy	80	>1,000.0	>1,000.0	>1,000.0
Btw. Templin Hwy and Lake Hughes Rd	82	>1,000.0	>1,000.0	>1,000.0
Btw. Lake Hughes Rd and Parker Rd	81	>1,000.0	>1,000.0	>1,000.0
Btw. Parker Rd and Hasley Cyn Rd	83	>1,000.0	>1,000.0	>1,000.0
Btw. Hasley Cyn Rd and N Jct SR-126 (NB)	81	>1,000.0	>1,000.0	>1,000.0
Btw. N Jct SR-126 and Rye Cyn Rd	77	>1,000.0	>1,000.0	>1,000.0
Btw. Rye Cyn Rd and Magic Mountain Pkwy	No Receptor <sup>a</sup>	>1,000.0	>1,000.0	>1,000.0
Btw. Magic Mountain Pkwy and Valencia Blvd	87	>1,000.0	>1,000.0	>1,000.0
Btw. Valencia Blvd and McBean Pkwy	86	>1,000.0	>1,000.0	>1,000.0
Btw. McBean Pkwy and Lyons Ave/Pico Cyn Rd	86	>1,000.0	>1,000.0	>1,000.0
Btw. Lyons Ave and Calgrove Blvd	86	>1,000.0	>1,000.0	>1,000.0
Btw. Calgrove Blvd and SR-14	85	>1,000.0	>1,000.0	>1,000.0
Btw. SR-14 and SR-210	85	>1,000.0	>1,000.0	>1,000.0
Btw. SR-210 and Roxford St	80	>1,000.0	>1,000.0	>1,000.0
Btw. Roxford St and I-405	85	>1,000.0	>1,000.0	>1,000.0
Btw. I-405 and San Fernando Mission Blvd	84	>1,000.0	>1,000.0	>1,000.0



**TABLE 5.12-6  
EXISTING TRAFFIC NOISE LEVELS**

Expressway-Freeway/Segment	CNEL at Receptor (dB)	Distance to CNEL Contour from Highway Centerline (feet)		
		70 dB	65 dB	60 dB
<b>SR-14</b>				
Btw. Dawn Rd and Rosamond Blvd	73	272	860	>1,000.0
Btw. Rosamond Blvd and Ave A	73	355	>1,000.0	>1,000.0
Ave A and N Jct SR-138/Ave D	No Receptor <sup>a</sup>	402	>1,000.0	>1,000.0
Btw. Jct SR-138/Ave D and Ave F	75	426	>1,000.0	>1,000.0
Btw. Ave F and Ave G	No Receptor <sup>a</sup>	449	>1,000.0	>1,000.0
Btw. Ave G and Ave H	No Receptor <sup>a</sup>	44	>1,000.0	>1,000.0
Btw. Ave H and Ave I	70	473	>1,000.0	>1,000.0
Btw. Ave I and Ave J	73	702	>1,000.0	>1,000.0
Btw. Ave J and 20 <sup>th</sup> St West	76	628	>1,000.0	>1,000.0
Btw. 20 <sup>th</sup> St West and Ave K	73	882	>1,000.0	>1,000.0
Btw. Ave K and Ave L	78	>1,000.0	>1,000.0	>1,000.0
Btw. Ave L and Ave M	79	>1,000.0	>1,000.0	>1,000.0
Btw. Ave M and Ave N	No Receptor <sup>a</sup>	>1,000.0	>1,000.0	>1,000.0
Btw. Ave N and 10 <sup>th</sup> St West	80	>1,000.0	>1,000.0	>1,000.0
Btw. 10 <sup>th</sup> St West and Rancho Vista Blvd	80	>1,000.0	>1,000.0	>1,000.0
Btw. Rancho Vista Blvd and S Jct SR-138/ Palmdale Blvd	No Receptor <sup>a</sup>	>1,000.0	>1,000.0	>1,000.0
Btw. S Jct SR-138 and Ave S	80	>1,000.0	>1,000.0	>1,000.0
Btw. Ave S and Pearblossom/Sierra Hwy	77	>1,000.0	>1,000.0	>1,000.0
Btw. Pearblossom/Sierra Hwy and Angeles Forest Hwy	82	>1,000.0	>1,000.0	>1,000.0
Btw. Angeles Forest Hwy and Soledad Canyon Rd	No Receptor <sup>a</sup>	>1,000.0	>1,000.0	>1,000.0
Btw. Soledad Canyon Rd and Santiago Rd	80	>1,000.0	>1,000.0	>1,000.0
Btw. Santiago Rd and Crown Valley Rd	77	>1,000.0	>1,000.0	>1,000.0
Btw. Crown Valley Rd and Ward Rd	79	>1,000.0	>1,000.0	>1,000.0
Btw. Ward Rd and Escondido Cyn Rd	80	>1,000.0	>1,000.0	>1,000.0
Btw. Escondido Cyn Rd and Agua Dulce Cyn Rd	74	>1,000.0	>1,000.0	>1,000.0
Btw. Agua Dulce Cyn Rd and Soledad Rd	77	>1,000.0	>1,000.0	>1,000.0
Btw. Shadow Pines Blvd/Soledad Rd and Sand Cyn Rd	79	>1,000.0	>1,000.0	>1,000.0
Btw. Sand Cyn Rd and Via Princessa	83	>1,000.0	>1,000.0	>1,000.0
Btw. Via Princessa and Golden Valley Rd	87	>1,000.0	>1,000.0	>1,000.0
Btw. Golden Valley Rd and Placerita Cyn Rd	79	>1,000.0	>1,000.0	>1,000.0
Btw. Placerita Cyn Rd and San Fernando Rd/Newhall Ave	76	>1,000.0	>1,000.0	>1,000.0
Btw. San Fernando Rd/Newhall Ave and Jct I-5	80	>1,000.0	>1,000.0	>1,000.0

**TABLE 5.12-6  
EXISTING TRAFFIC NOISE LEVELS**

Expressway-Freeway/Segment	CNEL at Receptor (dB)	Distance to CNEL Contour from Highway Centerline (feet)		
		70 dB	65 dB	60 dB
<b>SR-99</b>				
Btw. W Jct SR-58 and Stockdale Hwy	87	>1,000.0	>1,000.0	>1,000.0
Btw. Stockdale Hwy and E Jct SR-58	87	>1,000.0	>1,000.0	>1,000.0
Btw. E Jct SR-58 and Ming Ave	87	>1,000.0	>1,000.0	>1,000.0
Btw. Ming Ave and White Ln	86	>1,000.0	>1,000.0	>1,000.0
Btw. White Ln and Panama Ln	87	>1,000.0	>1,000.0	>1,000.0
Btw. Panama Ln and W Jct SR-119	84	>1,000.0	>1,000.0	>1,000.0
Btw. W Jct SR-119 W and Houghton Rd	77	>1,000.0	>1,000.0	>1,000.0
Btw. Houghton Rd and E Jct SR-233	78	>1,000.0	>1,000.0	>1,000.0
Btw. E Jct SR-223 and Old U.S. 99 <sup>b</sup>	76	>1,000.0	>1,000.0	>1,000.0
Btw. Old U.S. 99 and Herring Rd	No Receptor <sup>a</sup>	>1,000.0	>1,000.0	>1,000.0
Btw. Herring Rd and Sandrini Rd	No Receptor <sup>a</sup>	>1,000.0	>1,000.0	>1,000.0
Btw. Sandrini Rd and David Rd	79	>1,000.0	>1,000.0	>1,000.0
Btw. David Rd and Valpredo Ave	No Receptor <sup>a</sup>	>1,000.0	>1,000.0	>1,000.0
Btw. Valpredo Ave and W Jct SR-166	81	>1,000.0	>1,000.0	>1,000.0
Btw. W Jct SR-166 and Jct I-5	No Receptor <sup>a</sup>	>1,000.0	>1,000.0	>1,000.0
CNEL: Community Noise Equivalent Level; dB: decibel; SR: State Route; Btw.: between; Jct.: junction; I: Interstate; N: north; S: south; W: west; E: east				
<sup>a</sup> "No receptor" signifies that no noise-sensitive receptor is identified within 1,000 feet of the highway centerline				
Source: Stantec 2015 (traffic volumes; Appendix 5.10-A); noise monitoring data can be found in Appendix 5.12-B.				

### ***Oso Pumping Station and Alamo Power Plant***

Both the Oso Pumping Station and the Alamo Power Plant are located in the same general area at the northern end of the Project site (see Exhibit 5.20-1) adjacent to the California Aqueduct. During several site visits to the area by Psomas staff and Wieland Acoustics, neither facility produced audible noise levels at the fence lines.

### ***Bailey Electric Substation***

Bailey Substation is located in the southwestern portion of the site on a Not A Part (NAP) parcel owned by Southern California Edison (see Exhibit 5.20-1). Based on visits to the Bailey Electric Substation by Psomas and Wieland Acoustics on several occasions, the substation produces no audible noise levels at the fence line except for a low hum that was noticeable only when the background ambient noise level diminished. However, during a site visit on May 24, 2005, maintenance activity occurring at the substation produced measurable noise levels. The median noise level measured was about 45 dBA and the maximum noise level was about 59 dBA at the fence line (Wieland 2011).

---

### ***National Cement Plant***

The National Cement Plant is located over one mile north of the Project site behind the foothills of the Tehachapi Mountains (see Exhibit 3-2). During a site visit, Wieland Acoustics determined that activities at the facility were not audible at the fence line. In addition, although blasting at the National Cement Plant is understood to occur approximately twice a week, no blasting occurred during site visits as part of the noise assessment. Based on known average construction activity equipment levels (described in Table 5.12-8 in the analysis below), blasting is estimated to generate a noise level of approximately 94 dBA at a distance of 50 feet. More than 5,000 feet in distance and foothills separate the Project site and the National Cement Plant. Blasting noise levels are substantially attenuated by the presence of the intervening topography combined with distance. Therefore, the plant itself is not considered to be a significant noise source.

However, there is heavy truck traffic traveling on National Cement Plant Road and SR-138 in support of National Cement Plant operations. Measurements taken at Location 2 indicate that these trucks generate maximum noise levels of between 60 dBA and 74 dBA at a distance of 90 feet from the roadway center. During the noise measurement period taken in 2015, there was a truck passby approximately every three to five minutes. This frequency of trips is consistent with observations made by Wieland (2011).

### ***Quail Lake Skypark Airport***

The Quail Lake Skypark Airport is a privately owned facility that is used primarily for recreational activities (see Exhibit 3-2). There are five single-engine planes and one multi-engine plane based at the airport (AOPA 2015). Having one runway and no control tower, it does not support commercial aviation activities. As such, no operational data is available, and CNEL noise contours have not been developed for this airport. However, with its use of general aviation (non-jet) aircraft and its limited operations, it is highly unlikely that any noise contours above 55 dBA CNEL would extend much beyond the boundaries of the airport. Noise from aircraft overflights may occasionally be experienced in the study area, though none was experienced during numerous site visits as part of the noise assessment. As discussed in Section 4.0, Project Description, the California Department of Transportation (Caltrans) is preparing environmental clearance documents in support of improvements to the SR-138 in the Project area. The Quail Lake Skypark would be permanently closed in the event the SR-138 improvements are implemented.

### ***High Desert Hunt Club***

The High Desert Hunt Club (Hunt Club) is a private facility owned and operated by the Tejon Ranch Company (see Exhibit 3-2). It currently operates under Conditional Use Permit (CUP) No. R2013-01180-(5) issued by the Los Angeles County Department of Regional Planning in August 2015. The CUP defines numerous conditions whose purpose is to ensure that Hunt Club operations are compatible with the surrounding land uses as they were present at the time of CUP issuance (DRP 2015d). Many of these conditions relate to noise, and include provisions such as, but not limited to:

- Limiting the annual schedule (between September 1 of any year to April 30 and no hunting on Thanksgiving Day, Christmas Day, New Year's Day, and Easter Sunday).
- Limiting daily hours of hunting operations (between 8:00 AM and 4:00 PM).
- Instituting a safety/buffer zone of between 150 yards and 250 yards from the property boundary, public roads, and the Pacific Crest Trail for each hunting field within which no discharge of firearms will be permitted.
- Limiting the maximum number of hunters in the fields at any one time to 100 with the daily average number of hunters in the field not to exceed 60 over the entire hunting season.
- Requiring that firearms not be discharged in the general direction of any house, camp, place of human habitation, public highway, street, way (including the Pacific Crest Trail), park, or premises unless at least one-half mile from such place.

The facility is generally open Thursday through Monday between 8:00 AM and 4:00 PM in accordance with the CUP-conditioned dates for hunting (i.e., September 1 through April 30), but is open on Tuesday and Wednesday for guided valley quail hunts during the State valley quail season (mid-October through January).

The currently permitted Hunt Club boundaries overlap with the southern portion (that portion south of SR-138) of the Project site. The Project would dedicate this overlap as Open Space, which is located within a County-designated Significant Ecological Area (SEA). The overlap of the Hunt Club boundary would have no effect on Hunt Club operations, and the areas of hunting activities would remain unchanged if the Project were implemented. The primary noise source of concern related to the Hunt Club is shotgun fire (i.e., bird shot). However, the facility was closed during both BonTerra Psomas' and Wieland Acoustics' site visits, and noise measurements of actual Hunt Club activities could not be obtained.

### ***Military Overflights***

Based on the Military Overflight Noise Study prepared by Advanced Engineering Acoustics in September 2004, the CNEL for two military training flights per week passing over the Project site is estimated to range from less than 10 dBA to 53 dBA, depending on which military training route (MTR) is used and the flight path of the aircraft in each MTR (AEA 2004). The SEL for these flights is estimated to range between 53.0 dBA and 108.8 dBA (AEA 2004). During site visits in 2015 by BonTerra Psomas staff, occasional military overflights were readily audible and could be characterized as "loud".

## **5.12.4 PROJECT DESIGN FEATURES**

Refer to PDF 10-1 in Section 5.10, Traffic, Access, and Circulation

## **5.12.5 THRESHOLD CRITERIA**

The following threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact if it would:

---

<b>Threshold 12-1</b>	Result in exposure of persons to, or generation of, noise in excess of standards established in the County General Plan or noise ordinance (Los Angeles County Code, Title 12, Chapter 12.08), or applicable standards of other agencies.
<b>Threshold 12-2</b>	Result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
<b>Threshold 12-3</b>	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project, including noise from parking areas.
<b>Threshold 12-4</b>	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project, including noise from amplified sound systems.
<b>Threshold 12-5</b>	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels.
<b>Threshold 12-6</b>	For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

### 5.12.6 ENVIRONMENTAL IMPACTS

<b>Threshold 12-1</b>	<b>Would the project result in exposure of persons to, or generation of, noise levels in excess of standards established in the County General Plan or noise ordinance (Los Angeles County Code, Title 12, Chapter 12.08), or applicable standards of other agencies?</b>
-----------------------	---

For purposes of this analysis, this impact would occur if:

- The exterior CNEL at proposed noise-sensitive land uses would exceed 65 dBA; or
- The interior CNEL would exceed 45 dBA in habitable rooms at proposed residences, hotels, schools, or places of worship (specified in the California State Building Code and County Building Code); or
- The noise levels generated by non-transportation (i.e., stationary) sources on the Project site would exceed the exterior limits specified in the County Code (shown in Table 5.12-2); or
- The construction activities generate noise levels in excess of the County Code standards (refer to Table 5.12-3).

### On-Site Impacts

Receptors on the Project site would be exposed to both internal and external long-term (operational) noise sources. Examples of internal sources include traffic on the Project

roadways and stationary sources such as school activities and commercial centers. Examples of external sources include activities at the Oso Pumping Station, the National Cement Plant, and the Bailey Electrical Substation, among others. On-site receptors would also be exposed to temporary construction noise.

**Traffic.** Traffic generated by the Project would be the internal noise source with the greatest impact on sensitive receptors on the Project site. Exhibit 5.12-3, On-Site Circulation System, Average Daily Traffic (ADT) Volumes, and Speeds, shows the road system on the Project site as well as the traffic volumes and posted speed limits for each road classification.

For proposed noise-sensitive land uses, a potential significant impact is identified where the exterior noise contour exceeds 65 dBA at that location. This criterion is stated in the AVAP EIR. Further, because current standard residential and hotel construction provide at least 20 dBA of noise reduction with windows and doors closed, where the exterior CNEL exceeds 65 dBA, the interior CNEL has the potential to exceed 45 dBA, which would exceed the California Building Code and County Building Code standards.

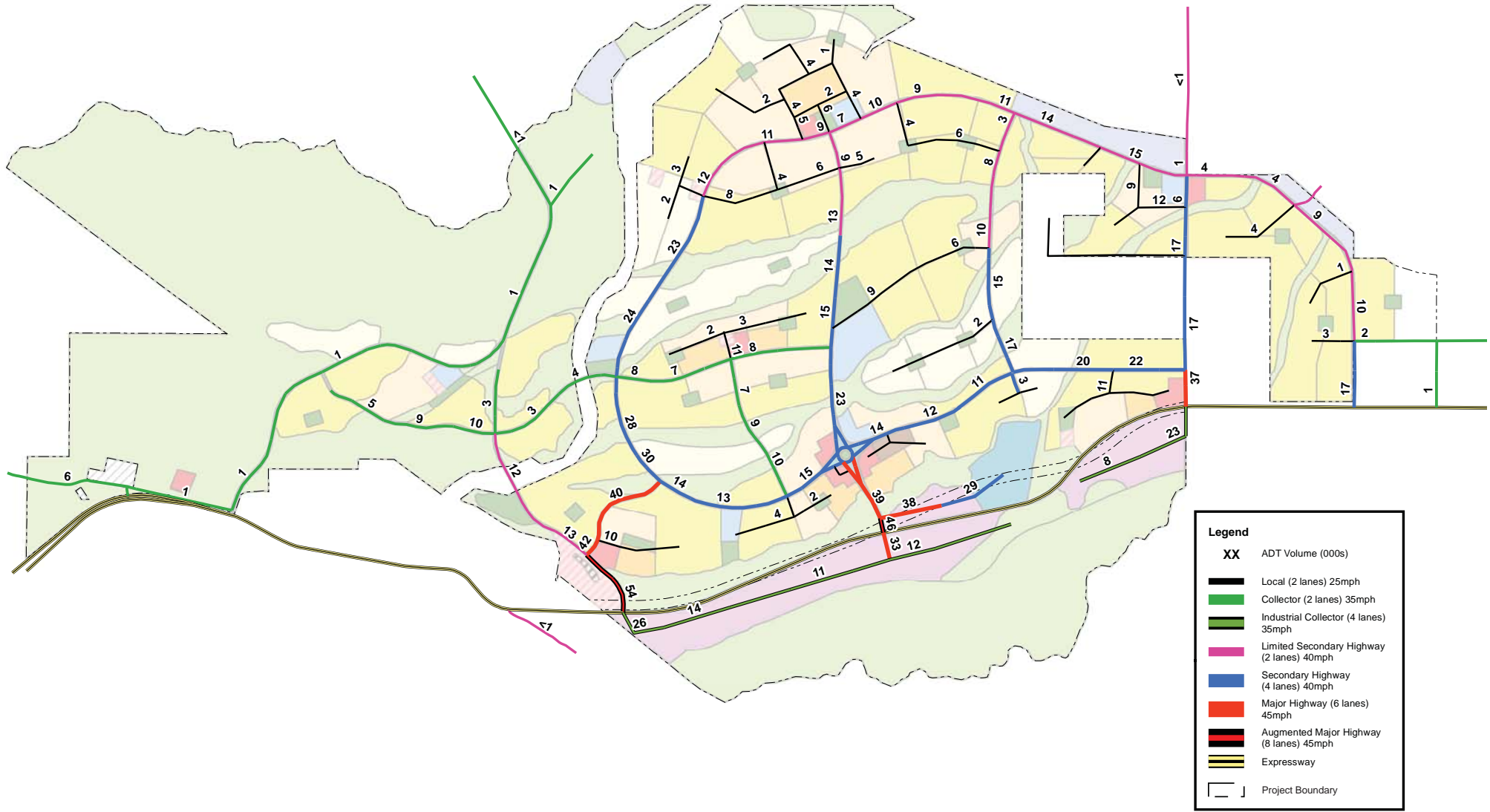
Using a typical residential traffic mix in the FHWA Traffic Noise Prediction Model, traffic noise levels of 65 dBA CNEL at a distance of 50 feet from the roadway centerline were calculated for collector (35 miles per hour) and limited secondary (40 miles per hour) roads. The limiting traffic volumes for collector and limited secondary roads are 10,000 and 6,500 ADT, respectively. With volumes exceeding these limits on these roads, and on all roads of higher classifications, significant traffic noise impacts may occur at adjacent residences, hotels, schools, and places of worship.

Mitigation Measure (MM) 12-1, included in Section 5.12.7 below, would require the completion of an acoustical analysis for each proposed residential, hotel, school, and place of worship that may be affected by significant noise levels from traffic to verify that the residential units and other receptors have been properly designed to comply with the 65 dBA exterior noise level limit and the 45 dBA  $L_{dn}$  or CNEL or less noise level for habitable interior living areas (residences and hotels), classrooms, and rooms used for patient care and worship.

The specific noise-reduction measures that would be applied at each potentially impacted land use cannot be defined until future tract maps have been prepared and the site-specific acoustical analysis (i.e., MM 12-1) is performed. However, the land uses proposed as part of the Project are routinely constructed in Southern California and are able to meet the applicable noise standards through use of common, feasible methods and materials.

In addition to standard construction designs and materials that reduce noise, other methods may be implemented in accordance with the requirements of MM 12-1, which may include strategic planting of street and front yard trees to buffer sensitive receptors; use of quieter busses and trucks, and/or designing and positioning the buildings on the lots to face away from noise sources. Therefore, implementation of MM 12-1 would reduce these impacts to a less than significant level.

D:\Projects\CEN\Centennial\GRAPHICS\EIR\EX\_On-Site\_Traffic\_20151014.ai



Source: Stantec 2015

# On-Site Circulation System, Average Daily Traffic (ADT) Volumes, and Speeds

## Exhibit 5.12-3

Centennial Project



---

**Stationary Source Noises – Internal Noise Sources**

The Project would include a number of land uses where installed equipment or activities may generate noise levels that could create a significant impact at areas adjacent to and on the Project site. These land uses include commercial/retail, business park, schools, community uses (e.g., fire station, library), community recreation areas, and utilities. It should be noted that outdoor activities conducted at parks and schools are not included in the following discussion; as discussed in Section 5.12.2, Section 12.08.570 of the County Code they are specifically excluded from the provisions of the Los Angeles County Noise Ordinance.

**Commercial/Retail Centers.** As shown in Exhibit 4-1, the Project's commercial uses would be within and adjacent to residential areas. The primary noise sources associated with commercial/retail areas include mechanical equipment (discussed above), loading dock activities, and menu board loudspeakers at fast food restaurants. In order to characterize the noise levels that may be generated by loading dock activities, measurements obtained at a Ralph's supermarket as part of a previous study by Wieland Acoustics (Reference 16 in Appendix 5.12-A) were used as the basis of potential noise levels within the Project. The measurement position was located about 210 feet in front of the loading dock at the approximate centerline of the bays. During the course of a 1 hour and 40 minute noise measurement during the busiest delivery period at the site, a number of trucks of various sizes were observed arriving, making deliveries, and leaving. Based on the measurement, loading docks generate an average noise level of 64 dBA. The noise study assumed that the level of loading dock activity and the measured  $L_{eq}$  at the measurement location are representative of that which would occur at the Project site.

As well as the activities in the loading docks, there would be noise associated with the arrival and departure of the delivery trucks themselves. As these trucks drive around the rear of the store, they may pass by neighboring properties. The large (i.e., 3 or more axles) and medium (i.e., 2-axle) trucks that would be used to make deliveries to the store typically generate maximum noise levels of 86 and 76 dBA, respectively, at a distance of 50 feet when operated by an experienced "reasonable" (not excessive) driver with typically applied accelerations. Higher noise levels may be generated by the excessive application of power. Lower levels may also be achieved, but would not be considered representative of an average truck operation.

In order to characterize the typical noise level that may be generated by vehicles in the drive-through lane of a fast food restaurant, measurements obtained as part of a previous Project by Wieland Acoustics at an existing fast food restaurant in Riverside were used as the basis of potential noise levels within the Project. These measurements were obtained at a position directly across from the menu board (a distance of ten feet from the vehicles). During the course of a 1-hour measurement, there were approximately 18 vehicles using the drive-through lane. This amount of activity produced an average noise level of about 56 dBA.

Based on the above discussion, activities at the commercial/retail centers on the Project site would have the potential to generate noise levels that would significantly impact neighboring properties prior to mitigation. Implementation of MM 12-2, in Section 5.12.7



below, would require the completion of an acoustical analysis for each commercial/retail use in order to verify that the Project has been properly designed to comply with the County of Los Angeles's noise ordinance standards at the nearby sensitive properties (both on and off site). However, the land uses proposed as part of the Project are routinely constructed in Southern California and are able to meet the applicable noise standards through use of common, feasible methods and materials, including incorporating design features such as building setbacks from the sensitive receptors; noise barriers; building orientation relative to the sensitive receptor; sound-rated windows; and upgraded exterior wall and/or roof construction. MM 12-2 would reduce these impacts to a less than significant level by requiring an acoustical analysis for each commercial/retail land use.

**Business Park.** As described in Section 4.5.4 and shown in Exhibit 4-1, the Project would develop business park uses. Typical noise sources in business parks include heating, ventilating, and air conditioning (HVAC) equipment, loading docks, and mechanical noise, such as tools and equipment used for light manufacturing and repair services. As shown in Exhibit 4-1, the business park land uses would be separated from noise-sensitive land uses by open space and/or SR-138. However, until future tract maps are designed, the potential remains for noise levels to exceed the noise standards in the County Code. To avoid significant noise impacts, MM 12-2 would be incorporated into the Project and would require the completion of an acoustical analysis for each business park use in order to verify that the Project has been properly designed to comply with the County of Los Angeles's noise ordinance standards at the nearby sensitive properties (both on and off site). The land uses proposed as part of the Project are routinely constructed in Southern California and are able to meet the applicable noise standards through use of common, feasible methods and materials. However, implementation of MM 12-2 would reduce these impacts to a less than significant level.

**Schools.** As previously noted, outdoor activities at schools are exempt from the provisions of Chapter 12.08 of the County Code. However, stationary sources at schools, such as HVAC equipment, has the potential to exceed the County Code noise limits. MM 12-2, in Section 5.12.7 below, would require the completion of an acoustical analysis for each school use in order to verify that the Project has been properly designed to comply with the County of Los Angeles' noise ordinance standards at the nearby sensitive properties (both on and off site). As stated before, the land uses proposed as part of the Project are routinely constructed in Southern California and are able to meet the applicable noise standards through use of common, feasible methods and materials. Regardless, implementation of MM 12-2 would reduce these impacts to a less than significant level.

**Community Use Areas.** The Project reserves and/or permits locations for schools, parks, a library, a sheriff station, and fire stations to serve future residents and employees as described in Section 4.5.13 of this EIR. Noise sources from community use facilities that would have the potential to affect adjacent land uses could include delivery trucks in loading/unloading docks at schools, trash pickup from dumpsters and compacting, occasional emergency generator use, and siren testing at fire stations. Table 5.12-7, Estimated Noise Levels from Community Use Area Activities, identifies the estimated noise levels at a distance of 100 feet for each of these types of community uses.

**TABLE 5.12-7  
ESTIMATED NOISE LEVELS FROM COMMUNITY USE AREA ACTIVITIES**

	<b>Fire Station</b>	<b>Library</b>	<b>Police Substation</b>
Operation of Medium Delivery Truck	–	52	–
Trash Pickup and Compacting	64	64	64
Emergency Generator	65	–	65
Siren (during testing)	66	–	–
<b>Combined Noise Level of All Sources</b>	<b>70</b>	<b>65</b>	<b>68</b>
Source: Wieland Acoustics 2011 (Appendix 5.12-A).			

Based on Table 5.12-7, noise levels generated by activities at the community use areas may create a significant impact at neighboring properties without mitigation.

Another noise source related to community use areas would be mechanical equipment, such as air conditioning or refrigeration units and their associated inlet and exhaust systems. Based on various manufacturers' published data and prediction algorithms, typical mechanical equipment noise levels are in the range of 41–58 dBA at a distance of 50 feet. Depending on where the equipment is located relative to the nearby properties, the unmitigated noise levels produced by the mechanical equipment may exceed County standards. Therefore, this impact is also potentially significant without mitigation.

MM 12-2, in Section 5.12.7 below, would require the completion of an acoustical analysis for each community use area in order to verify that the Project has been properly designed to comply with the County of Los Angeles' noise ordinance standards at the nearby sensitive properties (both on and off site). The land uses proposed as part of the Project are routinely constructed in Southern California and are able to meet the applicable noise standards through use of common, feasible methods and materials. Implementation of MM 12-2 would reduce these impacts to a less than significant level.

Additionally, the Project's design, as depicted in Exhibit 4-1, Conceptual Land Use Plan, incorporates compact, walkable and bikeable development pattern, which reduces trips and associated noise. The proposed well-connected street grid would disperse traffic rather than concentrating it, and narrower road lane widths and tighter curb radii would help slow cars down, reducing traffic noise.

**Parks and Recreation Areas.** Public and private park and recreation areas would be developed on the Project site as described in Section 4.5.6 of this EIR. The range of potential uses that could be developed represents a range of potential noise sources, such as dogs barking in kennels to crowds cheering at a baseball field. Because the type of land use(s) that would ultimately be developed is not yet defined, specific resulting noise levels cannot be estimated. However, for some activities and locations, such as private recreation areas that are not exempted by Section 12.08.570 of the County Code, the noise impact would have the potential to be significant without mitigation. Because the impact would depend on the use(s) selected for the proposed parks and recreation areas and their proximity to the

adjacent properties, implementation of MM 12-2, described below, would reduce these impacts to a less than significant level by requiring a land use-specific acoustical analysis to verify that each planned park and recreation area has been properly designed to comply with the County's noise ordinance standards.

**Transportation Demand Management.** The Project's Mobility Plan incorporates Transportation Demand Management (TDM) features to reduce dependence on the automobile and to provide for a more efficient use of transportation resources among Project occupants (PDF 10-1, in Section 5.10, Traffic, Access and Circulation). The Mobility Plan requires the formation and funding of a Transportation Management Agency (TMA) prior to the issuance of the first occupancy permit. The TMA is responsible for monitoring the form of travel, or transit modes, used by the people who live and work in Centennial, and enforcing that the Project meets its mobility objectives. Consistent with state and regional transportation, air quality and greenhouse gas planning objectives that focus on reducing the use of single occupancy vehicles (SOVs) for travel, the Project must meet the following mobility performance standards: (1) a minimum of 20 percent of total daily peak morning and afternoon external (e.g., commuting) trips must be completed by using non-SOV transit modes; and (2) a minimum of 30 percent of total daily internal (e.g., local) trips must be completed by using non-SOV transit modes. The TMA is responsible for conducting travel mode surveys and implementing TDM measures as required to verify the achievement with these mobility performance standards. These efforts to reduce single-occupancy vehicle use would also result in reduced traffic noise.

Dedicated areas for transfers between transit modes and for the staging of carpooling/ridesharing would be provided. A system of bikeways would allow for safe and efficient bicycle travel throughout the community. As part of land use planning, pedestrian amenities have been fully considered and a system of on-street and off-street facilities allow pedestrian access throughout the community. Finally, facilities for Neighborhood Electric Vehicles (NEV) are also proposed (Stantec 2015).

At park-and-ride areas and transit stations, cars and buses would generate noise. Using a computer model developed for the Federal Transit Administration (FTA) and assuming that, during the peak hour, 100 vehicles and 3 buses will access the facility, the level of activity would produce an average noise level of 58 dBA at a distance of 50 feet (Wieland 2011). This estimated noise level of 58 dBA would further attenuate (lessen) with distance to sensitive noise receptors in proposed development areas on the Project site. Regardless, the noise levels generated by vehicle movements at the transportation center are exempt from the provisions of the County's noise ordinance (Section 12.08.570). Impacts from park-and-ride areas and transit stations would be considered less than significant.

**Animal Control Facility.** An animal control facility would be constructed and operated when, in the judgement of the County, such a facility is required, as described in Section 4.5.13 of this EIR. The facility would include up to 54 dog kennels, a cat room (with up to 40 cages), and may include a facility to house farm animals and reptiles. The noise from barking dogs can especially be disturbing to nearby land uses and would be a potential significant noise impact. Implementation of MM 12-2 would reduce these impacts to a less than significant level by requiring an acoustical analysis for the animal control facility.

**Utilities.** Proposed water and wastewater facilities and proposed dry utilities are described in Sections 4.5.9 and 4.5.10 of this EIR, respectively. Utilities would include, but are not limited to, a water treatment plant, booster pump stations, wells, wastewater lift stations, and two wastewater reclamation facilities. The Project includes the option for a Materials Recovery Facility/Solid Waste Transfer Facility (MRF/SWTF) and green waste mulching and composting facility, as described in Section 4.5.15 of this EIR. Additionally, land for the maintenance yards for the Los Angeles County Department of Public Works and the Department of Parks and Recreation would be provided adjacent to the permanent wastewater reclamation facility site, as described in Section 4.0, Project Description.

The primary sources of noise at water treatment plants and wastewater reclamation facilities include pumps and blowers. Depending on their size, pumps can generate noise levels of up to 95 dBA at a distance 50 feet, while blowers can generate noise levels of 67 dBA or more at the same distance. Operational noise at an MRF would be generated by activities related to truck movements and the use of heavy equipment operating in the tipping rooms. Idling trucks at these locations produce an average noise level of about 73 dBA at a distance of 50 feet. Another source of noise associated with an MRF is from operations within the refuse room, specifically, those areas where trucks enter and leave this room.

Noise measurements obtained as part of a previous study by Wieland Acoustics indicate an average noise level of 77 dBA at a distance of 85 feet from the structure's opening, indicating average noise levels emanating from the facility at this distance. Operational noise at an electrical substation would be produced by transformers, which can produce noise levels of about 69 dBA at a distance of 50 feet. Therefore, activities at the utilities may generate noise levels that would create a significant impact at neighboring properties without mitigation. Implementation of MM 12-2, described in Section 5.12.7, would reduce these impacts to a less than significant level by requiring an acoustical analysis for each proposed utility facility.

### ***Stationary Source Noises – External Noise Sources***

**Oso Pumping Station and Alamo Power Plant.** As discussed above, during several site visits to the area, neither facility was producing audible noise levels at the fence lines. Therefore, the impact of these noise sources on the Project site is considered less than significant.

**Bailey Electric Substation.** Based on measurements obtained at this site, the median noise level generated by the substation is about 45 dBA and the maximum noise level is about 59 dBA, with the noise measured during a maintenance activity. Referring to the land use plan for the Project (Exhibit 4-1), the substation would be surrounded by open space and not near sensitive noise receptors. Therefore, there would be no potential for a significant noise impact.

**National Cement Plant.** As discussed above, the noise source of concern is truck traffic in support of National Cement Plant operations on National Cement Plant Road and on SR-138. National Cement Plant Road traverses the Project site in a north to south direction that roughly parallels the California Aqueduct. Trucks on National Cement Plant Road generate maximum noise levels of about 60 to 74 dBA as measured at a distance of 100 feet from the center of the roadway. The average measured single noise event level (SEL) was 85.

The actual number of trucks that access the National Cement Plant during a typical day could not be obtained; therefore, it is not possible to exactly calculate the CNEL generated by these vehicles. To provide a worst-case assessment, it was assumed that (1) 15 trucks per hour is typical of normal operations; (2) operations begin at 6:00 AM; and (3) operations continue for 8 hours. Based on these assumptions, it was estimated that the CNEL generated by the truck movements is 60 dBA at a distance of 44 feet from the center of the Cement Plant Road (Wieland 2011). Based on the realignment of National Cement Plant Road to connect to SR-138 on the west side of Quail Lake, as discussed in Section 4.5.5 of this EIR, the majority of the roadway traverses Open Space-designated areas. Segments of the realigned roadway would be adjacent to Very Low, Low, and Medium Density Residential land uses to the west of the Aqueduct. Assuming that standard residential construction provides 20 dBA of noise reduction with windows and doors closed, the interior CNEL will be about 40 dBA. This is less than the County Building Code standard of 45 dBA; therefore, the impact would be less than significant.

It is understood that blasting occurs at the National Cement Plant approximately twice a week. As shown in Table 5.12-8, Typical Maximum Construction Noise Levels (in the construction noise analysis below), blasting generates a typical noise level of about 94 dBA at a distance of 50 feet. Projecting this to the distance of the nearest portion of the Project site proposed for development (i.e., at least 7,500 feet from the east end of the Cement Plant property to the proposed residential on the east side of the Aqueduct) yields a noise level of less than 45 dBA. This level complies with the Los Angeles County exterior noise daytime standard of 45 dBA for noise-sensitive areas and 50 dBA for residential properties (Table 5.12-2); therefore, there would be a less than significant impact.

**Quail Lake Skypark Airport.** As discussed above, because the Quail Lake Skypark's facilities and operations are minimal (one runway and no control tower) and do not support commercial aviation activities, CNEL noise contours are not available for this facility. However, with its use of only small-scale general aviation (non-jet) private aircraft and its limited operations, it is unlikely that any noise contours for 55 dBA CNEL and above would extend much beyond the boundaries of the airport. Therefore, its impact on the overall noise environment at the Project site is considered to be less than significant.

**High Desert Hunt Club.** The Hunt Club has many designated hunting areas. Most of the hunting areas are ½ to 2 ½ miles from portions of the Project site planned for development. One relatively small hunting area, compared to the total amount of hunting area within the Hunt Club, is located approximately ½ mile south of the intersection of SR-138 and 300<sup>th</sup> Street West.

An estimate of gunshot noise from the Hunt Club to the nearest receptors at the Project site assumes that gunshots are fired from the closest hunting area. As previously discussed, the primary noise source from the Hunt Club is shotgun firing. For purposes of this noise estimate, a source noise level of 110 dBA at a distance of 110 feet is used. This source data is based on rifle firing data as shotgun fire is somewhat quieter than rifle fire (Wieland 2011). The closest proposed development to the northernmost hunting area would be Business Park, to be located at the southwest quadrant of SR-138 and 300<sup>th</sup> Street West, approximately 1,200 feet from the hunting area. Attenuation of noise over a hard surface

would reduce the gunshot noise to approximately 79 dBA. The intervening topography and soft terrain would likely reduce the gunshot noise level to less than 70 dBA at the Business Park area.

The closest proposed residential development to the northernmost hunting area would be north of SR-138 and west 300<sup>th</sup> Street West, approximately 3,000 feet from the hunting area. Attenuation of noise over a hard surface would reduce the gun shot noise to approximately 71 dBA. The intervening topography and soft terrain would likely reduce the gun shot noise level to less than 60 dBA at the closest residences.

Ambient noise at the southeast portion of the Project site that is closest to the Hunt Club would be dominated by traffic noise. However, the character of gunshot noise is different than traffic noise, and gunshot noise from the Hunt Club would be occasionally and intermittently heard at residences and businesses. Gunshot noise is considered an impulsive noise source due to the high magnitude short duration characteristic of this noise source. Though gunshot noise is audible, considering the expanse of hunting areas within the Hunt Club, the limited times for hunting (see the “Existing Noise Sources” section above), and the short duration of noise events, the addition of gunshot noise to the forecasted traffic noise CNEL would be negligible. The impact would be less than significant.

**Military Overflights.** Military Training Routes (MTRs) that would potentially affect the Project site originate from Edwards Air Force Base, China Lake Naval Air Warfare Center, Miramar Marine Base, and Lemoore Naval Air Station (see Section 5.3, Hazards and Fire Safety, for more information). As mentioned previously, a technical study was prepared to evaluate potential impacts related to military overflights in the Project vicinity. As discussed above, the CNEL for two military training flights per week passing over the Project site is estimated to range from less than 10 dBA to 53 dBA, depending on which MTR is used and the flight path of the aircraft in each MTR. The SEL for these flights is estimated to range between 53.0 dBA and 108.8 dBA.

While the existing and Projected military overflight activity is not estimated to exceed County CNEL standards and would not therefore result in a significant impact under the thresholds defined above, it does result in briefly higher noise levels (i.e., less than two seconds). How great a nuisance these periodic SELs are perceived to be is subjective and would vary from person to person. Additionally, the Project site is not unique in having MTRs and other types of military flight activity cross over or near its boundaries. Based on the most recent publicly available Digital Aeronautical Flight Information from the National Geospatial-Intelligence Agency, areas of military restriction (including both MTRs and military operating areas<sup>2</sup> [MOAs]) and other restricted areas overlie 44 percent of all land in California and 58 percent of the land in Southern California. Within the areas of military restriction, MTRs overlie 27 percent of the state and 36 percent of Southern California. While these corridors of military flight activity are distributed across most areas of the state, they do not overlie the most populous urban centers, such as San Francisco, Los Angeles, and the southwestern coastline to San Diego (NGIA 2004). However, many urban and suburban

---

<sup>2</sup> A military operations area (MOA) is airspace established outside Class A airspace to separate or segregate certain nonhazardous military activities. (FAR Part 1, Section 1.1).

areas across Southern California have existing routine military flight activity, including MTRs. The potential noise impact from MTR activity over the Project site is addressed below.

The MTR program is a joint venture by the Federal Aviation Administration (FAA) and the U.S. Department of Defense (DoD). The FAA has specific requirements regarding the altitude of MTR flights. Existing regulations prohibit military aircraft from flying lower than 500 feet above ground level (AGL) over sparsely populated areas and lower than 1,000 feet AGL over inhabited areas or lower than 1,000 feet over the tallest obstacle over any congested area of a city, town, or settlement (Federal Aviation Regulations [FAR], Section 91.119).

The Project Applicant has had discussions with military representatives concerning military flight routes in the vicinity of the Project site. Once development of the Project has progressed to the point where at least a portion of the site is considered to be inhabited, FAR Section 91.119 would prohibit aircraft flying at altitudes lower than 1,000 feet AGL. The principal military authority, after examining the actual Project plan, concluded that “we have come to a mutual understanding that the existence of DOD (Department of Defense) Military Training Routes [sic] (MTRs) over Tejon Ranch Company (TRC) development footprints for Centennial . . . should not preclude your planning efforts with regard to [this] area. The military services’ analysis of the information you have provided has not identified any threshold issues that would render Tejon Ranch’s development plans incompatible with DOD operations along MTRs in the vicinity” (Betancourt 2004). The military has indicated they would cooperate to minimize impacts to the Centennial site, though no formal agreement has been implemented to date. Therefore, while it is acknowledged that the Project site would be subject to periodic and brief SELs that may be considered a nuisance, for the reasons described above, it would be considered a less than significant impact on the Project site.

### ***Construction Noise***

Construction would be limited to the hours of 7:00 AM to 7:00 PM, Monday through Saturday, with no construction on Sundays or holidays in compliance with the County Code requirements.

Construction noise levels at off-site receptors and future on-site receptors would fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. Additionally, while the total construction period is approximately 20 years, an audible increase in the ambient noise level due to construction experienced at any individual receptor would be relatively short-term and temporary.

Individual receptors would experience a period of construction noise that is typical of similar urban development (i.e., earth movement, building construction, infrastructure), regardless of the overall size of the Project and total construction period. Due to the effect of noise attenuation, noise-sensitive receptors would not experience a noise increase that exceeds the County standard during the entire construction period, but only during the period(s) when such activity is within close proximity to each receptor. Additionally, because of the large size of the site, the proportion of the total construction period when development would be occurring close enough to receptors to result in a construction noise increase exceeding County standards would be minimal.

Construction noise is related primarily to the use of heavy equipment. Typical maximum noise levels generated by representative pieces of construction equipment are listed in Table 5.12-8, Typical Maximum Construction Noise Levels.

**TABLE 5.12-8  
TYPICAL MAXIMUM CONSTRUCTION NOISE LEVELS**

<b>Equipment</b>	<b>Noise Level (dBA) at 50 ft</b>	<b>Acoustic Usage Factor</b>
Auger Drill Rig	85	20%
Backhoe	80	40%
Blasting	94	1%
Chain Saw	85	20%
Clam Shovel	93	20%
Compactor (ground)	80-82	20%
Compressor (air)	80	40%
Concrete Mixer Truck	85	40%
Concrete Pump	82	20%
Concrete Saw	90	20%
Crane (mobile or stationary)	85	20%
Dozer	85	40%
Dump Truck	84	40%
Excavator	85	40%
Front End Loader	80	40%
Generator (25 KVA or less)	70	50%
Generator (more than 25 KVA)	82	50%
Grader	85	40%
Hydra Break Ram	90	10%
In situ Soil Sampling Rig	84	20%
Jackhammer	85	20%
Mounted Impact Hammer (hoe ram)	90	20%
Paver	85	50%
Pile Driver, Impact (diesel or pneumatic)	95-101	20%
Pile Driver, Vibratory	95	20%
Pneumatic Tools	85	50%
Pumps	77	50%
Rock Drill	85	20%
Scraper	85	40%
Tractor	84	40%
Vacuum Excavator (vac-truck)	85	40%
Vibratory Concrete Mixer	80	20%
dBA: A-weighted decibels; ft: foot/feet; KVA: kilovolt amps		
Source: Thalheimer 2000; FTA 2006		



Each phase of construction has a different equipment mix depending on the work to be accomplished during that phase. Each phase also has its own noise characteristics; some will have higher continuous noise levels than others, and some have high-impact noise levels. The noisiest phase of construction would be site preparation and grading. Based on the anticipated grading activity for the Project, the number and combination of equipment anticipated to be used, and the construction noise levels described above, the average combined construction noise levels for an average year of Project grading construction noise levels were estimated and are summarized in Table 5.12-9.

**TABLE 5.12-9  
ESTIMATED GRADING CONSTRUCTION NOISE LEVELS**

<b>Construction Phase and Equipment</b>	<b>Maximum Equipment Noise Level at 50 feet (dBA)<sup>a</sup></b>	<b>Usage Factor<sup>a</sup></b>	<b>Average Equipment Noise Level at 50 feet with Usage Factor (dBA)</b>
<b>Grading and Site Preparation – Average Year</b>			
10 scrapers	85	0.40	91.0
7 dozers	85	0.40	89.5
2 compactors	82	0.20	78.0
2 water trucks	84	0.40	83.0
1 grader	85	0.40	81.0
<b>Combined Noise Level</b>			<b>94.0</b>
dBA: A-weighted decibels			
<sup>a</sup> See Table 5.12-8.			
Source: Thalheimer 2000; FTA 2006			

As shown in Table 5.12-9, combined site preparation and grading noise levels would be 94 dBA  $L_{eq}$  at a distance of 50 feet for the calculation that assumes that all equipment is located at the centroid of a grading operation. Of course, in practice, the equipment would operate at some distance from the centroid in various directions. During an average year, with a noise level of 94 dBA at 50 feet (as calculated in Table 5.12-9), noise levels would be attenuated to the County standard of 75 dBA for mobile equipment at a distance of approximately 450 feet from the centroid of the grading operation. If the terrain between the grading work and a receptor would be acoustically “soft” or if the topography breaks the line of sight between the grading and the receptor, noise levels at 450 feet would be less than 75 dBA. During the anticipated peak year of grading, there could be as many as 26 scrapers and 18 dozers operating and the calculated noise level at 50 feet from the centroid would be 98.2 dBA. In this case, noise levels would be attenuated to the County standard of 75 dBA for mobile equipment at a distance of approximately 700 feet from the centroid of the grading operation.

Given the large size of the Project site, it is unlikely that site preparation and grading activities would occur in relatively small areas where the centroid of grading operations would be within 700 feet of off-site residences or other off-site sensitive receptors. Grading

noise would be audible above ambient noise levels at off-site receptors when individual pieces of equipment approach Project boundaries near the receptors, but noise levels at the receptors would not be expected to exceed 75 dBA  $L_{eq}$ . The impact would be less than significant.

Future occupants of homes, schools, or other noise-sensitive receptors on the site could be similarly exposed to construction noise from development on other parts of the site, until buildout of the Project is complete. Because of the large area of each phase of grading, the grading noise impact would be similar to the impacts described above for off-site receptors. The impact would be less than significant.

Upon completion of grading, construction activities, including trenching, foundation construction, building, and paving, would occur. These activities could occur near off-site sensitive receptors, particularly those near the Project boundaries at the southeast portion of the Project site, and future on-site sensitive receptors. Mobile equipment, such as backhoes and loaders, move around a construction site and work intermittently. Average noise levels would be substantially less than the maximum noise levels shown in Table 5.12-8 and would not be anticipated to exceed the 75 dBA noise ordinance limit.

Stationary noise sources associated with Project construction would include air compressors, generators, and cranes. As shown on Table 5.12-8, the maximum noise levels from operation of a generator at 50 feet are approximately 82 dBA with a load factor of 50 percent. The most restrictive County daytime stationary equipment noise standard is 60 dBA (Table 5.12-3). The noise level from a generator would not exceed 60 dBA  $L_{eq}$  at distances of 450 feet. As there is a potential for stationary equipment to be located within 450 feet of a sensitive receptor, the noise impact is potentially significant. MM 12-3 would be incorporated into the Project and would require stationary equipment to operate at a distance of greater than 450 feet or provide an enclosure or similar noise attenuation to limit the average hourly daytime noise level to 60 dBA or less. With the incorporation of MM 12-3, the temporary increase in ambient noise levels due to on-site construction stationary sources would be less than significant.

It is anticipated that limited blasting may be required in portions of the Project site during the construction period. As shown in Table 5.12-8, it is expected that blasting would generate a maximum noise level of about 94 dBA at a distance of 50 feet. As also shown in Table 5.12-8, the acoustic usage factor for blasting is 1 percent. Therefore, at a distance of 50 feet, blasting noise would be 74 dBA  $L_{eq}$ , which is less than the construction noise standard of 75 dBA. Based on safety considerations and reasonable planning, there would be no likelihood of blasting within 50 feet of a sensitive noise receptor. There would be a less than significant noise impact from blasting.

In summary, construction noise levels to existing receptors and future on-site residents would be less than significant. Although noise levels would be less than significant, MM 12-3, which incorporates best management practices for noise minimization, would be included in the Project. Additionally, with implementation of MM 12-6, the Project Applicant/Developer shall provide prospective purchasers or tenants on the Project site a notice and statement of acknowledgment that the Centennial property will be undergoing

continuing development which could result in noise impacts, dependent on the relative location from which construction activities may be heard.

## Off-Site Impacts

Long-term noise sources associated with off-site Project features would be limited to pumps at the wells to be installed at the Tejon Water Bank in Kern County north of the eastern part of the Project site. There are no sensitive noise receptors within ½ mile of the well sites. There would be no impact.

Construction of the off-site Project features described in Section 4.7 of the EIR would not require the mass grading activities described above for on-site development. However, construction of intersection improvements, utility connections, bridges, wells, and pipelines would require the use of similar construction equipment and would generate similar noise levels to those generated during the building and paving of on-site facilities. Where construction of off-site improvements would be near sensitive receptors, primarily residences near SR-138, noise impacts would be intermittent and temporary. The stationary source requirements and best management practices of MM 12-3 would apply to off-site construction activities. The impact would be less than significant.

***Impact Summary:*** Exterior and interior noise levels at existing and proposed noise-sensitive land uses would comply with State and County standards with the incorporation of MM 12-1. Noise generated by stationary sources associated with proposed land uses would comply with County standards with incorporation of MM 12-2. Construction noise would comply with County standards with incorporation of MM 12-3. With incorporation of these mitigation measures, impacts would be less than significant.

**Threshold 12-2**      **Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?**

## On-Site Impacts

Vibration impacts can result in structural damage and annoyance to persons. The County Code prohibits vibration activities that exceed the vibration perception threshold (annoyance) of 0.01 particle velocity (ppv) inch per second (in/sec). Compliance with this standard would eliminate the potential for structural damage, which, for most buildings range from 0.25 to 0.5 ppv in/sec, a much higher level than the County annoyance standard (Caltrans 2013b).

Typical sources of long-term operational groundborne vibration are trains and other transit systems. The Project site is not located near a train or transit system, nor would the Project install a train or transit system. There would be no long-term vibration impact from train or transit activity.

---

As previously discussed, it is understood that blasting occurs at the National Cement Plant approximately twice a week. Blasting can generate a vibration level of 0.1 in/sec at a distance of 50 feet. At a distance of 400 feet, the vibration level would be reduced to less than the County Code standard of 0.01 in/sec. The nearest proposed residence to the blasting area is at a distance of at least 8,000 feet. Therefore, there would be a less than significant impact.

Pile driving and blasting are generally the sources of the most severe vibration during construction. No pile driving is currently anticipated for the Project. However, if pile driving is required, there would be a potential significant impact. MM 12-4 would require a vibration analysis prior to any pile-driving activities.

It is anticipated that limited blasting may be required and that blasting would occur at large distances from existing or future receptors. However, MM 12-7 would be included to require a blasting plan if blasting is anticipated within 1,000 feet of a residence or similar sensitive land use. MM 12-7 would require that the Blasting Plan be approved by appropriate County authorities and public notification of affected residents.

Conventional heavy construction equipment would be used for mass grading. Table 5.12-10, Vibration Levels for Construction Equipment, summarizes typical vibration levels measured during construction activities for various vibration-inducing pieces of equipment at a distance of 25 feet. Table 5.12-10 also shows the calculated distance required to reduce vibration levels to the 0.01 ppv in/sec County Code limit. The closest sensitive receptors to areas where mass grading would occur are the homes on the east side of 300<sup>th</sup> Street West, the east side of 290<sup>th</sup> Street West, and the south of Malinda Avenue; some of these homes are 100 to 150 feet from the Project property line. Because vibratory rollers could be operated within 265 feet of sensitive receptors and large bulldozers and scrapers could be operated within 135 feet of sensitive receptors, the impact is potentially significant and mitigation is required. MM 12-5 restricts the use of vibratory rollers, scrapers, and bulldozers near occupied residences. MM 12-4 requires the limitation of vibration from caisson drilling, if anticipated near residences. With the implementation of MM 12-4 and MM 12-5, construction vibration impacts would be less than significant.

**TABLE 5.12-10  
VIBRATION LEVELS FOR CONSTRUCTION EQUIPMENT**

<b>Equipment</b>	<b>Vibration at 25 feet ppv (in/sec)</b>	<b>Distance to reduce to 0.01 ppv in/sec (feet)</b>
Vibratory roller	0.210	265
Large bulldozer	0.089	135
Caisson drilling	0.089	135
Loaded trucks	0.076	125
Jackhammer	0.035	80
Small bulldozer	0.003	9
ppv: peak particle velocity; ft: feet; in/sec: inches per second.		
Source: Caltrans 2013b; FTA 2006.		

## Off-Site Impacts

Construction of the off-site Project features described in Section 4.7 of the EIR would not require blasting or the use of large bulldozers, scrapers, or vibratory rollers. If pile driving or caisson drilling is required for bridge construction, and there are occupied buildings near the pile driving site, MM 12-4 would ensure that vibrations would not exceed the County Code standard. The impact would be less than significant.

***Impact Summary.*** Implementation of MM 12-4 and MM 12-5 would ensure that persons would not be exposed to construction vibration impacts exceeding County standards. Impacts would be less than significant with mitigation.

**Threshold 12-3**     **Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project, including noise from parking areas?**

For purposes of this analysis, this impact would occur if:

- Project-related traffic noise would increase the ambient noise level at noise-sensitive locations by 3 dBA or more and the ambient noise levels under With-Project conditions fall within the “Normally Unacceptable” or “Clearly Unacceptable” categories OR
- Project-related traffic noise increases the ambient noise level at noise-sensitive locations by 5 dBA or more.

It is noted that the County Code has no standards for a substantial permanent increase in ambient noise levels. The criteria above were used in the County General Plan EIR and AVAP EIR and are therefore used in this Centennial Project EIR noise analysis (DRP 2014, 2015b).

---

## On-Site impacts

Long-term, or permanent noise impacts would result from two types of sources, traffic and stationary sources.

### Traffic

The Project at buildout would generate an estimated 77,000 external daily trips (Stantec 2015); these vehicles would use roadways in the Project vicinity as identified in Section 5.10, Traffic, Access, and Circulation, of this Draft EIR. The addition of Project traffic to existing traffic would increase the traffic volumes on these roadways and therefore, the traffic noise at adjacent receptors. As previously described, a doubling of traffic volume would increase traffic noise levels by 3 dBA.

To estimate noise level increases and impacts due to development of the Project, noise level increases were calculated from the traffic volumes provided in the Project's Traffic Report (Stantec 2015). The traffic report provides analysis for Existing Year and Long Range scenarios.

- **Existing Year Without/With Project:** This scenario refers to traffic conditions for existing traffic volumes without and with the addition of the Project-generated buildout traffic, respectively. As noted in the traffic analysis, this scenario is hypothetical, as it presumes the existing background traffic conditions do not change (other than changes directly due to the Project) over the approximate 20-year time frame required to build the Project.
- **Long-Range (2035) Without/With Project:** This scenario refers to traffic conditions without and with the Project in the year 2035. According to the TIA, "In a regional context, there is no change to the amount of traffic being generated in the developed areas outside the immediate vicinity of the Project area with the Project versus without the Project, as they are simply distributed differently throughout the region. For example, as a result of Centennial, trips in areas such as Lancaster, Palmdale and the Santa Clarita Valley are redistributed under a with-Project 2035 condition. Workers in Lancaster and Palmdale have employment opportunities in Centennial, changing the commute patterns that would otherwise occur (e.g., reducing out-commuting on SR-14)" (Stantec 2015).

Table 5.12-11, Existing Plus Project Traffic Noise Levels, shows the Existing Plus Project traffic volumes; the calculated noise levels at the nearest sensitive receptor; and the noise increase due to Project-generated traffic for each road segment analyzed in the TIA.

**TABLE 5.12-11  
EXISTING PLUS PROJECT TRAFFIC NOISE LEVELS**

Expressway-Freeway/Segment	Traffic Volumes ADT		CNEL at Nearest Sensitive Receptor (dBA)		Change in CNEL Due to Project (dBA)
	Existing	Existing Plus Project	Existing	Existing Plus Project	
<b>SR-138</b>					
Btw. Jct I-5 and Gorman Post Rd	4,500	47,000	No sensitive receptor <sup>a</sup>		
Btw. Gorman Post Rd and Old Ridge Route Rd	4,900	49,500	67.4	74.1	6.8
Btw. Old Ridge Route Rd and 300 <sup>th</sup> St West	4,700	48,200	70.0	77.1	7.0
Btw. 300 <sup>th</sup> St West and 245 <sup>th</sup> St West	4,700	47,300	69.2	75.2	6.0
Btw. 245 <sup>th</sup> St West and 190 <sup>th</sup> St West	4,700	42,700	67.9	73.3	5.5
Btw. 190 <sup>th</sup> St West and 110 <sup>th</sup> St West	4,700	28,500	64.2	68.9	4.7
Btw. 110 <sup>th</sup> St West and 60 <sup>th</sup> St West	4,700	23,600	71.5	75.4	3.9
Btw. 60 <sup>th</sup> St West and Jct SR-14 North	4,700	21,500	63.1	66.6	3.5
<b>I-5</b>					
Btw. SR-99 and Laval Rd/Wheeler Ridge Rd	75,000	84,300	No sensitive receptor <sup>a</sup>		
Btw. Laval Rd/Wheeler Ridge Rd and Grapevine Rd	74,000	83,800	No sensitive No sensitive receptor <sup>a</sup>		
Btw. Grapevine and Fort Tejon Rd	74,000	83,800	78.5	79.0	0.5
Btw. Fort Tejon Rd and Lebec Rd	72,000	81,800	80.3	80.8	0.6
Btw. Lebec Rd and Frazier Mtn Park Rd	73,000	82,800	79.5	80.0	0.5
Btw. Frazier Mtn Park Rd and Gorman Rd	70,000	80,500	80.5	81.1	0.6
Btw. Gorman Rd and N Jct SR-138	70,000	80,500	76.1	76.7	0.6
Btw. N Jct SR-138 and Quail Lake Rd	67,000	67,000	No sensitive receptor <sup>a</sup>		
Btw. Quail Lake Rd and S Jct SR-138	67,000	68,700	No sensitive receptor <sup>a</sup>		
Btw. S Jct SR-138 and Smokey Bear Rd	69,000	96,000	81.2	82.6	1.4
Btw. Smokey Bear Rd and Vista Del Lago Rd	70,000	97,600	No sensitive receptor <sup>a</sup>		
Btw. Vista Del Lago Rd and Templin Hwy	70,000	97,600	79.7	81.1	1.4
Btw. Templin Hwy and Lake Hughes Rd	70,000	97,400	81.9	83.4	1.4
Btw. Lake Hughes Rd and Parker Rd	73,000	99,700	80.6	82.0	1.4
Btw. Parker Rd and Hasley Cyn Rd	108,000	140,400	82.9	84.0	1.1
Btw. Hasley Cyn Rd and N Jct SR-126 (NB)	114,000	138,700	80.7	81.5	0.9
Btw. N Jct SR-126 and Rye Cyn Rd	130,000	151,800	77.0	77.7	0.7
Btw. Rye Cyn Rd and Magic Mountain Pkwy	154,000	175,800	No sensitive receptor <sup>a</sup>		

**TABLE 5.12-11  
EXISTING PLUS PROJECT TRAFFIC NOISE LEVELS**

Expressway-Freeway/Segment	Traffic Volumes ADT		CNEL at Nearest Sensitive Receptor (dBA)		Change in CNEL Due to Project (dBA)
	Existing	Existing Plus Project	Existing	Existing Plus Project	
Btw. Magic Mountain Pkwy and Valencia Blvd	165,000	185,200	86.6	87.1	0.5
Btw. Valencia Blvd and McBean Pkwy	175,000	194,400	85.9	86.4	0.5
Btw. McBean Pkwy and Lyons Ave/Pico Cyn Rd	186,000	204,500	85.6	86.0	0.4
Btw. Lyons Ave and Calgrove Blvd	199,000	216,300	86.2	86.5	0.4
Btw. Calgrove Blvd and SR-14	200,000	217,400	85.5	85.8	0.4
Btw. SR-14 and SR-210	329,000	346,100	84.7	84.9	0.2
Btw. SR-210 and Roxford St	266,000	271,300	80.5	80.6	0.1
Btw. Roxford St and I-405	283,000	285,700	85.4	85.4	0.0
Btw. I-405 and San Fernando Mission Blvd	141,000	141,900	84.1	84.1	0.0
<b>SR-14</b>					
Btw. Dawn Rd and Rosamond Blvd	23,000	26,400	73.0	73.6	0.6
Btw. Rosamond Blvd and Ave A	30,000	38,100	73.2	74.2	1.0
Ave A and N Jct SR-138/Ave D	34,000	42,800	No sensitive receptor <sup>a</sup>		
Btw. Jct SR-138/Ave D and Ave F	36,000	43,000	74.7	75.4	0.8
Btw. Ave F and Ave G	38,000	45,000	No sensitive receptor <sup>a</sup>		
Btw. Ave G and Ave H	38,000	44,500	No sensitive receptor <sup>a</sup>		
Btw. Ave H and Ave I	40,000	46,100	70.3	70.9	0.6
Btw. Ave I and Ave J	47,000	52,900	72.9	73.4	0.5
Btw. Ave J and 20 <sup>th</sup> St W	42,000	47,300	75.9	76.5	0.5
Btw. 20 <sup>th</sup> St W and Ave K	59,000	64,300	72.5	72.9	0.4
Btw. Ave K and Ave L	74,000	78,900	77.6	77.9	0.3
Btw. Ave L and Ave M	89,000	93,700	79.1	79.3	0.2
Btw. Ave M and Ave N	92,000	96,300	No sensitive receptor <sup>a</sup>		
Btw. Ave N and 10 <sup>th</sup> St West	87,000	91,100	79.5	79.7	0.2
Btw. 10 <sup>th</sup> St West and Rancho Vista Blvd	87,000	90,800	80.2	80.4	0.2
Btw. Rancho Vista Blvd and S Jct SR-138/Palmdale Blvd	84,000	86,500	No sensitive receptor <sup>a</sup>		
Btw. S Jct SR-138 and Ave S	81,000	82,600	80.0	80.1	0.1
Btw. Ave S and Pearlblossom/Sierra Hwy	71,000	72,000	76.7	76.8	0.1
Btw. Pearlblossom/Sierra Hwy and Angeles Forest Hwy	83,000	83,800	82.5	82.5	0.0



**TABLE 5.12-11  
EXISTING PLUS PROJECT TRAFFIC NOISE LEVELS**

Expressway-Freeway/Segment	Traffic Volumes ADT		CNEL at Nearest Sensitive Receptor (dBA)		Change in CNEL Due to Project (dBA)
	Existing	Existing Plus Project	Existing	Existing Plus Project	
Btw. Angeles Forest Hwy and Soledad Canyon Rd	95,000	95,800	No sensitive receptor <sup>a</sup>		
Btw. Soledad Canyon Rd and Santiago Rd	95,000	95,800	80.1	80.1	0.0
Btw. Santiago Rd and Crown Valley Rd	94,000	94,700	77.3	77.4	0.0
Btw. Crown Valley Rd and Ward Rd	95,000	95,700	79.1	79.1	0.0
Btw. Ward Rd and Escondido Cyn Rd	93,000	93,700	80.3	80.3	0.0
Btw. Escondido Cyn Rd and Agua Dulce Cyn Rd	93,000	93,700	74.1	74.1	0.0
Btw. Agua Dulce Cyn Rd and Soledad Rd	96,000	96,700	76.8	76.8	0.0
Btw. Shadow Pines Blvd/Soledad Rd and Sand Cyn Rd	99,000	99,500	78.7	78.7	0.0
Btw. Sand Cyn Rd and Via Princessa	112,000	112,400	83.3	83.3	0.0
Btw. Via Princessa and Golden Valley Rd	144,000	144,300	87.0	87.0	0.0
Btw. Golden Valley Rd and Placerita Cyn Rd	144,000	144,300	79.0	79.0	0.0
Btw. Placerita Cyn Rd and San Fernando Rd/Newhall Ave	151,000	151,300	76.1	76.1	0.0
Btw. San Fernando Rd/Newhall Ave and Jct I-5	166,000	166,000	79.8	79.8	0.0
<b>SR-99</b>					
Btw. W Jct SR-58 and Stockdale Hwy	144,000	147,500	86.7	86.9	0.1
Btw. Stockdale Hwy and E Jct SR-58 E	141,000	144,600	86.7	86.8	0.1
Btw. E Jct SR-58 and Ming Ave	142,000	147,300	86.7	86.8	0.2
Btw. Ming Ave and White Ln	117,000	122,400	85.8	86.0	0.2
Btw. White Ln and Panama Ln	90,000	95,700	87.2	87.5	0.3
Btw. Panama Ln and W Jct SR-119	62,000	67,800	84.1	84.4	0.4
Btw. W Jct SR-119 and Houghton Rd	52,000	57,900	76.8	77.3	0.5
Btw. Houghton Rd and E Jct SR-233	50,000	56,000	78.3	78.8	0.5
Btw. E Jct SR-223 and Old U.S. 99	45,000	51,100	76.3	76.8	0.6
Btw. Old U.S. 99 and Herring Rd	46,000	52,200	No sensitive receptor <sup>a</sup>		
Btw. Herring Rd and Sandrini Rd	45,000	51,200	No sensitive receptor <sup>a</sup>		
Btw. Sandrini Rd and David Rd	45,000	51,200	78.8	79.4	0.6
Btw. David Rd and Valpredo Ave	43,000	49,200	No sensitive receptor <sup>a</sup>		

**TABLE 5.12-11  
EXISTING PLUS PROJECT TRAFFIC NOISE LEVELS**

Expressway-Freeway/Segment	Traffic Volumes ADT		CNEL at Nearest Sensitive Receptor (dBA)		Change in CNEL Due to Project (dBA)
	Existing	Existing Plus Project	Existing	Existing Plus Project	
Btw. Valpredo Ave and W Jct Rte 166 W	42,000	48,200	80.5	81.1	0.6
Btw. W Jct SR-166 and Jct I-5	41,000	47,200	No sensitive receptor <sup>a</sup>		
ADT: average daily trips; CNEL: Community Noise Equivalent Level; dBA: A-weighted decibel; SR: State Route; Btw.: between; Jct.: junction; I: Interstate; N: north; S: south; W: west; E: east.					
<sup>a</sup> No receptor was identified near these segments.					
Source: Stantec 2015					

As shown in Table 5.12-11, the Existing Plus Project noise level at all of the nearest sensitive receptors, except two, would exceed 70 dBA CNEL and would be in the Normally Unacceptable category for Noise/land Use compatibility, as shown in Table 5.12-1. For these receptors in the Normally Unacceptable category, the significant impact criterion is a 3 dBA increase. The exception is residences adjacent to SR-138 between 190<sup>th</sup> Street West and 110<sup>th</sup> Street West where the Existing Plus Project noise level would be approximately 69 dBA CNEL and residences adjacent to SR-138 between 60<sup>th</sup> Street West and the junction with SR-14 where the Existing Plus Project noise level would be approximately 67 dBA CNEL. For these receptors, the significant noise increase impact criterion is a 5 dBA increase.

Under the Existing Plus Project scenario, there would be a significant noise impact from Project-generated traffic at receptors adjacent to SR-138 between Gorman Post Road and 190<sup>th</sup> Street West, where the noise increases are estimated to range from 5.5 to 7.0 dBA, and from 110<sup>th</sup> Street West to 60<sup>th</sup> Street West, where the noise increase is estimated to be 3.9 dBA. Project-generated traffic noise increases on I-5, SR-14, and SR-99 for this scenario would not exceed 1.4 dBA.

Table 5.12-12, 2035 Traffic Noise Levels, shows the 2035 Without Project and 2035 With Project traffic volumes; the calculated noise levels at the nearest sensitive receptor; and the noise increase due to Project-generated traffic for each road segment analyzed in the TIA.

**TABLE 5.12-12  
2035 TRAFFIC NOISE LEVELS**

Expressway-Freeway/Segment	Traffic Volumes ADT		CNEL at Nearest Sensitive Receptor (dBA)		Change in CNEL Due to Project (dBA)
	2035 Without Project	2035 With Project	2035 Without Project	2035 With Project	
<b>SR-138</b>					
Btw. Jct I-5 and Gorman Post Rd	43,000	74,000	No sensitive receptor <sup>a</sup>		
Btw. Gorman Post Rd and Old Ridge Route Rd	45,000	96,000	77.1	80.4	3.3
Btw. Old Ridge Route Rd and 300 <sup>th</sup> St West	43,000	76,000	73.5	76.0	2.5
Btw. 300 <sup>th</sup> St West and 245 <sup>th</sup> St West	38,000	56,000	75.2	76.9	1.7
Btw. 245 <sup>th</sup> St West and 190 <sup>th</sup> St West	39,000	52,000	75.8	77.1	1.2
Btw. 190 <sup>th</sup> St West and 110 <sup>th</sup> St West	39,000	52,000	71.5	72.7	1.2
Btw. 110 <sup>th</sup> St West and 60 <sup>th</sup> St West	38,000	50,000	74.3	75.5	1.2
Btw. 60 <sup>th</sup> St West and N Jct SR-14 North	46,000	57,000	69.9	70.9	0.9
<b>I-5</b>					
Btw. SR-99 and Laval Rd/Wheeler Ridge Rd	133,000	137,000	No sensitive receptor <sup>a</sup>		
Btw. Laval Rd/Wheeler Ridge Rd and Grapevine Rd	118,000	128,000	No sensitive receptor <sup>a</sup>		
Btw. Grapevine Rd and Fort Tejon Rd	118,000	128,000	80.5	80.9	0.4
Btw. Fort Tejon Rd and Lebec Rd	116,000	126,000	82.4	82.7	0.4
Btw. Lebec Rd and Frazier Mtn Park	117,000	127,000	81.5	81.9	0.4
Btw. Frazier Mtn Park and Gorman Rd	117,000	121,000	82.7	82.8	0.1
Btw. Gorman Rd and N Jct SR-138	117,000	124,000	78.3	78.5	0.3
Btw. N Jct SR-138 and Quail Lake Rd	90,000	93,000	No sensitive receptor <sup>a</sup>		
Btw. Quail Lake Rd and S Jct SR-138	90,000	94,000	No sensitive receptor <sup>a</sup>		
Btw. S Jct SR-138 and Smokey Bear Rd	105,000	127,000	83.0	83.8	0.8
Btw. Smokey Bear Rd and Vista Del Lago Rd	110,000	129,000			
Btw. Vista Del Lago Rd and Templin Hwy	117,000	129,000	81.9	82.4	0.4
Btw. Templin Hwy and Lake Hughes Rd	114,000	130,000	84.0	84.6	0.6
Btw. Lake Hughes Rd and Parker Rd	140,300	158,000	83.5	84.0	0.5
Btw. Parker Rd and Hasley Cyn Rd	160,400	175,000	84.6	85.0	0.4
Btw. Hasley Cyn Rd and N Jct SR-126 (NB)	163,100	174,000	82.2	82.5	0.3

**TABLE 5.12-12  
2035 TRAFFIC NOISE LEVELS**

Expressway-Freeway/Segment	Traffic Volumes ADT		CNEL at Nearest Sensitive Receptor (dBA)		Change in CNEL Due to Project (dBA)
	2035 Without Project	2035 With Project	2035 Without Project	2035 With Project	
Btw. N Jct SR-126 and Rye Cyn Rd	171,500	179,000	78.2	78.4	0.2
Btw. Rye Cyn Rd and Magic Mountain Pkwy	177,400	185,500	No sensitive receptor <sup>a</sup>		
Btw. Magic Mountain Pkwy and Valencia Blvd	190,800	198,000	87.2	87.4	0.2
Btw. Valencia Blvd and McBean Pkwy	216,500	222,000	86.8	86.9	0.1
Btw. McBean Pkwy and Lyons Ave/Pico Cyn Rd	222,200	226,000	86.4	86.5	0.1
Btw. Lyons Ave and Calgrove Blvd	253,000	256,000	87.2	87.3	0.1
Btw. Calgrove Blvd and SR-14	253,900	257,000	86.5	86.5	0.1
Btw. SR-14 and SR-210	384,500	386,000	85.3	85.4	0.0
Btw. SR-210 and Roxford St	306,300	307,000	81.1	81.1	0.0
Btw. Roxford St and I-405	320,700	321,000	85.9	85.9	0.0
Btw. I-405 and San Fernando Mission Blvd	163,900	164,000	84.7	84.7	0.0
<b>SR-14</b>					
Btw Dawn Rd and Rosamond Blvd	29,000	30,000	75.3	75.5	0.1
Btw. Rosamond Blvd and Ave A	30,000	35,000	74.5	75.2	0.7
Ave A and N Jct SR-138/Ave D	51,000	56,000	No sensitive receptor <sup>a</sup>		
Btw. Jct SR-138/Ave D and Ave F	88,000	89,000	79.8	79.9	0.0
Btw. Ave F and Ave G	104,000	104,000	No sensitive receptor <sup>a</sup>		
Btw. Ave G and Ave H	109,000	109,000	No sensitive receptor <sup>a</sup>		
Btw. Ave H and Ave I	109,000	110,000	76.0	76.0	0.0
Btw. Ave I and Ave J	115,000	116,000	79.2	79.2	0.0
Btw. Ave J and 20 <sup>th</sup> St West	100,000	101,000	82.1	82.2	0.0
Btw. 20 <sup>th</sup> St W and Ave K	119,000	120,000	78.0	78.0	0.0
Btw. Ave K and Ave L	128,000	129,000	82.4	82.5	0.0
Btw. Ave L and Ave M	101,000	102,000	82.0	82.1	0.0
Btw. Ave M and Ave N	101,000	102,000	No sensitive receptor <sup>a</sup>		
Btw. Ave N and 10 <sup>th</sup> St West	100,000	100,000	82.6	82.6	0.0
Btw. 10 <sup>th</sup> St West and Rancho Vista Blvd	95,000	95,000	83.0	83.0	0.0
Btw. Rancho Vista Blvd and S Jct SR-138/Palmdale Blvd	96,000	96,000	No sensitive receptor <sup>a</sup>		
Btw. S Jct SR-138 and Ave S	97,000	93,000	83.2	83.1	-0.2

**TABLE 5.12-12  
2035 TRAFFIC NOISE LEVELS**

Expressway-Freeway/Segment	Traffic Volumes ADT		CNEL at Nearest Sensitive Receptor (dBA)		Change in CNEL Due to Project (dBA)
	2035 Without Project	2035 With Project	2035 Without Project	2035 With Project	
Btw. Ave S and Pearlblossom/Sierra Hwy	84,000	77,000	79.9	79.5	-0.4
Btw. Pearlblossom/Sierra Hwy and Angeles Forest Hwy	92,000	90,000	85.4	85.3	-0.1
Btw. Angeles Forest Hwy and Soledad Canyon Rd	118,000	116,000	No sensitive receptor <sup>a</sup>		
Btw. Soledad Canyon Rd and Santiago Rd	117,000	115,000	83.4	83.3	-0.1
Btw. Santiago Rd and Crown Valley Rd	113,000	110,000	80.5	80.4	-0.1
Btw. Crown Valley Rd and Ward Rd	142,000	140,000	83.3	83.2	-0.1
Btw. Ward Rd and Escondido Cyn Rd	120,000	117,000	83.8	83.7	-0.1
Btw. Escondido Cyn Rd and Agua Dulce Cyn Rd	119,000	116,000	77.6	77.5	-0.1
Btw. Agua Dulce Cyn Rd and Soledad Rd	121,000	118,000	80.2	80.1	-0.1
Btw. Shadow Pines Blvd/Soledad Rd and Sand Cyn Rd	119,000	117,000	81.9	81.8	-0.1
Btw. Sand Cyn Rd and Via Princessa	140,000	137,000	86.7	86.6	-0.1
Btw. Via Princessa and Golden Valley Rd	177,000	174,000	90.3	90.2	-0.1
Btw. Golden Valley Rd and Placerita Cyn Rd	174,000	171,000	82.3	82.2	-0.1
Btw. Placerita Cyn Rd and San Fernando Rd/Newhall Ave	178,000	175,000	79.2	79.2	-0.1
Btw. San Fernando Rd/Newhall Ave and Jct I-5	185,000	182,000	82.7	82.6	-0.1
<b>SR-99</b>					
Btw. W Jct SR-58 and Stockdale Hwy	164,000	165,000	87.3	87.3	0.0
Btw. Stockdale Hwy and E Jct SR-58	164,000	165,000	87.3	87.3	0.0
Btw. E Jct SR-58 and Ming Ave	188,000	190,000	87.9	88.0	0.0
Btw. Ming Ave and White Ln	165,000	167,000	87.3	87.4	0.1
Btw. White Ln and Panama Ln	142,000	144,000	89.2	89.3	0.1
Btw. Panama Ln and W Jct SR-119	98,000	101,000	86.0	86.2	0.1
Btw. W Jct SR-119 and Houghton Rd	88,000	90,000	79.1	79.2	0.1
Btw. Houghton Rd and E Jct SR-233	87,000	90,000	80.7	80.9	0.1
Btw. E Jct SR-223 and Old U.S. 99	81,000	84,000	78.8	79.0	0.2
Btw. Old U.S. 99 and Herring Rd	83,000	86,000	No sensitive receptor <sup>a</sup>		

**TABLE 5.12-12  
2035 TRAFFIC NOISE LEVELS**

Expressway-Freeway/Segment	Traffic Volumes ADT		CNEL at Nearest Sensitive Receptor (dBA)		Change in CNEL Due to Project (dBA)
	2035 Without Project	2035 With Project	2035 Without Project	2035 With Project	
Btw. Herring Rd and Sandrini Rd	82,000	85,000	No sensitive receptor <sup>a</sup>		
Btw. Sandrini Rd and David Rd	82,000	85,000	81.4	81.6	0.2
Btw. David Rd and Valpredo Ave	74,000	77,000	No sensitive receptor <sup>a</sup>		
Btw. Valpredo Ave and w Jct SR-166 W	73,000	76,000	82.9	83.1	0.2
Btw. W Jct SR-166 W and Jct I-5	72,000	75,000	No sensitive receptor <sup>a</sup>		

ADT: average daily trips; CNEL: Community Noise Equivalent Level; dBA: A-weighted decibel; SR: State Route; Btw.: between; Jct.: junction; I: Interstate; N: north; S: south; W: west; E: east.

<sup>a</sup> No receptor was identified near these segments.

Source: Stantec 2015

As shown in Table 5.12-12, the 2035 With Project noise level at all of the nearest sensitive receptors would exceed 70 dBA CNEL and would be in the Normally Unacceptable category for Noise/land Use compatibility, as shown in Table 5.12-1. For these receptors, the significant impact criterion is a 3 dBA increase.

Under the 2035 With Project scenario, there would be a significant noise impact from Project-generated traffic at receptors adjacent to SR-138 between Gorman Post Road and Old Ridge Route Road, where the noise increase would be 3.3 dBA. There is currently one residence adjacent to this road segment. No other Project-generated traffic noise increases would exceed 2.5 dBA.

Table 5.12-12 shows that Project implementation would result in reduced traffic volumes and reduced traffic noise levels on SR-14 between SR-138 and I-5. As previously discussed, implementation of the Project would result in a redistribution of regional trips because of employment opportunities in Centennial for residents of Lancaster and Palmdale. Similarly, workers in Centennial will fill jobs in the Santa Clarita Valley area that would otherwise be filled by commuters from other areas. Additionally, some workers from the Santa Clarita Valley will acquire jobs in Centennial that might otherwise commute south of the Santa Clarita Valley. Accordingly, under a cumulative setting, the Project will result in a net increase in traffic volume for some areas, or a net decrease in traffic in other areas, all of which is dependent on the change in traffic patterns that are a result of the Project (Stantec 2015.) Additional discussion of traffic distribution is included in the traffic study prepared for the Project (Stantec 2015; Appendix 5.10-A).

Feasible mitigation measures for the 2035 With Project impact sensitive noise receptors between Gorman Post Road and Old Ridge Route Road would include construction of a noise barrier at affected receptors or resurfacing the roadway with rubberized asphalt pavement.

Typical roadside noise barriers provide a noise reduction of at least 5 dBA; rubberized asphalt pavement is accepted as providing a noise reduction of approximately 4 dBA. Either of these mitigations would reduce the forecasted 2035 With Project traffic noise impact of 3.3 dBA to a less than significant level. However, these mitigations would involve alterations to private property and/or within Caltrans' right-of-way, which are not in the County's or the Project Applicant's control. Therefore, the impact would be significant and unavoidable.

## Off-Site Impacts

Long-term noise generation associated with proposed off-site features would be limited to noise from the wells to be installed at the Tejon Water Bank in Kern County north of the eastern part of the Project site. There are no sensitive noise receptors within ½ mile of the well sites. There would be no impact.

***Impact Summary.*** Increases in the ambient noise environment adjacent to SR-138 between Gorman Post Road and Old Ridge Route Road would exceed the applicable significance criterion at identified receptors. Feasible mitigation measures are not within the jurisdiction of the County. Impacts would be significant and unavoidable.

**Threshold 12-4** **Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project, including noise from amplified sound systems?**

For purposes of this analysis, this impact would occur if Construction of the proposed Project generates noise levels in excess of the Los Angeles County standards (refer to Table 5.12-2).

It is noted that the County Code has no standards for a substantial temporary increase in ambient noise levels, nor were any standards selected for analysis in the County General Plan EIR and AVAP EIR (DRP 2014, 2015b). Therefore, exceedance of the County standards is considered a substantial noise increase.

## On-Site Impacts

As discussed under Threshold 12-1, temporary noise impacts would occur during construction of the Project. With the implementation of MM 12-3, construction noise impacts relative to the County Code would be less than significant. Therefore, although construction activities would temporarily increase ambient noise levels above levels existing without the Project, the increases would not be substantial and the impact would be less than significant.

## Off-Site Impacts

As discussed under Threshold 12-1, temporary noise impacts would occur during construction of off-site Project features. With the implementation of MM 12-3, construction noise impacts relative to the County Code would be less than significant. Therefore, although construction activities would temporarily increase ambient noise levels above levels existing

without the Project, the increases would not be substantial and the impact would be less than significant.

**Impact Summary.** Temporary increases in noise due to construction activity would not be substantial with incorporation of MM 12-3. Impacts would be less than significant after mitigation.

**Threshold 12-5** For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

### On-Site and Off-Site Impacts

The Centennial Project is not located within an airport land use plan, and there are no public airports or public use airports within two miles of the Project site. Therefore, there is no impact on persons residing or working in the Project area.

**Impact Summary.** The Project site is not located within an airport land use plan, and there are no public airports or public use airports within two miles of the Project site. There would be no impact.

**Threshold 12-6** For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

### On-Site Impacts

The Project site is adjacent to the Quail Lake Skypark Airport, which is a privately owned facility used primarily for recreational activities. As described in “Existing Noise Sources”, above, it has one runway and no control tower, and it does not support commercial aviation activities. No operational data is available, and CNEL noise contours have not been developed for this airport. However, because the Quail Lake Skypark is privately owned and only has six locally based aircraft, the number and frequency of flights is expected to be minimal. Any additional flights or activity at the airport would be subject to the approval of the airport owner because the facility is not available to the general public.

With its use of only small-scale, general aviation (non-jet), private aircraft and its limited operations, it is unlikely that any noise contours for 55 dBA CNEL and above would extend much beyond the boundaries of the airport. Caltrans Division of Aeronautics reports the facility operates under a Special-Use Airport Permit that was issued in November 2002. Airports that are permitted as “Special-Use” are not open to the general public and access to the airport is at the discretion of the owner. While the permit does not specify a maximum number of daily flights, the Skypark is permitted to operate during daylight hours only. Also, the permit requires application for an Amended/Corrected Airport Permit prior to making physical or operational changes at the airport. Caltrans’ Aviation Safety Officer for Los Angeles and Riverside Counties was consulted regarding the potential for expansion of



activities at the Quail Lake Skypark; based on permit conditions and limited airport infrastructure, it was concluded to be “very unlikely that there would be any significant increase in flight activity in the future” (Miles 2016). Also, Quail Lake Skypark would be permanently closed in the event the SR-138 improvements are implemented. Therefore, its impact on the overall noise environment at the Project site is considered to be less than significant.

It should also be noted that, although the Project site is not located within the vicinity of a military overflight airstrip, military overflights are a contributing noise factor at the Project site, as discussed under Threshold 12-1. However, based on the reasoning presented under Threshold 12-1, the impact of military overflights would be considered a less than significant impact on the Project site.

The existing heliport located at the site for the existing Fire Station 77 (in Gorman) will continue to be located at the site and remain operational, as discussed in the Section 4.0, Project Description. However, the heliport will only be used for fire-related emergencies, and therefore, it is considered a less than significant impact on the Project site.

***Impact Summary.*** Persons would not be exposed to excessive noise levels from residing and working in the Project area within the vicinity of a private airstrip. Impacts would be less than significant.

### 5.12.7 MITIGATION MEASURES

**MM 12-1** For residences, hotels and motels, schools, and places of worship adjacent to a collector road with a buildout forecast of 10,000 average daily trips (ADT) or greater, a limited secondary road with a buildout forecast of 6,500 ADT or greater, or any higher classification road, the Project Applicant/Developer shall submit to the County an Acoustical Study prepared in accordance with Section 1207.12 of the County Building Code. The Acoustical Study shall demonstrate that exterior noise levels at areas where residents would reasonably be expected to spend more than one hour (e.g., backyards) would not exceed 65 A-weighted decibels (dBA) Community Noise Equivalent Level (CNEL). The Acoustical Study shall also verify, including during construction and before Certificate of Occupancy (CofO) issuance, that the buildings have been properly designed to comply with a CNEL requirement of 45 dBA for habitable interior living areas, classrooms, and rooms used for patient care and worship. The design features required to achieve the noise standard shall include one or more of the following elements, as verified by the Acoustical Study: building setbacks from the roadway; noise barriers; building orientation relative to the roadway; interior living space (bedroom, common area) orientation; sound-rated windows; upgraded exterior wall and/or roof construction; insulation batts; and forced air ventilation.

**MM 12-2** For each business park use, school, community use area, park and recreation area, animal control facility, utility, County maintenance facility, commercial development, or manufacturing/industrial development, the Project

Applicant/Developer shall submit an Acoustical Study verify that the Project has been properly designed to comply with the County of Los Angeles's Noise Ordinance standards at the nearby sensitive properties (both on and off site). The design features required to achieve the noise standard shall include one or more of the following elements, as verified by the Acoustical Study: building setbacks from the sensitive receptors; noise barriers; building orientation relative to the sensitive receptor; sound-rated windows; and upgraded exterior wall and/or roof construction.

**MM 12-3** To ensure that construction noise is minimized, in addition to meeting all requirements of Section 12.08 of the *County of Los Angeles Code*, the following measures shall be implemented during construction:

- All construction equipment, including internal combustion engines and stationary equipment (used for construction purposes) shall be equipped with noise-reducing features such as, but not limited to, improved mufflers, intake silencers, ducts, engine enclosures, and acoustical shields or shrouds.
- Stationary equipment (e.g., generators, air compressors, concrete pumps) located within 450 feet of residences or schools shall have noise abatement (e.g., engine enclosures or equipment placed behind barriers) to limit the noise level at the sensitive receptor to an average sound level ( $L_{eq}$ ) of 60 dBA or less.
- Equipment and material staging areas and equipment maintenance areas shall be located at least 500 feet from sensitive noise receivers, if feasible.

**MM 12-4** The Project Applicant/Developer shall submit a vibration analysis to the County demonstrating that the pile installation has been designed to limit vibrations to 0.01 peak particle velocity (ppv) inch per second (in/sec) or less at occupied buildings. Design features may include alternate methods of installation that result in reduced vibrations such as pile driving cushions or jetting instead of drilling.

**MM 12-5** For the Project site areas adjacent to 300<sup>th</sup> Street West, 290<sup>th</sup> Street West, and Malinda Avenue, the Project Applicant/Developer shall provide information to County demonstrating that plans and specifications require that (1) vibratory rollers shall not be used within 300 feet of occupied residences or that vibratory rollers used within 300 feet of occupied residences shall be operated in the static mode and (2) large bulldozers and scrapers shall not be operated within 150 feet of occupied residences. Alternatively, the Project Applicant/Developer shall provide information to County demonstrating that plans and specifications require that vibratory rollers, large bulldozers, large scrapers, and similar heavy equipment shall be operated to comply with the requirements of Section 12.08.560 of the County Code and that vibrations at residential properties would not exceed 0.01 inch per second (in/sec).

**MM 12-6** The Project Applicant/Developer shall provide to each prospective purchaser or tenant with a notice and statement of acknowledgment that shall be executed by the prospective purchaser, lessee, or tenant that the Centennial property will be undergoing continuing development and, depending on relative location, noise from construction activities may be heard. The form and method of distribution of said notice and statement of acknowledgment shall be as approved by the County. Subsequent to Project buildout, this mitigation measure would no longer apply.

**MM 12-7** In the event that blasting is necessary in order to fracture non-rippable rock, the Project Applicant/Developer shall prepare a Blasting Plan to be submitted and approved by the County of Los Angeles Fire Department in order to obtain a blasting permit; evidence of this approval shall be submitted to the County of Los Angeles Department of Regional Planning in order to obtain an Explosives Permit. The Blasting Plan shall be prepared in accordance with the United States Department of Interior, Office of Surface Mining (USOSM) standards and shall include, but not be limited to, the following:

- a. A pre-blast survey.
- b. The site and location of planned blasting and hours of operation (blasting to be conducted during the daylight hours only).
- c. Notification of blasting activities to all property owners within one-half mile of the blasting area. This notification shall describe the expected period and frequency that the blasting shall occur and give a contact phone number for any questions or complaints. All complaints shall be responded to in a method deemed satisfactory to the County of Los Angeles Department of Regional Planning.
- d. The types and amounts of explosives.
- e. Warning system information.
- f. Methods of transportation and handling of explosives.
- g. Minimum acceptable weather conditions.
- h. Procedures for handling, setting, wiring, and firing explosives.
- i. Procedures for clearing and controlling access to blast danger.
- j. Procedures for handling misfires and other unusual occurrences.
- k. An Emergency Action Plan.
- l. Material safety data sheet for all explosives or other hazardous materials expected to be used.
- m. Procedures to ensure compliance with local, State and federal laws.
- n. Requirements and procedures for vibration monitoring near existing structures during blasting events.

## 5.12.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

As discussed above, impacts to off-site noise-sensitive receptors in the vicinity of identified segments of SR-138 from traffic-related ambient noise level (CNEL) increases would be significant and unavoidable because, although feasible mitigation to reduce these impacts is possible, it is not within County jurisdiction to implement it. Noise-reduction measures would involve alterations to private property and/or within Caltrans' right-of-way, which are not in the County's or the Project Applicant's control.

## 5.12.9 REFERENCES

- Advanced Engineering Acoustics (AEA). 2004 (September). *Environmental Noise Assessment for the Centennial Residential Development in the Tejon Ranch Area, County of Los Angeles*. Simi Valley, CA: Advanced Engineering Acoustics.
- Aircraft Owners and Pilots Association (AOPA). 2015 (Effective August 20). CL46 Quail Lake Skypark Airport. <http://www.aopa.org/airports/CL46>
- Betancourt, J.L. 2004 (October 7). Personal communication. Letter from J.L. Betancourt, Rear Admiral (U.S. Navy) to R. Stine, Chief Executive Officer (Tejon Ranch Company).
- California Building Standards Commission (CBSC). 2015. California Building Code (Supplement, Part 2, Volume 1). Sacramento, CA: CBSC. <http://www.bsc.ca.gov/Codes.aspx>.
- California Department of Transportation (Caltrans). 2013a (September) *Technical Noise Supplement to the Traffic Noise Analysis Protocol*. Sacramento, CA: Caltrans. [http://www.dot.ca.gov/hq/env/noise/pub/TeNS\\_Sept\\_2013A.pdf](http://www.dot.ca.gov/hq/env/noise/pub/TeNS_Sept_2013A.pdf).
- . 2013b (September) *Transportation and Construction Vibration Guidance Manual*. Sacramento, CA: Caltrans. [http://www.dot.ca.gov/hq/env/noise/pub/TCVGM\\_Sep13\\_FINAL.pdf](http://www.dot.ca.gov/hq/env/noise/pub/TCVGM_Sep13_FINAL.pdf).
- California, State of. 2015 (access date). *California Code of Regulations* (Title 14, Natural Resources; Division 6, Resources Agency; Chapter 3, Guidelines for Implementation of the California Environmental Quality Act). Sacramento, CA: the State.
- . 2015 (access date). *California Code of Regulations* (Title 5, Education; Division 1, California Department of Education; Chapter 13, School Facilities and Equipment; Subchapter 1, School Housing). Sacramento, CA: the State. [https://govt.westlaw.com/calregs/Index?transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/calregs/Index?transitionType=Default&contextData=(sc.Default)).
- Federal Aviation Administration (FAA). 2010 (as amended). *Federal Aviation Regulations* (Section 91.119). Washington, D.C.: FAA. <http://www.risingup.com/fars/info/part91-119-FAR.shtml>.

- Los Angeles, County of. 2015 (October 5, updated through). *Los Angeles County, California – Code of Ordinances* (Title 12, Environmental Protection; Chapter 12.08, Noise Control). Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles. [https://www.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances](https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances).
- Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.
- . 2015b (March). *Final Environmental Impact Report, Los Angeles County General Plan Update, County of Los Angeles*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan/eir>.
- . 2015c (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov>.
- . 2015d (August 20). Letter from DRP to G. Medeiros (Tejon Ranch Company); Regarding: Project No. R2013-01180-(5), Conditional Use Permit No. 201300064, 30830 310<sup>th</sup> Street West, Gorman. Los Angeles, CA: DRP. [http://planning.lacounty.gov/assets/upl/case/r2013-01180\\_approval-package.pdf](http://planning.lacounty.gov/assets/upl/case/r2013-01180_approval-package.pdf).
- . 2014 (October). *Final Environmental Impact Report, Antelope Valley Area Plan, County of Los Angeles*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc/environmental/>
- Miles, P. 2016 (March 22). Personal communication. Telephone and email correspondence from P. Miles, Aviation Safety Officer (California Department of Transportation, Division of Aeronautics) to J. Neary (BonTerra Psomas).
- National Geospatial-Intelligence Agency (NGIA). 2004 (September). *California Atlas of Military Aviation: Areas of Military Impact; State of California and Southern California*. Bethesda, MD: NGIA.
- Stantec Consulting Services, Inc. 2015 (October). *Centennial Specific Plan Traffic Study*. Irvine, CA: Stantec (Appendix 5.10-A).
- Thalheimer, E. 2000. Construction Noise Control Program and Mitigation Strategy as the Central Artery/Tunnel Project. *Noise Control Engineering Journal* 48(5), Sep–Oct. Indianapolis, IN: Institute of Noise Control Engineering.
- U.S. Department of Transportation, Federal Transit Administration (FTA). 2006 (May). *Transit Noise and Vibration Impact Assessment, FTA-VA-90-1003-06* (prepared by Harris Miller Miller & Hanson, Inc.). Washington, D.C.: FTA.
- Wieland Acoustics, Inc. 2011 (May). *Environmental Noise Study for the Proposed Centennial Specific Plan and Phase One Implementation in the County of Los Angeles*. Laguna Hills, CA: Wieland Acoustics (Appendix 5.12-A).

## 5.13 VISUAL RESOURCES

### 5.13.1 INTRODUCTION

#### Purpose

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that aesthetic issues be evaluated as part of the environmental documentation process. The impacts of the Project are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively.

#### Summary

The Project would result in significant and unavoidable impacts related to a change in visual character of the Project site, as experienced by viewers at public vantage points (primarily existing transportation thoroughfares including State Route [SR] 138 and 300<sup>th</sup> Street West). The Project proposes to preserve many existing features to minimize the visual alteration of the site, as listed in PDFs 13-1 through 13-6, as required for implementation through Mitigation Measures (MMs) 7-13 from Section 5.7, Biological Resources, and MMs 13-1 through 13-3. These include retention of rock outcroppings visible from off-site areas; use of landform/contour grading; use of landscaping designs that are similar to the natural topography; preservation of open space; use of native and regionally appropriate plant species in public landscape areas; provision of development setbacks from natural areas; and inclusion of aesthetically pleasing and consistent Project signing and monumentation both internally and externally. However, even with these features, the overall change to the site resulting from grading and development of the Project would be a substantial visual impact that may be perceived by some as an impact for which no additional feasible mitigation exists, and would therefore remain significant and unavoidable.

Views from existing public regional trails and bikeways would be limited due to both the distance and the intervening topography between these routes and the Project site, and would result in a less than significant impact. The United States Forest Service (USFS), Pacific Crest Trail Association (PCTA), Tejon Ranch Conservancy (Conservancy) and the Applicant have discussed the relocation of one segment of the Pacific Crest National Scenic Trail (PCT) that is currently located approximately 1.75 miles to the east-southeast at the nearest point from the site, so that it is generally aligned along 300<sup>th</sup> Street West between SR-138 and the northeastern corner of the Project site. The USFS and PCTA's acceptance of the conceptual future alignment in concert with the Project indicates their concurrence that this is an acceptable and preferable location over the existing alignment. It is anticipated that any structures that are proposed along PCT would be screened by a wall along the rear of the residences (see MM 13-4); additionally, a wide, landscaped setback containing the conceptual PCT realignment would ensure that the urban uses in the foreground would have

limited visibility and would therefore result in a less than significant impact with implementation of MM 13-4.

There are no State-designated scenic highways within 20 miles of the Project boundaries; SR-138 is not a State scenic highway, nor is it eligible for listing (Caltrans 2011). Thus, while there are features on and around the Project site that would be considered scenic by many, because these components of the overall visual character are not within the viewshed of a State-designated scenic highway, the proposed changes to the Project site would not result in impacts related to damaging scenic resources along a scenic highway.

The *Los Angeles County General Plan* does not identify any scenic highway near the site (DRP 2015a); however, the Antelope Valley Area Plan (AVAP) identifies Scenic Drives. Interstate (I)5, Gorman Post Road, SR-138, Old Ridge Road (Highway N-2), and Three Points Road are designated in the AVAP as Scenic Drives on and near the site. However, the site is also within the West Economic Opportunity Area and a Future Rural Town Area (DRP 2015b). A listing of applicable AVAP goals and policies is listed below in Section 5.13.3.

As the area is a rural environment with few existing land uses that emit ambient light, the Project site and surrounding areas do not contain bright or uniquely noticeable lighting, with the exception of the National Cement Plant, which has lighting at the facility and along the access road (i.e., National Cement Plant Road). The Project would introduce new light sources as part of future development. The Project would include preparation of an Exterior Lighting (photometric) Plan, also referred to as “the Dark Sky Plan”, to require outdoor lighting that minimizes glare and prevents light spillover beyond the Project site boundaries by using various techniques—which may include hooded street lights, directing light downward, and timers or sensors on lights—while maintaining consistency with County lighting and safety standards (MM 13-6). However, due to the existing low nighttime ambient light levels in the area, implementation of the Project would result in a significant and unavoidable impact by contributing a substantial new source of nighttime light and glare. In addition, because the Project site is currently undeveloped, new sources of daytime glare would be introduced and potential glare impacts would be greater than existing conditions; this would be considered a significant and unavoidable impact.

## Section Format

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce significant impacts; and level of significance after mitigation, if any. This information is presented in the following format (please refer to Section 2.0, Introduction, and Section 5.0, Environmental Setting, Impacts, and Mitigation, for descriptions of these topics):

- Introduction
  - Purpose
  - Summary

- Section Format
- References
- Viewsheds and Visual Distance Zones
- Relevant Plans, Policies, and Regulations
- Environmental Setting
- Project Design Features
- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- References

## References

All references cited for preparation of this analysis are listed in Section 5.13.10.

### 5.13.2 VIEWSHEDS AND VISUAL DISTANCE ZONES

This section describes the aesthetic character and landform features of the Project site and immediate vicinity and discusses potential visual impacts that could result from implementation of the Project by identifying (1) corridors from which the Project site can be seen; (2) “viewsheds” where the development area is most visible from public vantage points; (3) “prominent visual features”; and (4) typical examples of commercial and residential land uses that demonstrate potential changes in the visual character of the Project site.

A “viewpoint” is defined as a specific location from which a view perspective is taken. A “viewshed” is defined as a broader perspective of a geographic area and incorporates both close-range and long-range elements. “Prominent visual features”, as used in this section, are features that are unique to the west Antelope Valley and/or are prominent in relation to their relative surroundings. The “development area” is the portion of the Project site that will be developed.

To provide a standard frame of reference for the reader, the visual character within each of the viewsheds is described in terms of foreground, middleground, and background views. Each represents a portion of the total view, based on distance from the viewing location or “viewpoint”. The different view zones are described below.

- **Foreground Zone.** Visual elements in this zone can be seen at a close distance and typically dominate the entire view. View impacts on this zone are often considered to be substantial because they are visually prominent.



- **Middleground Zone.** Visual elements in this zone can be seen at a moderate distance and partially dominate the view.
- **Background Zone.** Visual elements in this zone can be seen at a long distance and typically do not dominate the view, but are part of the overall visual composition of the viewshed.

The delineation between one viewing range and the next is largely based on prominent transitions in landscape character and the reduction in visibility of the landscape features as distance increases; however, it should be noted that the judgments of such transitions are subjective.

### 5.13.3 RELEVANT PLANS, POLICIES, AND REGULATIONS

#### Federal

No federal plans and policies have been identified related to visual resources.

#### State

##### *California Department of Transportation State Scenic Highway Program*

Through the California Scenic Highway Program, the California Department of Transportation (Caltrans) classifies highways meeting specific criteria as “scenic” throughout California. The purpose of the program is to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of lands adjacent to highways. According to Caltrans, “a highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler’s enjoyment of the view” (Caltrans 2015).

#### County

##### *Los Angeles County General Plan and Antelope Valley Area Plan*

The *Los Angeles County General Plan* and the *Antelope Valley Area Plan (AVAP)*, which is part of the County General Plan, include goals and policies that address aesthetic issues in the unincorporated County area. Goals and policies in the AVAP that are relevant to the Project’s visual resources include those listed below.

#### Land Use Element

**Goal LU 1:** A land use pattern that maintains and enhances the rural character of the unincorporated Antelope Valley.

- **Policy LU 1.1:** Direct the majority of the unincorporated Antelope Valley’s future growth to rural town center areas and identified economic opportunity areas, through appropriate land use designations, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

- **Policy LU 1.2:** Limit the amount of potential development in rural preserve areas, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.
- **Policy LU 2.2:** Limit the amount of potential development within Scenic Resource Areas, including water features, significant ridgelines, and Hillside Management Areas, through appropriate land use designations, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

### Conservation and Open Space Element

**Goal COS 5:** The Antelope Valley's scenic resources, including scenic drives, water features, significant ridgelines, buttes, and Hillside Management Areas, are enjoyed by future generations.

- **Policy COS 5.2:** Except within economic opportunity areas, limit the amount of potential development in Scenic Resource Areas through appropriate land use designations with very low densities in order to minimize negative impacts from future development.
- **Policy COS 5.3:** Require new development in Hillside Management Areas to comply with applicable Zoning Code requirements, ensuring that development occurs on the most environmentally suitable portions of the land.
- **Policy COS 5.4:** Require appropriate development standards in Hillside Management Areas that minimize grading and alteration of the land's natural contours, ensure that development pads mimic natural contours, and ensure that individual structures are appropriately designed to minimize visual impacts.
- **Policy COS 5.7:** Ensure that incompatible development is discouraged in designated Scenic Drives by developing and implementing development standards and guidelines for development within identified viewsheds of these routes (Map 4.2: Antelope Valley Scenic Drives).

**Goal COS 14:** Energy infrastructure that is sensitive to the scenic qualities of the Antelope Valley and minimizes potential environmental impacts.

- **Policy COS 14.1:** Require that new transmission lines be placed underground whenever physically feasible.
- **Policy COS 14.2:** If new transmission lines cannot feasibly be placed underground due to physical constraints, require that they be collocated with existing transmission lines, or along existing transmission corridors, whenever physically feasible.
- **Policy COS 14.3:** If new transmission lines cannot feasibly be placed underground or feasibly collocated with existing transmission lines or along existing transmission corridors due to physical constraints, direct new transmission lines to locations where environmental and visual impacts will be minimized.
- **Policy COS 14.5:** Discourage the placement of new transmission lines through existing communities or through properties with existing residential uses.

- **Policy COS 14.7:** Require that electrical power lines in new residential developments be placed underground.

**Goal COS 15:** Humans and wildlife enjoy beautiful dark Antelope Valley skies unimpeded by light pollution.

- **Policy COS 15.1:** Ensure that outdoor lighting, including street lighting, is provided at the lowest possible level while maintaining safety.
- **Policy COS 15.2:** Prohibit continuous all-night outdoor lighting in rural areas, unless required for land uses with unique security concerns, such as fire stations, hospitals, and prisons.
- **Policy COS 15.4:** Require compliance with the provisions of the Rural Outdoor Lighting District throughout the unincorporated Antelope Valley.

**Goal COS 18:** Permanently preserved open space areas throughout the Antelope Valley.

- **Policy COS 18.3:** Maintain permanently preserved open space areas to ensure attractiveness and safety.

**Goal COS 19:** New development meets open space objectives while maintaining rural character.

- **Policy COS 19.1:** When new development is required to preserve open space, require designs with large contiguous open space areas that maximize protection of environmental and scenic resources.
- **Policy COS 19.3:** Pursue innovative strategies for open space acquisition and preservation through the land development process, such as Transfers of Development Rights, Land Banking, and Mitigation Banking, provided that such strategies preserve rural character.

#### Economic Development Element

- **Policy ED 1.16:** Preserve the scenic resources of the Antelope Valley, including Scenic Drives, Significant Ridgelines and Significant Ecological Areas, in such a way that can contribute to the economic activities in the area.

A consistency analysis of the Project with specific goals and policies in the County's relevant plans, policies, and regulations is provided in the Land Use, Entitlements, and Planning section (Section 5.8) of this document.

#### ***Rural Outdoor Lighting District Ordinance***

As adopted into Title 22 of the Los Angeles County Code, the County of Los Angeles created the Rural Outdoor Lighting District that includes the unincorporated areas of the Antelope Valley, the Santa Monica Mountains, Santa Catalina Island, the Angeles National Forest, Oat Mountain, and the portion of the Los Padres National Forest in Los Angeles County. This district is subject to guidelines for outdoor lighting that save energy; prevent light spillover;

and reduce sky glow from private developments, street lighting, outdoor recreation facilities, and signs.

## 5.13.4 ENVIRONMENTAL SETTING

### Scenic Highways and Drives

There are no Officially Designated/Adopted or Eligible Scenic Highways pursuant to the State Scenic Highway Program in the Project vicinity. The nearest Officially Designated/Adopted Scenic Highway is SR-2, which is located approximately 50 miles to the southeast of the Project site. The nearest Eligible Scenic Highway, a portion of SR-126, is located approximately 25 miles to the south (Caltrans 2011).

The County of Los Angeles, as part of its General Plan, has created a Scenic Highway Plan that conforms to the State Scenic Highway Program and does not identify any scenic highway near the site (DRP2015a). The AVAP, part of the General Plan, identifies Scenic Drives in the Antelope Valley, several of which are located on or near the site, including the following:

- I-5 from Castaic to the Kern County Line (west of the site).
- Gorman Post Road from SR-138 to Gorman (southwest and west of the site).
- SR-138 from Gorman Post Road to 245<sup>th</sup> Street West (south of and through the site).
- Old Ridge Road (Highway N-2) from SR-138 to Pine Canyon Road (south of the site).
- Pine Canyon Road from Old Ridge Road (Highway N-2) to Three Points Road (south of the site).
- Three Points Road from SR-138 to Pine Canyon Road (southeast of the site).

### Existing Visual Characteristics

#### *Topography and Aesthetic Characteristics*

The approximate 12,323-acre Project site is largely undeveloped and uninhabited. The vast majority of the Project site consists of open grasslands that are used for cattle grazing. Sizeable areas of oak woodland are located in the southern and western portions of the Project site that will be preserved as open space. Approximately 1,000 acres in the eastern portion of the Project site are under crop cultivation by the Tejon Ranch Company. Several unpaved and paved roads exist on the Project site, including the National Cement Plant Road that travels from the SR-138 to the off-site National Cement Plant; a portion of 300<sup>th</sup> Street West; and dirt roads that traverse the Project site. One residential home is located in the northern portion of the Project site adjacent to the eastern side of the West Branch of the California Aqueduct. An aerial depiction of the Project site and surrounding features are illustrated on Exhibits 3-3, Aerial Photograph and Project Boundary.

The rolling hills and varied topography on the Project site provide an aesthetically interesting backdrop. Unique natural aesthetic features on the Project site include seasonal wildflower fields throughout the grassland areas; oak woodlands in the western portion of

the site; and rock outcroppings and visually interesting boulders that occur throughout the site. The foothills of the Tehachapi Mountains make up the middleground and background views, with local hillsides dominating the foreground views throughout the valley floor. The Tehachapi Mountains that border the northern and western perimeter of the Project site, the San Gabriel Mountains to the south of the Project site, and Quail Lake to the south of the southwestern portion of the Project site constitute the most defining aesthetic features in the immediate area.

The Tehachapi Mountains reach an elevation of 4,800 feet above mean sea level (msl) to the northwest of the Project site. Moving southeast towards the Project site, the elevation of the Tehachapi Mountains gradually diminishes over a distance of 3 to 5 miles before reaching the valley floor, where elevations are approximately 3,000 feet above msl but rise again south of the Project site as the San Gabriel foothills are approached.

According to the United States Geological Survey's La Liebre Ranch 7.5-minute quadrangle map, the Project site is located in the northwestern portion of the Antelope Valley, with elevations that range from 3,000 to 4,250 feet above msl. The lowest portions of the Project site are located at the northeastern corner with an elevation of approximately 3,000 feet above msl, and along the eastern perimeter of the Project site with elevations ranging from approximately 2,980 to 3,025 feet above msl.

### ***Project Site Views***

The Project site is primarily visible from public roadways along the southern (SR-138) and eastern (300<sup>th</sup> Street West, 290<sup>th</sup> Street West, and Malinda Avenue) Project perimeters. Various locations along SR-138 provide the most publicly accessible views, and several adjacent off-site residences have observation points along SR-138, 300<sup>th</sup> Street West, 290<sup>th</sup> Street West, and Malinda Avenue. There are also intermittent views from the Pacific Crest National Scenic Trail (PCT), which are discussed further below. Because public access to the Project site is presently restricted, the Project site cannot be observed by the public from on-site locations.

SR-138 bisects the southern portion of the Project site in an east-west direction, reaching its lowest point at its intersection with 290<sup>th</sup> Street West. At this intersection, which is at the eastern boundary of the Project site, the elevation is approximately 3,025 feet above msl. As the SR-138 runs westerly toward its connection with Interstate 5 (I-5), the elevation gradually increases to approximately 3,360 feet above msl just past the western side of Quail Lake. Views from east of Quail Lake include the majority of the western Antelope Valley floor, including portions of the Project site, which are partially obscured by local hillsides. Views of the Project site from west of Quail Lake, are less visible and largely obscured by hillsides and topography.

The nearest local communities include Neenach and Three Points. Neenach is located approximately 2.5 miles east of the eastern boundary of the Project site, while Three Points is located approximately 4.0 miles southeast of the intersection of SR-138 and 290<sup>th</sup> Street West. Due to distance, views of the Project site are limited from residences in the Neenach community, except for residential properties directly adjacent to the eastern edge of the

Project site. Due to distance and intervening topography, views of the Project site are extremely limited from the residences in the Three Points community.

### ***Representative Public Views (Visual Simulation Views)***

Photographs of the existing conditions at each of the five representative public viewpoints, described below, are included alongside the visual simulations, which are discussed in the impact analysis later in this section. For ease of reference, these exhibits are first referenced in the discussion below and referenced again in the impact analysis. The “before” photograph associated with each simulation provides documentation of the baseline conditions and extent of Project site’s visibility from key public vantage points.

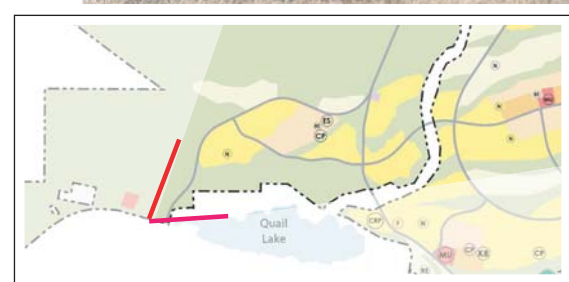
- **Viewpoint 1 – View from SR-138, approximately 1 mile east of the westernmost Project boundary, looking northeast.** Viewpoint 1, illustrated in Exhibit 5.13-1, Viewpoint 1 – Cement Plant Road Realignment Simulation, is the view from SR-138 looking northeast at the southern portion of the site to the west of the California Aqueduct. The most common observers from this vantage point would be passing motorists travelling east on SR-138. Foreground views show gently sloping, vacant land on the Project site (which is characteristic of the surrounding valley) and SR-138 with wire ranch fencing along the north side of the road. Middleground views show the local foothills, also typical of the immediate area. These foothills are approximately 150 to 200 feet above the valley floor as viewed from SR-138. The prominent visual features of this viewshed are the local foothills and the vegetation.
- **Viewpoint 2 –View from SR-138, approximately 3½ miles east of the westernmost Project boundary, looking northwest.** Viewpoint 2, illustrated in Exhibit 5.13-2, Viewpoint 2 – Project Entrance Simulation, is the view from SR-138 looking northwest at the National Cement Road as it travels through the site. The most common observers from this vantage point would be passing motorists on SR-138 and nearby residences along SR-138. Foreground views show National Cement Road and adjacent flat, vacant land on the Project site, which is characteristic of the surrounding valley. Middleground views show a line of power poles with transmission lines within the local foothills. The Tehachapi Mountains are visible in the background view. The local foothills and the Tehachapi Mountains constitute the prominent visual features in this viewshed.
- **Viewpoint 3 – View from SR-138, approximately 5½ miles east of the westernmost Project boundary, looking north-northwest.** Viewpoint 3, illustrated in Exhibit 5.13-3, Viewpoint 3 – Town Center Entrance Simulation, is the view from SR-138 looking north-northwest at the southern portion of the site to the east of the California Aqueduct. The most common observers from this vantage point would be passing motorists traveling along SR-138. Foreground views show gently sloping, vacant land on the Project site and SR-138 and a line of wire fencing along the north side of the road. Middleground views show the local foothills on the Project site, and the Tehachapi Mountains are visible in the background view. The local foothills and the Tehachapi Mountains constitute the prominent visual features in this viewshed.



BEFORE



AFTER



D:\Projects\CEN\Centennial\GRAPHICS\EIR\EX\_view\_sim\_A\_20151007.ai

Source: Placeworks 2015

## Viewpoint 1 – Cement Plant Road Realignment Simulation

*Centennial Project*

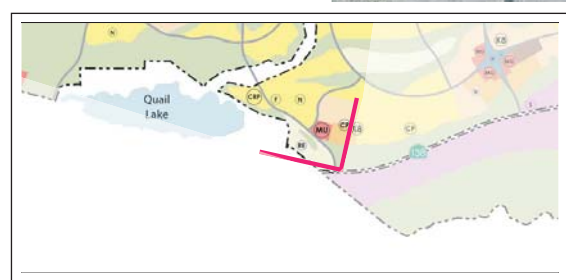
Exhibit 5.13-1



BEFORE



AFTER



D:\Projects\CEN\Centennial\GRAPHICSEIRE\EX\_view\_sim\_B\_20151007.ai

Source: Placeworks 2015

### Viewpoint 2 – Project Entrance Simulation

*Centennial Project*

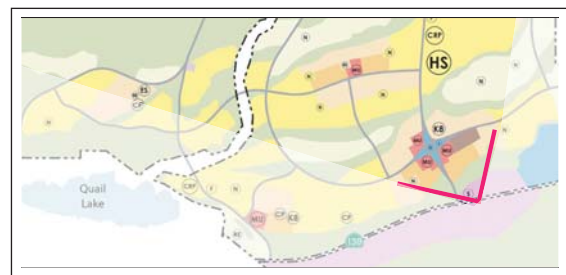
Exhibit 5.13-2



BEFORE



AFTER



D:\Projects\CEN\Centennial\GRAPHICSEIRE\EX\_view\_sim\_C\_20151007.ai

Source: Placeworks 2015

### Viewpoint 3 – Town Center Entrance Simulation

*Centennial Project*

Exhibit 5.13-3

- **Viewpoint 4–View from SR-138, approximately 5¾ miles east of the westernmost Project boundary, looking south.** Viewpoint 4, illustrated in Exhibit 5.13-4, Viewpoint 4 – Business Park Simulation, is the view from SR-138 looking generally south from the southern end of proposed business park land uses. The most common observers from this vantage point would be passing motorists along SR-138. Foreground views show flat, vacant land on the Project site and SR-138 with wire ranch fencing along the south side of the road. Middleground views show the local foothills of the San Gabriel Mountains, covered with trees and other vegetation. These foothills are approximately 100 feet above the valley floor as viewed from SR-138. The prominent visual features of this viewshed are the local foothills.
- **Viewpoint 5– View from the intersection of SR-138 and 300<sup>th</sup> Street West, located near the eastern Project boundary, looking northwest.** Viewpoint 5, illustrated in Exhibit 5.13-5, Viewpoint 5 – 300<sup>th</sup> Street West Simulation, is the view from the intersection of SR-138 and 300<sup>th</sup> Street West looking northwest at the southeast portion Project site. The most common observer from this vantage point would be passing motorists traveling along either SR-138 or 300<sup>th</sup> Street West, and residences in the vicinity of this intersection. This viewpoint provides a broad view of the Project site situated east of the California Aqueduct. Foreground views show that SR-138 and 300<sup>th</sup> Street West are both lined by power poles and wire ranch fencing that extend into the middleground. Middleground views show the flat, vacant land on the Project site transitioning to foothills. The land in the northeast corner of the intersection is not part of the Project site. The Tehachapi Mountains are visible in the background. The prominent visual features of this viewshed are the local foothills and the Tehachapi Mountains.

### Views from the Pacific Crest National Scenic Trail

The PCT is the most notable trail in the western United States, extending from Mexico to Canada. Locally, the PCT extends through the Angeles National Forest (ANF) and provides views of the Antelope Valley, including rural/agricultural and suburban land development, varied terrain, vegetation, wilderness, and both the Tehachapi and San Gabriel Mountains, depending on location. The existing alignment of the portion of the PCT which is nearest the Project site travels due north where it emerges from the ANF and aligns with 270<sup>th</sup> Street West and turns due east at the California Aqueduct for approximately one mile to the bridge at Three Points Road. From there, the PCT continues generally moving in a northeasterly direction into the Tehachapi Mountains.<sup>1</sup> Exhibit 5.14-2, Trails and Bikeways in the Project Vicinity, depicts the existing alignment of the PCT. Distant views of portions of the Project site are intermittently visible from segments of an approximate two-mile stretch of the trail that passes through the Three Points area. However, due to distance and/or intervening topography, views of the Project site from the existing PCT alignment are very limited and do not substantially contribute to the visual experience of users of the existing PCT alignment.

The PCT has an existing alternative alignment referred to as the “1973 Permanent Alignment”. The 1973 Permanent Alignment begins where the trail intersects SR-138 and

<sup>1</sup> The existing alignment described is based on the Google Earth .kmz layer provided by the USDA Forest Service.



BEFORE



AFTER



D:\Projects\CEN\Centennial\GRAPHICSEIRE\EX\_view\_sim\_D\_20151007.ai

Source: Placeworks 2015

### Viewpoint 4 – Business Park Simulation

*Centennial Project*

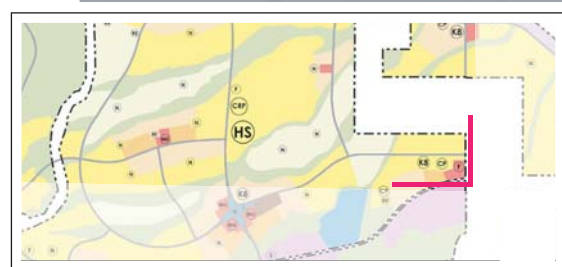
Exhibit 5.13-4



BEFORE



AFTER



D:\Projects\CEN\Centennial\GRAPHICSEIRE\EX\_view\_sim\_E\_20160412.ai

Source: Placeworks 2015

### Viewpoint #5 – 300th Street West Simulation

*Centennial Project*

Exhibit 5.13-5

Pine Canyon Road. Across from this alignment of the trail is Oso Canyon, which is parallel to the West Branch of the California Aqueduct, which runs through the center of the Project site. However, approving the relocation of a public access trail near a major water facility in a “post-September 11, 2001”, era is unlikely.

The USFS, PCTA, Conservancy, and Tejon Ranch Company are in ongoing discussions regarding an alternative realignment for the PCT. Specifically, the USFS, PCTA, Conservancy, and Tejon Ranch Company are discussing the relocation of one segment of the PCT that currently crosses Lancaster Road at 270<sup>th</sup> Street West approximately 1.75 miles east-southeast of the Project site so that it is generally aligned along 300<sup>th</sup> Street West between SR-138 and the northeastern corner of the Project site. Where this conceptual realignment would cross the Project site, a portion of 300<sup>th</sup> Street West’s right-of-way has been reserved for the PCT alignment. At this time, the 300<sup>th</sup> Street West alignment described above is assumed to be the conceptual future realignment for PCT in this EIR. Views from the conceptual PCT future realignment along 300<sup>th</sup> Street West would also have direct views of portions of the Project site, the foothills, and the Tehachapi Mountains, as depicted in Exhibit 5.13-5 (Viewpoint 5). The existing alignment of this segment of the PCT has broad views of flat-lying areas developed with rural/agricultural and older suburban land uses. The conceptual realignment also has views of flat-lying areas of agricultural land and scattered rural residences. Refer to Section 5.14, Parks and Recreation, for additional information on the PCT.

## Light and Glare

The Project site is currently undeveloped, uninhabited, and located in a rural area. In the surrounding area, the predominant land uses include scattered, large lot homes and agricultural uses. These existing land uses and their associated activities, most notably vehicular traffic, generate very little light and glare in the surrounding area. Current lighting on the Project site is sporadic and is generated from (1) residences located to the east and south of the Project site and (2) security lighting at land uses located on and off the site (which include the National Cement Plant, the High Desert Hunt Club, existing residences along 300<sup>th</sup> Street West and 290<sup>th</sup> Street West, the Quail Lake Skypark Airport, and the Southern California Edison Bailey Substation facility). Existing light and glare sources (with the exception of the National Cement Plant) are considered to be typical of rural areas in the western Antelope Valley.

### 5.13.5 PROJECT DESIGN FEATURES

- PDF 13-1** The Project provides a plant palette that requires the use of native, drought-tolerant, and adopted species of trees, grasses, and flowers tailored to the unique environmental conditions of the Project site and prohibits use of invasive species. Native, drought-tolerant, and adopted plant species that can adapt to site conditions (dry summers) to reduce irrigation needs will be used.
- PDF 13-2** The Project’s Design Guidelines include a lighting design that responds to the requirements of a variety of land uses and environmental conditions created by the Project. Street, parking lot, and structural lighting fixtures shall provide

adequate illumination for safety and comfort of vehicular and pedestrian traffic while minimizing light spillover.

**PDF 13-3** The Project's Green Development Program requires the following measures:

- Site the highest density residential uses in areas adjacent to commercial centers and permit residential uses in commercial centers through the Mixed Use Overlay to place larger populations within key centers, encouraging pedestrian activity and a reduction in vehicle trips.
- Preserve oak woodlands, savannahs, and other sensitive habitat areas near Oso Canyon and at the foot of the San Gabriel Mountains southerly of SR-138.
- Exterior lighting shall not cause unacceptable light trespass and shall be fully shielded.
- Outdoor lighting shall be turned off using automatic control devices or systems between the hours of 10:00 PM and sunrise of the following day in commercial, business park, and mixed use areas, unless required by the County Building Code. If the property operates beyond 10:00 PM, then outdoor lighting shall be turned off one hour after the operation ends for the day.
- Outdoor lighting for safety and security reasons is allowed after 10:00 PM only if fully shielded motion sensors are used to turn on lighting after 10:00 PM and the sensors turn the lighting off automatically no more than 10 minutes after the area is vacated, or if at least 50 percent of the total lumen levels are reduced or 50 percent of the total outdoor light fixtures are turned off between 10:00 PM and sunrise.
- Outdoor lighting in residential and open space areas that are over 15 feet in height shall have an output no greater than 400 lumens.
- The maximum height of outdoor lighting fixtures shall be:
  - 20 feet in Residential and Open Space areas.
  - 30 feet in Commercial, Mixed Use, and Public areas.
  - 35 feet in Business Park areas.
- Prohibit the use of outdoor lighting that includes drop-down lenses; mercury vapor lights; ultraviolet lights; search lights; laser lights; and any outdoor lighting that flashes, blinks, alternates, or moves unless mandated for health and safety reasons by a public agency.
- Outdoor light fixtures in outdoor recreational areas shall be mounted, aimed, and fully shielded so that light beams fall onto activity areas and no unacceptable light trespass occurs on surrounding areas or properties. Outdoor lighting shall only provide the minimum necessary to illuminate recreational activity areas and shall be no more than 75 feet high.

Preferably, these fixtures shall also use high pressure sodium or metal halide lamps.

- Outdoor advertising signs, business signs, and roof and freestanding signs that are lighted shall be fully shielded. Externally mounted light fixtures shall be mounted on the top of the sign and shall be oriented downward. Externally mounted bulbs or lighting tubes for signs shall not be visible from adjoining properties or public rights-of-way, unless such bulbs or tubes are filled with neon, argon, krypton or other self-illuminating substance.

**PDF 13-4** Of the 12,323 acres on the Project site, approximately 5,624 acres would be included in the Open Space land use designation. Of the 5,624 acres of designated Open Space, approximately 5,116 acres (42 percent of the total Project site) are intended to (1) remain in their original natural condition; (2) be restored; and/or (3) be enhanced by weed abatement, fencing, and native species planting, among other means. Of this amount, approximately 3,866 acres are designated as Significant Ecological Area (SEA) 17 to be preserved within the Project site boundaries.

**PDF 13-5** Approximately 3,866 on-site acres and the 23,547 off-site acres would comprise the 27,413-acre Open Space Preserve to be protected in perpetuity. When considering the amount of on-site and off-site lands compared to the total disturbed/developed areas within the Project boundaries based on the Grading Plan, almost four times as much land would be conserved within Tejon-owned property as would be developed.

**PDF 13-6** A new on-site dry utility backbone system consisting of joint and sole electric, natural gas, telephone, and cable television facilities would be installed underground within the roadway rights-of-way. The existing off-site 66-kilovolt (kV) electric lines that extend along State Route (SR)138, which passes adjacent to Quail Lake, would be relocated south of the Business Park area and may be placed underground, if feasible.

### 5.13.6 THRESHOLD CRITERIA

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact if it would:

**Threshold 13-1** Have a substantial adverse effect on a scenic vista.

**Threshold 13-2** Be visible from or will obstruct views from a regional riding or hiking trail.

**Threshold 13-3** Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.

- Threshold 13-4** Substantially degrade the existing visual character or quality of the site and its surroundings because of height, bulk, pattern, scale, character, or other features.
- Threshold 13-5** Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

### 5.13.7 ENVIRONMENTAL IMPACTS

In this impact analysis, the thresholds are taken out of order to better group issues for analysis.

- Threshold 13-1** **Would the proposed project have a substantial adverse effect on a scenic vista?**
- Threshold 13-4** **Would the project substantially degrade the existing visual character or quality of the site and its surroundings because of height, bulk, pattern, scale, character, or other features?**

Typically, viewsheds are those areas most visible to three types of viewing audiences: (1) persons in vehicles, (2) permanent residents, and (3) public recreational audiences. However, the Project site is currently uninhabited and provides no public access onto the site. Consequently, SR-138 provides the primary Project viewshed corridor. 300<sup>th</sup> Street West, 290<sup>th</sup> Street West, and Malinda Avenue are also Project viewshed corridors, primarily used by the local population. The analysis of the change in the Project site's visual character focuses on views along SR-138 and 300<sup>th</sup> Street West.

### On-Site Impacts

#### *Construction Phases*

Project construction would occur in phases over an approximate 20-year period. Areas where the natural open space is proposed to be preserved would either remain untouched or, if disturbance is required, the open space would be restored to its pre-development condition. Roadways and utilities (such as water, wastewater, gas, electric, and cable) would be constructed prior to the development of the structures. The transition from open space to graded lots to framed structures to finished buildings with landscaping would occur in phases over each area, and would occur in a consistent sequence over time. As the structures are constructed and finished, the scale of the Project and changes to the visual character of the Project site would become more evident. Changes to the visual character of the Project site and surrounding areas would occur gradually over the course of the 20-year construction timeframe. Although views of construction activity and incremental development would be periodic and temporary, the resulting change in topography due to grading and development of land uses would be permanent. Construction of the Project would result in a significant and unavoidable impact to visual character and quality of the site and its surroundings as the Project site transitions from open space to developed land uses.



## ***Project Buildout and Occupation***

### Views of the Site

Project implementation would change the overall aesthetic nature of the Project site from an undeveloped, rural landscape to a developed urban community. The analysis of these thresholds focuses largely on what is and would be visible from the location of publicly accessible viewpoints, rather than a subjective determination (of what is or is not an impact) based on the inherent character and quality of the land uses proposed on the site; this is discussed further below.

To capture the existing visual characteristics of the site currently available to the public, photographs were taken from representative public vantage points surrounding the Project site, as discussed above. Five views were selected which, collectively, best represent public observation points along SR-138 and 300<sup>th</sup> Street West to document the existing visual characteristics of the area. To assess the visual impact of the Project, these five viewpoints (Viewpoints 1 through 5) were selected to compare the current visual characteristics of the Project site and surrounding area from public vantage points (i.e., the site's major transportation connection, SR-138, and the residences located east of the Project site) with those that would occur in the developed condition via visual simulations. These five viewpoints were selected to provide representative viewsheds of the Project site.

Computer-modeling techniques were employed to simulate post-development conditions on the Project site and to illustrate the possible placement of future development. This was done for the five representative public viewpoints in Exhibits 5.13-1 through 5.13-5. To simulate post-buildout views of the site, a three-step process was involved: (1) viewsheds were chosen on the basis of field surveys; (2) photographs were then taken of the chosen viewsheds; and (3) typical building heights, massing, setbacks, and open space areas were plotted based on the Project's Conceptual Land Use Plan (see Exhibit 4-1). In Exhibits 5.13-1 through 5.13-5, the "before" view is provided beside the simulation in order to allow the reader to compare the Project site's "before" to the "after" view that would result with Project implementation.

The building setbacks for the Project would be highly varied based on several intersecting factors, including the land use designation, where the setback would be provided (i.e., front yard, side yard, rear yard), and between what two land uses the setback would extend (i.e., front entry garage, covered porch, corner lot on public street). At buildout of the Project, it is anticipated that the full range of building architecture, colors, and roofing materials would be represented on the Project site. The ultimate building sizes and types of building materials and colors would be determined at the time individual elements of the Project are submitted for building permits. These buildings must be consistent with the Design Principles as outlined in Appendix 2-A of the Specific Plan. The following discussion evaluates the Project's impact on the "before" views from each of the five representative public viewpoints illustrated in Exhibits 5.13-1 through 5.13-5.

### *Viewpoint 1*

Exhibit 5.13-1, Viewpoint 1 – Cement Plant Road Realignment Simulation, shows the before and after views that a motorist traveling on SR-138 would have of the southwestern portion of the Project site. As shown in the “after” view, foreground views to the north of SR-138 would include large truck traffic traveling along the realigned road to and from the National Cement Plant. The majority of the foreground, middleground, and background views would not substantively change from their existing setting, with the exception of the hillside cut to accommodate of National Cement Plant Road realignment. Some new trees and vegetation would be planted near the intersection of the newly realigned Cement Plant Road and SR-138. The proposed very low, low, and medium density residential, parks, school, and small utility area would be located beyond the high point of the low hill in the middleground and just beyond the truck in the “after” view. Therefore, these lands uses would not be visible from SR-138 when traveling from the west. The low hills in this view and on-site lands to the west would remain undeveloped and would be designated as Open Space.

### *Viewpoint 2*

Exhibit 5.13-2, Viewpoint 2 – Project Entrance Simulation, shows the before and after views that a motorist traveling on SR-138 would have of the Project site’s primary Project entrance, which is situated at the existing National Cement Plant Road’s intersection with SR-138. As shown in the “after” view, foreground views to the northeast of SR-138 would consist of a widened and split roadway in the same general configuration as the existing roadway. The proposed Recreation/Entertainment overlay to the left of the entrance would be visible, here visualized as a vineyard, in the foreground. In the middleground, the proposed Residential (Low, Medium, and High Density), Mixed-Use Commercial, and Kindergarten (K) through 8<sup>th</sup> grade school land uses would be partially visible beyond the landscaped slopes transitioning from the roadway to developed areas. New landscaping would also be visible along the entrance roadway. As per PDF 13-1 (as implemented by MM 7-13 in Section 5.7, Biological Resources), the Project’s plant palette would be incorporated into the Project’s Landscaping Plan and would require use of non-invasive species that are adapted to the conditions found on the Project site and do not require high irrigation rates. The Landscaping Plan would also include a list of invasive plant species prohibited from being planted on the Project site. In addition, retail sales of these invasive plant species would be prohibited at any businesses (nurseries) located within the Project site.

The foothills would be graded to accommodate the proposed development. As shown, background views of the Tehachapi Mountains would be more visible with grading of the local foothills. However, the middleground views of the local foothills would be replaced with views of the proposed landscaping and development.

### *Viewpoint 3*

Exhibit 5.13-3, Viewpoint 3 – Town Center Entrance Simulation, shows the before and after views that a motorist traveling on SR-138 would have immediately east of the Town Center entrance, one of the main community entrances to the Project site. As shown in the “after” view, changes to the foreground views would involve replacing the wire ranch fencing with horizontal slat wooden fencing and installing landscaping along the SR-138 and the

proposed on-site roadway. As shown, preserved Open Space would transition to a landscaped slope and then to proposed High Density and Very High Density Residential land uses in the middleground view. As with Viewpoint 2, the foothills would be graded to accommodate the proposed development. As shown, background views of the Tehachapi Mountains would be more visible with the grading of the local foothills. However, the middleground views of the local foothills would be replaced with views of the proposed landscaping and development.

#### *Viewpoint 4*

Exhibit 5.13-4, Viewpoint 4 – Business Park Simulation, shows the before and after views that a motorist traveling on SR-138 would have of the proposed Business Park land uses situated on the south side of SR-138. As shown in the “after” view, changes to the foreground views would involve replacing the wire ranch fencing with horizontal slat wooden fencing and installation of landscaping along the SR-138. As shown, a slope would be built up and landscaped between the fence and the proposed Business Park land uses in the middleground view. Although screened by the mature landscaping in the foreground, the multi-story buildings associated with the Business Park land use designation would be partially visible. Views of the local foothills in the background view would be partly obstructed by the proposed structures.

#### *Viewpoint 5*

Exhibit 5.13-5, Viewpoint 5 – 300<sup>th</sup> Street West Simulation, shows the before and after views that a motorist traveling on SR-138 would have of the southeast portion of the Project site. As shown in the “after” view, foreground views would include the landscaped rights-of-way along SR-138 and 300<sup>th</sup> Street West and the Commercial land uses proposed at this corner. Beyond the commercial development, primarily Low and Medium Density Residential land uses and associated landscaping would be visible in the middleground. In the after view, a widened landscape setback is present along the west side of 300<sup>th</sup> Street West to accommodate the anticipated realignment of the PCT adjacent to the Project site. Views of the local foothills and/or the Tehachapi Mountains in the background view would be partly obstructed by proposed structures.

### Visual Character Analysis

The level of impact to the visual character from each of the five view locations is subjective and largely depends on the observer’s location and individual perception of his/her surroundings. In contrast, the analysis above has largely focused on the viewpoint’s location. This method is more impartial when compared to one that requires a subjective determination of what is or is not an impact based on the character and quality of the land uses proposed on site. The visual simulations illustrate that Project implementation would result in an impact that is largely dependent on (1) the location of the observer and (2) the existing rural nature of the western Antelope Valley. These two factors are discussed below.

### *Location of the Observer*

The closer the observer is to the land uses proposed on the Project site, the greater the potential that the middleground and background views of distant ridgelines (scenic vistas) would be obstructed. This effect is apparent in each of the visual simulation viewpoints (Viewpoints 1 through 5). As SR-138 is the main observational corridor under existing and proposed conditions, observers along this corridor would generally see only the structures that are proposed adjacent to the highway in the foreground, thus screening portions of the middleground and background views of the local foothills on and near the Project site and the distant mountains from view.

It is the Applicant's intent to minimize such impacts to the extent possible by having setback requirements and other development standards (such as building height, signage, and parking standards) for proposed land uses along the main public thoroughfares so that development is removed farther from the road where feasible. Certain grading and planting design requirements would be used to ensure that manufactured slopes transition smoothly to natural grades. There are existing rock outcroppings located within the hillsides on the Project site that could be significantly changed by Project development. However, MM 13-1 would require that, during grading and development of the Project, rock outcroppings that are visible from SR-138 would be preserved to the extent feasible. Rock outcroppings in the northwestern corner of the Project site in Oso Canyon are contained within designated Open Space areas and would be preserved.

As an observer moves farther away from the Project site, the middleground and background views of distant foothills and ridgelines would become more visible. For observers from off-site residences (along SR-138, 300<sup>th</sup> Street West, 290<sup>th</sup> Street West, Malinda Avenue, and from the Neenach and Three Points communities), views of the Project site's developed areas would depend on their distance to the site and the presence of intervening landforms, vegetation, and structures. However, views of the most prominent and dramatic visual feature in the area, the Tehachapi Mountains, would not be obstructed from these locations. From the Quail Lake area, the foreground and background views would remain unchanged, with only a small portion of the land uses associated with the Project area visible in the middleground.

Overall, Project implementation would result in a significant change to the visual character of the Project site and its surrounding area by obstructing some views of the local foothills and the Tehachapi Mountains and by changing the Project site's condition from rural to urban. Because the overall change is in significant contrast to the existing rural and open qualities of the pre-Project conditions, the impact from the perspective of local observers is considered to be significant and unavoidable.

### *Rural Nature of Western Antelope Valley*

Currently, the western Antelope Valley is mostly vacant, relatively undeveloped, and rural in character. The development of 19,333 dwelling units and approximately 10.0 million square feet of non-residential land uses throughout the Project site would represent a significant change to the character of the surrounding western Antelope Valley. The visual simulations prepared for Viewpoint 1 (see Exhibit 5.13-1) and Viewpoint 5 (see Exhibit 5.13-5) together

best represent the overall size and context of the Project within the surrounding area, as these views encompass the majority of the site on the east side of the California Aqueduct. Development of the Project would change the character within the majority of the Project site from rural to urban. Approximately 56 percent of the Project site would be mass-graded and developed, which would result in recontouring natural slopes; introducing new residential, commercial, and industrial structures; and adding streets and other appurtenant development associated with a new urban community. Although the landform changes proposed to accommodate the Project would alter the existing condition, views of the background ridgelines located off site (which surround the Project site) would largely remain. Grading for the creation of building pads and manufactured slopes would preserve existing rock outcroppings that are visible from off-site locations (see MM 13-1). Curvilinear street design and other improvements have been incorporated into Project design to emulate the natural contours of the existing topography.

As previously indicated, the Project site consists of gently rolling hills and flatlands, much of which has been used for cattle grazing for many decades. The Project has been designed to cluster development on the flattest areas of the site. The proposed development pattern would be clustered to minimize impacts to dense stands of oak trees, steep slopes, and existing natural drainages (see MM 13-2). Of the 12,323 acres on the Project site, approximately 5,624 acres would be included in the Open Space land use designation (PDF 13-4). Of this amount, approximately 3,866 acres are designated as SEA 17 to be preserved within the Project site boundaries, in addition to 23,547 off-site acres, which would comprise the Open Space Preserve to be protected in perpetuity (PDF 13-5). Graded slope faces would be revegetated with native or naturalized plants and grasses that will blend with the surrounding terrain, where appropriate.

Implementation of the Project would convert the Project site from a rural to an urban condition and would partially to wholly obstruct existing views across the site; views of the local foothills; and/or distant views of the Tehachapi and San Gabriel Mountains. As there is no additional, feasible mitigation for these changes to visual character, this is considered a significant and unavoidable impact to the visual character of the Project site and the surrounding area.

## **Off-Site Impacts**

Off-site Project features are individually small in scale and most would be located underground or at grade (i.e., wet utility pipelines, dry utility extensions, and acceleration and deceleration lanes along the SR-138). Proposed improvements located in Caltrans' right-of-way are limited both in scale and geographic extent, and would not result in above-ground structures that could substantially affect the visual character of the area. In the context of the Project as a whole, these features would not be noticeable as a substantial change to the viewshed. The utility lines along SR-138 would require relocation within the immediate area (i.e., movement of poles and lines to a nearby position); however, in the context of the Project development, these features would not be a substantial change to the viewshed because overhead utility lines already exist along SR-138 and they would not, therefore, be a new visual element as a result of the Project. Additionally, per PDF 13-6, as implemented by MM 13-3, off-site electrical lines may be placed underground in the vicinity

of Quail Lake. However, because these features are necessary to fully implement the Project and because the undergrounding of utilities near SR-138 is not certain, they would contribute to the significant and unavoidable impact to the visual character of the Project area.

The existing off-site Tejon Water Bank and proposed well locations are currently comprised of open space at the edge of the low, rolling foothills of the Tehachapi Mountains, identified as a dominant aesthetic feature of the area. The well locations at the Water Bank would have a very low profile and would only be intermittently visible by motorists along 300<sup>th</sup> Street West and trail users on the PCT. The off-site wells and the portion of the pipeline traversing the East Branch of the Aqueduct, by themselves, would not substantially affect a scenic vista or degrade the visual quality of the sites or the surrounding areas due to (1) the small scale of the aboveground structures at the well locations; (2) pipeline alignment over the Aqueduct via an existing bridge structure; and (3) the scattered location of the proposed improvements.

The potential widening expansion of the existing bridge of the West Branch of the Aqueduct would have minimal visual impact because the incremental expansion would not be a visually prominent change to the existing condition. The newly proposed bridge crossing over the West Branch of the Aqueduct would be visible by viewers in the immediate area and would alter the visual character of the portion of the Aqueduct that bisects the Project site. Because these roadway and bridge improvements, off-site wells, and utility improvements are part of the larger development Project, they would contribute to the significant and unavoidable impact to the visual character of the Project area.

**Impact Summary:** The Project would result in significant and unavoidable impacts related to a change in visual character experienced from public vantage points (primarily transportation thoroughfares including SR-138, 300<sup>th</sup> Street West, 290<sup>th</sup> Street West, and Malinda Avenue). Visual character impacts related to grading and development of the Project would be reduced through implementation of PDF 13-4, PDF 13-5, MM 7-13, MM 13-1, MM 13-2, and MM 13-3; however, the change of the Project site from a rural to urban condition and the varying degrees of obstruction of existing views of local foothills and the Tehachapi Mountains would be considered a significant unavoidable impact, for which no additional feasible mitigation exists.

**Threshold 13-2**      **Would the project be visible from or obstruct views from a regional riding or hiking trail?**

## **On-Site Impacts**

As discussed above, the majority of Project site observers are either passing motorists and travelers on SR-138 or other surrounding roadways or residents and visitors of immediately adjacent, off-site properties. As discussed fully in Section 5.14, Parks and Recreation, there are a variety of federal, State, and County trails in the Project area; however, due to distance

and/or topography, there are limited views of the Project site from these trails. The following discussion describes views of the Project from trails and bikeways in the Project area, if any.

From the existing alignment of the PCT, the Tehachapi and San Gabriel Mountains are the prominent visual features in the background. Distant views of the Project site are available in some locations along the PCT, but are often blocked by the foothills. Project development would not block any views from the PCT's current alignment. Additionally, views from the PCT of the Project site's visual character changes would be infrequent due to intervening topography. Therefore, impacts to the current alignment of the PCT would be less than significant.

As a result of ongoing coordination, the USFS, PCTA, Conservancy, and Tejon Ranch Company are discussing the relocation of one segment of the PCT that currently crosses Lancaster Road at 270<sup>th</sup> Street West approximately 1.75 miles east of the Project site so that it is generally aligned along 300<sup>th</sup> Street West between SR-138 and the northeastern corner of the Project site. The USFS and PCTA's agreement on the conceptual future realignment in concert with the Project indicates their concurrence that this is an acceptable and preferable location over the existing alignment. Views from the conceptual realignment of the PCT, if approved, would be of development on the Project site, the adjacent foothills, and the distant Tehachapi Mountains. The conceptual realignment of this segment of the PCT has broad views of flat-lying areas developed with rural/agricultural and older suburban land uses. Development on the eastern section of the site would present trail users with views of residential, commercial, and business park structures along 300<sup>th</sup> Street West for a distance of approximately 1½ miles. MM 13-4 requires that structures proposed along the PCT alignment be screened by a block wall along the rear of the structures and a wide, landscaped setback that would contain the conceptual PCT realignment. These features would ensure that the on-site urban uses in the foreground of views from the trail, as it passes through the site, would have limited visibility. The location and design of the conceptual PCT realignment is intended to be a similar (i.e., some rural/agricultural uses and some land development) to comparatively better than views from the existing alignment. Therefore, views from the conceptual future realignment of the portion of the PCT along 300<sup>th</sup> Street West would be reduced to a less than significant level.

County of Los Angeles Trail Number 113 is a historic California Riding and Hiking Trail and is located approximately ten miles east of the Project site. Because of the distance and intervening topography, it would not have views of the Project site. Other County trails exist in the ANF, but are situated near Castaic Lake, approximately 15 miles to the south of the Project site. These trails include Cliffie Stone Trail, North Park Trail, and Hasley Canyon Trail. The ANF offers 557 miles of hiking and equestrian trails south of the site. Some local trails include Cienega Loop, Warm Springs Necktie Trail, Fish Canyon Trail, and Castaic Lake Trail in Castaic and Gillette Mine Trail in Lake Hughes. Views of the Project site from these trails are not available due to distance and intervening topography and vegetation.

In addition, it is noted that the Tejon Ranch property (where the Project site is located) extends northward into Kern County. Official Los Angeles County trails are non-existent in this area. Additionally, there is little-to-no trail connectivity between the Kern County trail

system and the Los Angeles County trail system, other than the PCT, which extends from Mexico to Canada.

As the views of the Project site from existing trails are currently blocked or infrequent due to distance and intervening topography and vegetation and because development associated with the Project would not block major views from these trails, less than significant visual impacts are expected.

There is no existing regional bikeway near the site, but the Los Angeles County Bicycle Master Plan shows a proposed Class 3 bike route on Old Ridge Road (Highway N-2), just south of SR-138. The Project site is visible from Old Ridge Road (Highway N-2) and views would change as the low hills on the site are replaced with urban development. This change in view would be confined to the developed portions of the site, but open space areas would remain around the site and views of the Tehachapi Mountains that dominate this view would not be obstructed. This site would also be visible only from the northern section of this bike route. This impact is considered less than significant.

## Off-Site Impacts

As discussed above, the proposed PCT alignment would have views of development on the Project site, the adjacent foothills, and the distant Tehachapi Mountains. Off-site Project features are individually small in scale and most would be located underground or at grade (i.e., wet utility pipelines, dry utility extensions, acceleration and deceleration lanes along the SR-138), and would not obstruct views from the PCT. The proposed wells and utility lines at the Water Bank would be visible to trail users on the PCT but would have a very low profile. The potential widening and expansion of the existing bridge on the West Branch of the Aqueduct would also have minimal visual impact because the incremental expansion would not be a visually prominent change to the existing condition. The newly proposed bridge crossing over the West Branch of the Aqueduct would be visible by viewers in the immediate area and would alter the visual character of the portion of the Aqueduct that bisects the Project site, but would be too distant to affect views from hikers along the PCT. In the context of the Project as a whole, these features would not be noticeable as a substantial change to the viewshed and would be less than significant.

***Impact Summary:*** Existing views from public regional trails and bikeways would have less than significant impacts due to both the distance and the intervening topography between these trails and the Project site.

The relocation of one segment of the PCT that currently crosses Lancaster Road at 270<sup>th</sup> Street West would potentially move approximately 1.75 miles east so that it is generally aligned along 300<sup>th</sup> Street West between SR-138 and the northeastern corner of the Project site. Views from the conceptual alignment of the PCT, if constructed, would be of the Project site, nearby foothills, and the distant Tehachapi Mountains. MM 13-4 requires that structures proposed along 300<sup>th</sup> Street West be screened by a block wall along the rear of the structures and a wide, landscaped setback containing the



conceptual PCT realignment. This would ensure that the urban uses on the site would have limited visibility from the trail, and would therefore result in a less than significant impact.

**Threshold 13-3      Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?**

## On-Site Impacts

### *Construction/Buildout and Occupation*

There are no State-designated scenic highways within 20 miles of the Project boundaries. SR-138 is not an officially designated State scenic highway, nor is it eligible for designation (Caltrans 2011). As discussed above, the *County of Los Angeles General Plan* has a Scenic Highways Plan that conforms to the State Scenic Highway Program, but it does not identify any scenic highways near the site. Therefore, no impact on a scenic highway would occur with the Project. However, the AVAP designates several Scenic Drives on and near the site. These Scenic Drives currently offer views of the expansive valley floor and low hills, surrounded by the Tehachapi and San Gabriel Mountains, as well as views of tree-covered areas on winding mountain roads.

There are features on and around the Project site that would be considered scenic by many; these include the surrounding mountain ranges in the background, existing rock outcroppings located within hillsides on the Project site, views of the low hills and largely undeveloped and expansive valley area, Quail Lake, and some existing structures on the Project site that have been evaluated as historical resources, although not determined to be historically significant (please refer to Section 5.6, Cultural Resources). These components of the overall visual character of the area are not within the viewshed of a designated scenic highway but are visible from the County's Scenic Drives.

The Project would not change views from I-5 since the majority of the western portion of the site would be preserved as open space and development north of Quail Lake would not be visible in the distance. Since mountain slopes line both sides of I-5 near its intersection with SR-138, development on the Project site will not be a component of the scenic quality of the views from I-5.

Although areas on both sides of Gorman Post Road would remain as open space, views from this road would slightly change where on-site development north of Quail Lake would be visible from the eastern end of this road. There are intervening low hills and vegetation that block views of the site from this road. Thus, changes in views from this road would be considered less than significant.

Scenic views on Old Ridge Road (Highway N-2) consist mainly of a tree-lined road as it rises into the ANF. However, Old Ridge Road (Highway N-2), south of SR-138 provides northerly views of the Project site through trees that line the northern segment of this road. This view would change as the site is developed and the view of low hills is replaced with urban

development. This change in view would be confined to the developed portions of the site, with open space areas remaining around the site. This view would also be visible only from select points on the northern section of this road. This impact is considered less than significant.

The site is not readily visible from Pine Canyon Road between Old Ridge Road (Highway N-2) and Three Points Road due to intervening mountain slopes, trees, and distance. Thus, development on the site would not affect the scenic views on this road. This impact is considered less than significant.

Three Points Road south of SR-138 has views of a relatively flat agricultural area and scattered rural residences as the road rises up into the mountains. Distant views to the northwest include the eastern portion of the site. Future development on the site would be visible in the distance from Three Points Road. There are intervening low hills, vegetation, and existing residences north of SR-138 that block views of the site from this road. Thus, changes in views from this road would be considered less than significant.

The greatest change in scenic views would occur on SR-138 as development occurs on both sides of this road, as it passes through the site. Existing views of undeveloped land and agricultural land would be replaced with business parks and commercial structures, as well as residential development that would be constructed onsite. While distant views of the mountains will remain, the view of passing motorists will consist of urban structures that would be different than the existing rural environment.

While the AVAP has designated SR-138 as a Scenic Drive, it has also designated the Project site as the West Economic Opportunity Area and Future Rural Town Area, where future development is planned and expected. Also, the Project site is not located in Rural Preserve Areas or Scenic Resource Areas, where the preservation of existing visual and scenic qualities is called for. Since the Project is consistent with the AVAP for development as a Rural Town Area and Economic Opportunity Area, the Project would represent the overall scenic qualities that the County anticipates for the site and along SR-138. This would be ensured through compliance with Policy COS 5.7, which requires implementing standards and guidelines for development within identified viewsheds of Scenic Drive routes. As such, the Design Principles as outlined in Appendix 2-A of the Specific Plan would ensure the overall aesthetics and compatibility of the Project with the surrounding Scenic Drives.

Because Policy COS 5.2 exempts EOAs from limits on development in scenic resource areas, and Policy COS 5.7 ensures that development standards and guidelines are established for development within the viewsheds of Scenic Drives, impacts on SR-138 as a Scenic Drive would be less than significant.

The proposed changes to the Project site would result in less than significant impacts under this threshold. The analysis of Thresholds 13-1 and 13-4 above discuss the changes to visual character and the scenic qualities of the site, regardless of highway designation.

## Off-Site Impacts

There are no scenic highways within 20 miles of the Project boundaries. Further, there are no features that would generally be considered scenic in the immediate area of proposed off-site features that are located within roadway rights-of-way. Also, view from designated County Scenic Drives would not change due to these roadway and bridge improvements, water wells, and utility connections. The Gorman Substation, located approximately 3.6 miles northwest of the site, would require the addition of one or more additional transformers and the reconstruction of existing overhead power lines along Gorman Post Road from the substation to the Project site. The reconstructed overhead lines along Gorman Post Road would be a temporary construction impact within the right-of-way/utility easement and would not impact the nearby scenic resources associated with the adjacent open space. Because of the slim profile of the poles and the fact that they would be replacing existing utility poles along the same alignment, the newer and potentially taller utility lines would not significantly affect views of the nearby or distant open spaces. The utility poles would not substantially degrade any scenic resources. Therefore, there would be less than significant impacts from implementation of off-site project features related to scenic resources along a scenic highway.

While there are features in the vicinity of the Tejon Water Bank well locations that would be considered scenic by many—in particular the surrounding mountain ranges in the background—because these components of the overall visual character are not within the viewshed of a designated scenic highway, the proposed off-site wells would not result in impacts under this threshold. Also, the designated County Scenic Drives are located on the southern portion and south of the site and do not have direct views of the well locations. Therefore, there would be less than significant impacts from implementation of off-site wells related to damaging scenic resources along a scenic highway.

***Impact Summary:*** There are no scenic highways in the Project site vicinity. Therefore, the Project would not result in significant impacts related to damaging scenic resources along a scenic highway. While the AVAP has designated Scenic Drives on and near the site, the Project site is not located in Rural Preserve Areas or Scenic Resource Areas, where the preservation of existing visual and scenic qualities is called for. The Design Principles as outlined in Appendix 2-A of the Specific Plan would ensure the overall aesthetics and compatibility of the Project with the surrounding Scenic Drives. Thus, no adverse impact on designated Scenic Drives would occur. The analysis of Thresholds 13-1 and 13-4 above discuss the changes to visual character and the scenic qualities of the site from public vantage points, regardless of highway designation.

**Threshold 13-5**      **Would the project create a new source of substantial light and/or glare which would adversely affect day or nighttime views in the area?**

To determine if light and glare would result in a significant impact with implementation of the Project, basic information regarding light and glare is first provided below.

## **Definition of Light and Glare Terms**

### ***Light Scales***

Illuminance is the amount of total light received from a source by a unit of surface area. Illumination is measured in foot-candles of light. One candlepower is approximately equal to the light emitted from one candle, and a foot-candle is the amount of light produced by this candle on one-square-foot of a spherical surface one foot from the light source.

### ***Glare***

Glare is defined as the sensation produced when the brightness of an object is greater than the brightness to which the eyes can adapt. Glare, a function of candlepower, may be caused directly by a lamp or indirectly from the reflection of surrounding surfaces within the field of view. The presence of glare is frequently a subjective issue. In such cases, the magnitude of glare may prove to be less important than its very presence. When glare is excessive, it can cause discomfort, reduction of visibility, and even momentary loss of vision.

## **On-Site Impacts**

### ***Construction Light and Glare***

Project development would create new sources of light and glare during construction activities due to security lighting in the construction equipment and building material staging areas. Motorists on SR-138 could be affected by light and glare from construction of the new structures adjacent to it, which would be a potential significant impact. However, compliance with MM 13-5 requires that security lighting at the construction equipment and building material staging areas be directed away from SR-138, 300<sup>th</sup> Street West, 290<sup>th</sup> Street West, Malinda Avenue and existing residences east of 300<sup>th</sup> Street West and 290<sup>th</sup> Street West, and south of Malinda Avenue. Security lighting at construction staging areas shall be screened and directed away from adjacent on-site residences that are occupied, as each development phase is built. Any security lighting associated with construction equipment and building material staging areas along SR-138 and other on-site areas would be limited and temporary in nature. Therefore, with compliance with MM 13-5, impacts due to construction-generated light and glare would be considered less than significant.

### ***Long-Term Light and Glare***

The Project would introduce new light and glare sources into the Project site that would result in daytime glare, nighttime lighting and glare, and nighttime sky glow. These are described below. New light sources are anticipated to occur from the illumination of on-site structures, such as residential structures, industrial lots, and commercial uses; recreational uses (i.e., signage, interior and exterior lighting); and street and vehicle lights. New permanent light sources would be introduced with the Project where none currently exist. Lighting associated with the commercial, industrial, and other business uses would include

security lighting, exterior lighting, parking lot lighting, and lighted signs. Light “spills” occur when light shines beyond the intended area and illuminates an unintended area. Lighting associated with the Project would be confined to the Project boundaries and the proposed lighting would be shielded or directed downward to minimize light spillover (PDF 13-2 and PDF 13-3, as implemented by MM 13-2 and MM 13-6). The impacts of potential light and glare sources from operation of the Project are described below.

#### Daytime Glare

Project development would increase the amount of glare (indirect reflected light) generated on the Project site during the day. Daytime sources of glare would primarily be generated by human activities and from the sun’s reflection off glass windows and other reflective materials on structures, automobiles, and trucks. From observation points located along SR-138 and other local streets, daytime sources of glare generated by the Project would be partially screened through the use of landscaping along the perimeter of the highway and throughout the Project site. Since the Project site is currently undeveloped, sources of daytime glare that would be generated would be greater than existing conditions and would be considered a significant and unavoidable impact.

#### Nighttime Light and Glare

Implementation of the Project would create new sources of light and glare that are presently not found in the area. Nighttime sources of light would include streetlights, vehicle headlights, and lights used within and around buildings, parking lots, parks, and walking paths located throughout the Project site. Streetlights along the roadways throughout the Project site would be most visible to off-site viewers traveling along SR-138. Sources of light that would be generated on the Project site would also be partially obstructed from observation points along SR-138 and other local streets through the use of landscaping along parkways and setback areas and throughout the Project site. Lighting will be required to meet applicable County standards and would be required to be directed downward (see Section 2.2.8[P] of the Centennial Specific Plan in Appendix 4.0-A). MM 13-2 and MM 13-6 are proposed to reduce nighttime light and glare to the greatest degree possible. However, because the Project would introduce new light and glare into a largely undeveloped rural area, increases in lighting levels would be experienced by existing residents near the site and by passing motorists for which there is no additional, feasible mitigation. Therefore, this is considered a significant and unavoidable impact.

#### Light Pollution (Sky Glow)

Light pollution, also known as “sky glow”, is an adverse effect of manmade light. It is often used to denote urban sky glow (brightening of the night sky due to man-made lighting) but also includes glare (intense and blinding light), light trespass (light falling where it is not wanted or needed; spill light), visual clutter, and other adverse effects of lighting (IDA 2005). In many cases, sky glow is visible from great distances, particularly in the evenings when there is moisture in the air. Minute water droplets in the evening air also reflect and scatter light into the atmosphere. As discussed above, outdoor lighting sources would be used along roadways, parking lots, parks, walkways, and for security throughout the Project site. Because of the proposed 19,333 dwelling units and approximately 10.0 million square feet

of non-residential floor area, these new sources of lighting would contribute to increased sky glow in the area.

Mount Piños, located approximately 15 miles to the west of the Project site at an elevation of approximately 8,831 feet above msl, is a well-known location for stargazing and astronomy. In order to minimize the effects of light pollution, the Project would include preparation of an Exterior Lighting (photometric) Plan, also referred to as “the Dark Sky Plan”, to define proposed outdoor lighting that minimizes glare and light spillover beyond the Project site boundaries by using various techniques that include hooded street lights that would direct light downward and timers or sensors on lights; these would also be consistent with County lighting and safety standards. Although these light sources are not expected to extend beyond the physical limits of the Project site, they have the potential to create sky glow in an area that has few light sources, except for the existing lighting at the National Cement Plant. Measures outlined in the MM 13-2 and MM 13-6 would minimize the effects of night lighting and associated sky glow to the extent feasible. However, because the Project would introduce new sources of nighttime light and glare into a largely undeveloped rural area, increases in sky glow may occur for which there is no additional, feasible mitigation. Therefore, this is considered a significant and unavoidable impact.

### **Off-Site Impacts**

Off-site Project features would introduce minimal light and glare sources, if present at all. In some instances, aboveground utility structures may have nighttime security lighting. However, these Project components would not appreciably contribute to the light and glare anticipated from Project implementation and there would be less than significant impacts.

The well locations may include nighttime security lighting, but any light fixtures installed at the well locations would be consistent with County lighting and safety standards to reduce light spillover and glare (see MM 13-2 and MM 13-6). The off-site wells would not require nighttime vehicle trips to the well locations, except in the rare event of an emergency visit. Therefore, these off-site wells would not appreciably contribute to the light and glare anticipated from Project implementation. There would be less than significant impacts and no mitigation is required.

The aboveground structures, including bridges and roadway improvements, would be constructed of non-reflective materials, such as concrete, asphalt, or similar materials. Bridge crossings of the Aqueduct would contain street lighting or other lighting, as required by the County for vehicular safety and visibility. These light sources are not expected to extend beyond the physical limits of the bridge structures; however, they have the potential to contribute to sky glow in an area that has few light sources, except for the existing lighting at the National Cement Plant. This increased lighting would contribute to the overall Project-generated lighting and is considered a significant and unavoidable impact. Measures outlined in the MM 13-2 and MM 13-6 would minimize night lighting to the extent feasible. However, impacts would remain significant and unavoidable after mitigation.

***Impact Summary:*** Since the Project site is in an undeveloped area with few existing light sources, implementation of the Project would result in significant and unavoidable impacts by introducing new sources of daytime and nighttime light and glare into the area. Project implementation would also cause a significant and unavoidable impact regarding a new source of sky glow, even with implementation of MM13-2 and MM 13-6. However, compliance with MM 13-5 would reduce construction-generated light and glare impacts to less than significant.

### 5.13.8 MITIGATION MEASURES

**MM 13-1** The Project's plans and specifications shall demonstrate the implementation of measures to preserve existing rock outcroppings that are visible from off-site locations. In addition, the County of Los Angeles shall review all final development plans (e.g., landscape, lighting, architectural plans)—as provided by the Project Applicant/Developer—to ensure that the development standards for each land use have been implemented to minimize the visual alteration of the site and to create an aesthetically pleasing development.

**MM 13-2** The Project shall implement the following components of the Green Development Program to minimize potentially adverse visual impacts:

- Site the highest density residential uses in areas adjacent to commercial centers and permit residential uses in commercial centers through the Mixed Use Overlay to place larger populations within key centers, encouraging pedestrian activity and a reduction in vehicle trips.
- Preserve oak woodlands, savannahs, and other sensitive habitat areas near Oso Canyon and at the foot of the San Gabriel Mountains southerly of SR-138.
- Exterior lighting shall not cause unacceptable light trespass and shall be fully shielded.
- Outdoor lighting shall be turned off using automatic control devices or systems between the hours of 10:00 PM and sunrise of the following day in commercial, business park, and mixed use areas, unless required by the County Building Code. If the property operates beyond 10:00 PM, then outdoor lighting shall be turned off 1 hour after the operation ends for the day.
- Outdoor lighting for safety and security reasons is allowed after 10:00 PM only if fully shielded motion sensors are used to turn off lighting after 10:00 PM and the sensors turn the lighting off automatically no more than 10 minutes after the area is vacated or at least 50 percent of the total lumen levels are reduced or 50 percent of the total outdoor light fixtures are turned off between 10:00 PM and sunrise.

- Outdoor lighting in residential and open space areas that are over 15 feet in height shall have an output no greater than 400 lumens.
- The maximum height of outdoor lighting fixtures shall be:
  - 20 feet in Residential and Open Space areas
  - 30 feet in Commercial, Mixed Use, and Public areas
  - 35 feet in Business Park areas
- Prohibit the use of outdoor lighting that includes drop-down lenses, mercury vapor lights, ultraviolet lights, search lights, laser lights and any outdoor lighting that flashes, blinks, alternates or moves unless mandated for health and safety reasons by a public agency.
- Outdoor light fixtures in outdoor recreational areas shall be mounted, aimed, and fully shielded so that light beams fall onto activity areas and no unacceptable light trespass occurs on surrounding areas or properties. Outdoor lighting shall only provide the minimum necessary to illuminate recreational activities areas and shall be no more than 75 feet high. Preferably, these fixtures shall also use high pressure sodium or metal halide lamps.
- Outdoor advertising signs, business signs and roof and freestanding signs that are lighted shall be fully shielded. Externally mounted light fixtures shall be mounted on the top of the sign and shall be oriented downward. Externally mounted bulbs or lighting tubes for signs shall not be visible from adjoining properties or public rights-of-way, unless such bulbs or tubes are filled with neon, argon, krypton or other self-illuminating substance.

**MM 13-3** The existing off-site 66 kV electric lines that extend from SR-138 beginning at approximately the Old Ridge Route to 290<sup>th</sup> Street West, shall be relocated south of the Business Park area or may be placed underground.

**MM 13-4** Structures proposed along the Pacific Crest National Scenic Trail (PCT) shall be screened by a block wall along the rear of the structures abutting the trail and a 34-foot-wide landscaped setback shall be provided that would contain the conceptual PCT realignment.

**MM 13-5** Security lighting used for construction areas, equipment, and building materials staging areas shall be directed away from SR-138, 300<sup>th</sup> Street West, 290<sup>th</sup> Street West, and existing residences east of 300<sup>th</sup> Street West and east of 290<sup>th</sup> Street West and Malinda Avenue. Screening of construction security lighting at construction staging areas shall be implemented as feasible. Construction equipment and materials staging areas shall be located as far as feasible from surrounding adjacent residences and lights shall be directed away from adjacent on-site residences that are occupied, as each development phase is built.



**MM 13-6** An Exterior Lighting Plan shall be prepared in coordination with a qualified Biologist, be reviewed by an Electrical Engineer who is registered in the State of California, and then approved by the County prior to the submittal of each building permit. The Lighting Plan shall apply to all proposed structures and for development areas that border natural open space resources.

The Lighting Plan, also referred to as the Dark Sky Plan, shall be consistent with County lighting and safety standards and shall provide guidelines for the outdoor lighting to be used throughout the Project site. Final lighting orientation and design shall be approved by the County.

The Lighting Plan shall include, but not be limited to, the following:

- a. All lighting within 300 feet of natural open space areas shall only be implemented where needed for safety and shall be directed away from these areas and shielded so that light is not directed into open space and riparian areas. Where possible, these safety lights shall be motion sensor activated with infrared light sensors to prevent daytime lighting.
- b. Mercury vapor and halide lighting shall not be used on the perimeter of the developed areas or adjacent to designated open space.
- c. Illumination levels should be compatible with the character and use of surrounding development as determined by national lighting organizations. The Illuminating Engineering Society of North America publishes recommendations for the lighting industry that include illumination levels for outdoor lighting.
- d. Low-pressure sodium lighting fixtures or flashing lights shall not be used except in emergency situations.
- e. Exterior lighting standards and fixtures shall be located and designed to minimize direct glare beyond the site boundaries. Lighting shall be fully shielded and directed downwards to confine light spread solely within necessary locations. Illumination or glare from the exterior lighting system onto adjacent properties or streets should be minimized.
- f. Security lighting fixtures shall not project above the roof line of the building on which they are mounted.
- g. Where applicable, time-control devices shall be utilized on exterior lighting sources.
- h. Street, parking lot, and structural lighting fixtures shall provide adequate illumination for safety and comfort of vehicular and pedestrian traffic while minimizing light spillover.

Also, MM 7-13 from Section 5.7, Biological Resources, which calls for a plant palette, would reduce visual resource impacts.

### 5.13.9 LEVEL OF SIGNIFICANCE AFTER MITIGATION

As discussed above, impacts to state scenic highways are less than significant and no mitigation is needed.

Despite the implementation of PDFs 13-4 and 13-5, and implementation of MMs 13-1, 13-2, MM 13-3, and MM 7-13 from Section 5.7, Biological Resources, the Project would result in significant and unavoidable direct impacts to visual character.

With implementation of MM 13-4, the Project would result in less than significant impacts to views from regional riding or hiking trails.

Despite the implementation of MM 13-2, MM 13-5 and MM 13-6, the Project would result in significant and unavoidable direct impacts to nighttime light and glare/light pollution.

### 5.13.10 REFERENCES

California Department of Transportation (Caltrans). 2015. Scenic Highway Program - Frequently Asked Questions. Sacramento, CA: Caltrans.  
[http://www.dot.ca.gov/hq/LandArch/16\\_livability/scenic\\_highways/faq.htm](http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/faq.htm).

———. 2011 (September 7). California Scenic Highway Mapping System: Scenic Route (Los Angeles County). Sacramento, CA: Caltrans.  
[http://www.dot.ca.gov/hq/LandArch/16\\_livability/scenic\\_highways/index.htm](http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm).

International Dark-Sky Association (IDA). 2005 (January). Poster Paper: Light Pollution, Another Threat to the Environment (Information Sheet #21). Tucson, AZ: IDA.

Los Angeles, County of. 2015 (last accessed). *Los Angeles County, California – Code of Ordinances* (Title 22, Planning and Zoning). Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles.  
[https://www.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances](https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances).

Los Angeles County Department of Public Works (LACDPW). 2012 (March). *County of Los Angeles Bicycle Master Plan*. Los Angeles, CA: LACDPW.  
<http://dpw.lacounty.gov/pdd/bike/masterplan.cfm>.

Los Angeles County Department of Regional Planning (LACDRP). 2015a (March). General Plan 2035. Los Angeles, CA: LACDRP.  
<http://planning.lacounty.gov/generalplan/draft>.

———. 2015b (June 16). Town and Country - Adopted Plan. Los Angeles, CA: LACDRP.  
<http://planning.lacounty.gov/tnc/documents/>.

United States Department of Agriculture, Forest Service (USFS). 2015 (August 3, access date.) Pacific Crest Trail Information and Route Changes. Arcadia, CA: USFS.  
<http://www.fs.usda.gov/detail/angeles/recreation/?cid=stelprdb5195835>.

## 5.14 PARKS AND RECREATION

### 5.14.1 INTRODUCTION

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that parks and recreation issues be evaluated as part of the environmental documentation process. The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively.

#### Summary

The Project would provide abundant and varied on-site recreational amenities in an area that currently has little local parkland, including public (i.e., State or federal owned or County-dedicated and maintained) and private (i.e., Homeowner's Association or other privately maintained) parks and other recreation amenities. The Project would include approximately 163 acres of Park Overlay, which includes neighborhood parks, community parks, and community regional parks that would be dedicated to the County of Los Angeles in a developed condition. For instance the 163 acres of Park Overlay and the approximate 46 acres of Recreation Centers, private pocket parks, County multi-use (hiking, equestrian, and mountain biking) trail equates to approximately 209 acres of recreation features that could be credited against the General Plan local parkland standard (approximately 195 acres) (see PDFs 14-1 through 14-4, MMs 14-1 and 14-2).

Regarding County parkland requirements, based on consultation with the County Department of Parks and Recreation (DPR), the types and amounts of recreation amenities proposed on the Project site would meet and exceed the preliminary Parkland Dedication Ordinance/Quimby Act requirement of approximately 147 acres and the preliminary General Plan standard of approximately 195 acres. Specifically, in compliance with the Parkland Dedication Ordinance, (1) the quantity of public parks shall be provided consistent with the conditions of approval defined by the County for each tract map and (2) parkland would be dedicated to the County in a developed condition (see MM 14-3), providing for acreage equivalency credit. In compliance with the General Plan, the Project shall provide public and private recreation amenities that meet the General Plan parkland standard's acreage requirements, and each tract map submitted for the County DPR's review and clearance shall have a table with a breakdown of acreage per lot for the categories of parkland to be credited against both the Parkland Dedication Ordinance/Quimby Act requirement and the General Plan standard (see MMs 14-4 and 14-5). There would be less than significant impacts related to provision of parkland pursuant to State and County standards.

Although the Project would be expected to increase visitation to off-site federal, State, and County recreational facilities and trails in the Project area, it is not expected that increased visitation at any single facility would result in substantial physical deterioration or would necessitate the construction or expansion of off-site recreation facilities. The physical

impacts of development of the on-site recreational facilities are considered throughout this EIR, as they are part of the overall impact footprint and construction plan for the Project. The Project would result in less than significant impacts related to recreational facilities built as part of the Project, and no construction or expansion of off-site federal, State, and County recreational facilities and trails are anticipated that would result in physical environmental impacts. Finally, the Project would not interfere with, but would facilitate regional open space connectivity.

## Section Format

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce significant impacts; and level of significance after mitigation. This information is presented in the following format (Please refer to Section 2.0, Introduction, and Section 5.0, Environmental Setting, Impacts, and Mitigation, for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Relevant Plans, Policies, and Regulations
- Environmental Setting
- Project Design Features
- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- References

## References

All references cited for preparation of this analysis are listed in Section 5.14.8. Information in this section was derived from the Los Angeles County Department of Parks and Recreation as well as from local, State, and federal records of recreational facilities.

## 5.14.2 RELEVANT PLANS, POLICIES, AND REGULATIONS

### Federal

#### *U.S. Forest Service*

The U.S. Forest Service (Forest Service) was established in 1905 and manages 193 million acres of public lands within National Forests and grasslands (USDA Forest Service 2015a). In April 2006, the Forest Service reissued the decisions on the revised Land Management Plans (Forest Plans) for all four Southern California National Forests: Angeles, Cleveland, Los Padres, and San Bernardino. The Forest Plans guide site-specific planning and decision making in the National Forests (USDA Forest Service 2015b). The Angeles and Los Padres Forest Plans include strategies that indirectly address adjacent areas and involve coordination with other jurisdictions. These strategies are related to invasive species, biological resources, trails and fire protection, but do not require compliance or action by local agencies and/or developers.

#### *Federal Lands Recreation Enhancement Act*

In 2004, Congress enacted the Federal Lands Recreation Enhancement Act, which replaced the Recreation Fee Demonstration Program enacted in 1996. The Recreation Enhancement Act provides long-term authority for federal land management agencies (e.g., Forest Service, National Park Service) to collect fees from recreation users. The purpose of the recreation fee is to help fund the operation and maintenance of federally managed recreation lands in response to increasing demand and to be able to deliver high-quality facilities and services to the public. In the Project area, use of certain recreation sites and facilities of the Angeles and Los Padres National Forests requires the purchase and display of a regional “Adventure Pass”, which are available as daily, annual, and second vehicle passes. A National “Interagency Pass” may also be used for access to these venues (USDA Forest Service 2008).

#### *National Trails System*

The National Trails System Act (*United States Code* [USC], Title 16, Sections 1241–1251) was enacted in 1968. This act established a network of scenic, historic, and recreational “National Trails” across the United States. Each of these three types of trails has individual criteria, and each of the 30 current National Trails is assigned a primary administering agency, although a trail may have segments passing over multiple jurisdictions. Administering agencies include the Bureau of Land Management (BLM), the Forest Service, and the Park Service. The nearest and only National Trail in the Project area is the Pacific Crest National Scenic Trail, also known as the Pacific Crest Trail (PCT), which was established in 1968 and is administered by the Forest Service (USDO I NPS 2016).

### State

#### *California State Parks*

The California Department of Parks and Recreation (also referred to as California State Parks) manages 279 park “units” in the California State Parks System. California State Parks owns a total of 1.6 million acres of public parkland that contains over 339 miles of coastline;

974 miles of lake and river frontages; approximately 15,000 campsites and other overnight facilities; and 4,556 miles of hiking, equestrian, and biking (non-motorized) trails (CDPR 2015a). State parks in the Project area are described in detail in Section 5.14.3, Environmental Setting, below.

Because of the breadth and diversity of the resources that California State Parks oversees, there are a wide variety of departments, policies, and publications that guide the management of the California State Parks System, such as the 2015 Statewide Comprehensive Outdoor Recreation Plan; the California Recreational Trails Plan; and General Plans for individual parks prepared pursuant to the Planning Handbook (CDPR 2015b).

California State Parks also implements a fee program at selected parks to assist in funding, operating, and maintaining the park system, including camping fees and various day use fees (e.g., parking, museum entrance, boat launch, swimming, and tour fees). Additionally, there are a variety of passes that can be purchased for repeated use, including a variety of Annual Day Use Parking Passes, an Annual Boat Use Pass, an Oversized Vehicle Pass, a Disabled Discount Pass, and a Golden Bear Pass.

### ***Quimby Act***

California allows a City or County to pass an ordinance that requires, as a condition of approval of a subdivision, either the dedication of land, the payment of a fee in lieu of dedication, or a combination of both for park or recreational purposes (*California Government Code*, Section 66477). This legislation, commonly called the “Quimby Act,” establishes a standard of 3 acres of parkland per 1,000 residents for new subdivision development unless the amount of existing neighborhood and community parkland exceeds that limit. In 2013, Assembly Bill (AB) 1359 was approved and amended the Quimby Act to allow the municipality to use fees for the purpose of developing or rehabilitating park or recreation facilities in the neighborhood other than that the subdivision neighborhood for which the fees were paid as a condition of map approval. The Project would be subject to this legislative mandate in accordance with the County-adopted ordinance as described below.

### **County**

The County DPR owns, operates, and maintains approximately 70,000 acres of facilities located in both unincorporated areas and in cities in Los Angeles County. The County DPR collects fees for use of many facilities, including golf course greens fees; entrance fees; camping and recreational vehicle (RV) overnight fees; reservation/use fees for developed picnic areas, swimming pools, sports fields/courts, halls/buildings, amphitheaters; and annual pass fees, among others (LACDPR 2015b). The revenue from these fees is separate from the revenue and/or value of parks and facilities provided to the County DPR via the Quimby Act, discussed below.

### ***County of Los Angeles Parkland Dedication Ordinance***

Consistent with, and as permitted by the Quimby Act, the County of Los Angeles adopted Sections 21.24.340 and 21.24.350 and Sections 21.28.120, 21.28.130 and 21.28.140 of the Los Angeles County Code (“Parkland Dedication Ordinance”). Specifically, the ordinance requires that the subdivider of a residential subdivision “provide local park space to serve the subdivision, pay a fee in lieu of the provisions of such park land . . . provide local park space containing less than the required obligation but developed with amenities equal in value to the park fee, or do a combination of the above” (Los Angeles County Code, Section 21.24.340 et seq.). For the purposes of the County’s Quimby Act Ordinance, the unincorporated areas are divided into 47 Park Planning Areas (PPAs), based on location and neighborhood characteristics. These, in turn, are grouped into 11 total Planning Areas.

The Project site is within PPA 48 – West Antelope Valley, and within the Antelope Valley Planning Area. Section 21.24.340 requires 3.0 acres of parkland per 1,000 persons; contains a formula for calculating the local parkland obligation; and provides a table of the average household sizes by PPA. The population to be served is based on the formula contained in Section 21.24.340 of the Parkland Dedication Ordinance. The County DPR calculates the park obligation (i.e., to be fulfilled by land dedication, fee payment, improvements, or a combination of these) for each residential subdivision prior to its tentative map approval. The current in lieu fee established for Park Planning Area 48 (West Antelope Valley), which includes the Project site, is based on a Representative Land Value of \$30,880 per acre (Los Angeles County Code, Section 21.28.140).<sup>1</sup> Additionally, the County of Los Angeles General Plan (2015) establishes a standard for the provision of parkland at 4 acres of local parkland per 1,000 residents of the population in unincorporated areas, and 6 acres of regional parkland per 1,000 residents of the total population of Los Angeles County.

Because of the need for usable public parkland for active recreation purposes, the County DPR rarely gives any Quimby Act credit for parkland exceeding a slope of three percent and instead gives credit for the “net” park acreage (maximum slope of three percent) the County receives. The County DPR does not accept undeveloped park sites from developers; this means that the developer is required to provide a developed park to the County on a “turn-key” basis and receives credit for the costs of developing the public park up to and against any remaining Quimby Act obligation, after accounting for the net acreage dedicated to the County (DRP 2015b).

### ***Los Angeles County General Plan and Antelope Valley Area Plan***

The *Los Angeles County General Plan* (County General Plan) and the *Antelope Valley Area Plan* (AVAP), part of the County General Plan, include goals and policies that address parks and recreation issues in the unincorporated County.

---

<sup>1</sup> This is the current in-lieu fee Representative Land Value per acre amount (effective July 1, 2016) and reflects the annual adjustment based on changes in the Consumer Price Index from the previous year’s value (from March 2015–March 2015) authorized by Section 21.28.140 (Subsection A1) of the Los Angeles Code.

### Los Angeles County General Plan

The Los Angeles County General Plan goals and policies applicable to the analysis of parks and recreation with Project implementation are listed below. Section 5.8, Land Use, Entitlements, and Planning, presents a more in-depth analysis of the Project's consistency with relevant plans, policies and regulations.

**Goal P/R 1:** Enhance active and passive park and recreation opportunities for all users.

**Policy P/R 1.2:** Provide additional active and passive recreation opportunities based on a community's setting, and recreational needs and preferences.

**Policy P/R 1.4:** Promote efficiency by building on existing recreation programs.

**Policy P/R 1.10:** Ensure a balance of passive and recreational activities in the development of new park facilities.

**Policy P/R 1.11:** Provide access to parks by creating pedestrian and bicycle-friendly paths and signage regarding park locations and distances.

**Goal P/R 3:** Acquisition and development of additional parkland.

**Policy P/R 3.1:** Acquire and develop additional local and regional parkland to meet the following County standards: 4 acres of local parkland per 1,000 residents in the unincorporated areas and 6 acres of regional parkland per 1,000 residents of the total population of Los Angeles County.

**Policy P/R 3.2:** For projects that require zone change approvals, general plan amendments, specific plans, or development agreements, require developers to provide for local and regional parkland above and beyond their Quimby obligations as based on an appropriate nexus study.

**Policy P/R 3.9:** Site new parks near schools, libraries, senior centers and other community facilities where possible.

**Goal P/R 4:** Improved accessibility and connectivity to a comprehensive trail system including rivers, greenways, and community linkages.

**Policy P/R 4.1:** Create multi-use trails to accommodate all users.

**Policy P/R 4.5:** Collaborate with other public, non-profit, and private organizations in the development of a comprehensive trail system.

**Policy P/R 4.6:** Create new multi-use trails that link community destinations including parks, schools and libraries.



### Antelope Valley Area Plan

The AVAP goals and policies applicable to the analysis of parks and recreation with Project implementation are listed below. Section 5.8, Land Use, Entitlements, and Planning, presents a more in-depth analysis of the Project's consistency with relevant plans, policies and regulations.

**Goal M 10:** A unified and well-maintained multi-use (equestrian, hiking, and mountain bicycling) trail system that links destinations such as rural town centers and recreation areas throughout the Antelope Valley.

**Policy M 10.2:** Connect new development to existing population centers with trails, requiring trail dedication and construction through the development review and permitting process.

**Policy M 10.3:** Maximize fair and reasonable opportunities to secure additional trail routes (dedicated multi-use trail easements) from willing property owners.

**Policy M 10.4:** Ensure trail access by establishing trailheads with adequate parking and access to public transit, where appropriate and feasible.

**Policy M 10.5:** Locate and design trail routes to minimize impacts to sensitive environmental resources and ecosystems.

**Goal PS 8:** Antelope Valley residents enjoy access to parks and recreational facilities.

**Policy PS 8.3:** Provide new parks as additional development occurs or as the population grows, with a goal of four acres of parkland for every 1,000 residents.

**Policy PS 8.5:** Encourage the use of school playgrounds and sporting fields for community recreation ("joint use") when school is not in session.

**Policy PS 8.7:** Provide trails, bikeways, and bicycle routes for recreational purposes, as directed in the policies of the Mobility Element.

### ***County of Los Angeles Park Design Guidelines and Standards***

The Park Design Guidelines and Standards document is intended to give design professionals, County staff, and other agencies guidance on how to design and develop parks that meet County standards and expectations. It incorporates input from DPR staff, other County departments, as well as outside partners such as non-profit organizations and private developers, which have an interest in park design. This manual addresses topics such as: spatial organization; buildings; circulation; recreational facilities; landscaping; storm water management; utilities; preferred manufactured products to be used at the parks; and preferred plant lists for both potable and recycled water.

---

### ***Los Angeles Countywide Parks and Recreation Needs Assessment***

Adopted by the Board of Supervisors on July 5, 2016, the *Parks Needs Assessment* was a historic and significant undertaking to engage all communities within Los Angeles County in a collaborative process to gather data and input for future decision-making on parks and recreation. The primary goal of the *Parks Needs Assessment* was to quantify the magnitude of need for parks and recreational facilities, and determine the potential costs of meeting that need. This goal has been accomplished, as evidenced by the final report which uses a transparent, best-practices approach to evaluate park and recreation needs, and is the product of an engagement process that involved the public, cities, unincorporated communities, community-based organizations, and other stakeholders. Specifically, the *Parks Needs Assessment*:

- Uses a set of metrics to measure and document park needs for each study area;
- Establishes a framework to determine the overall level of park need for each study area;
- Offers a list of priority park projects for each study area;
- Details estimated costs for the priority park projects by study area;
- Builds a constituency of support and understanding of the park and recreational needs and opportunities; and
- Informs future decision-making regarding planning and funding for parks and recreation.

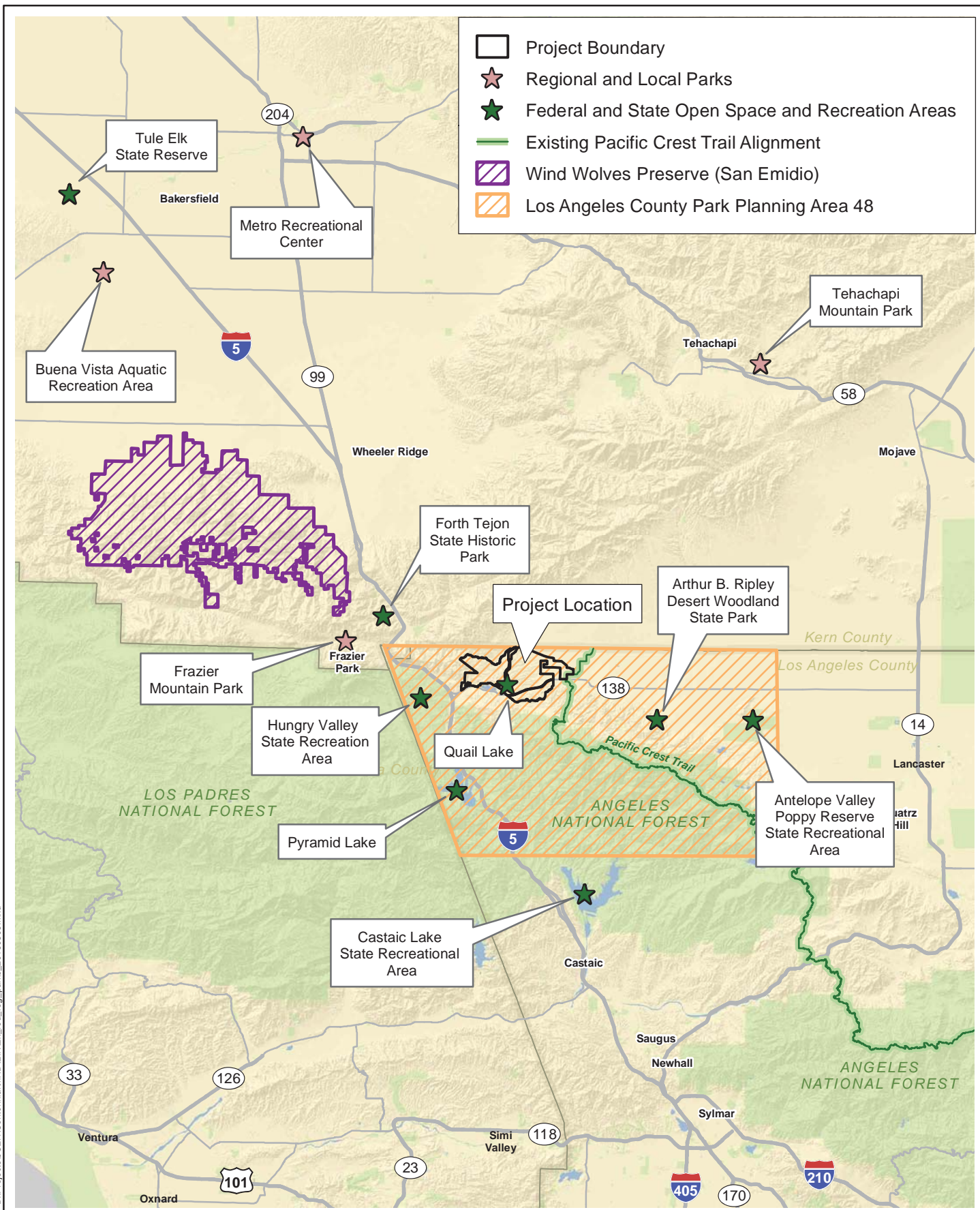
The Project site is located within the Unincorporated Northwest Antelope Valley Study Area, which currently does not contain any community or neighborhood parks operated by DPR.

### ***County of Los Angeles Trails Manual***

The County of Los Angeles Department of Parks and Recreation Trails Manual provides guidance on trail planning, design, development, and maintenance of hiking, equestrian, and mountain biking recreational trails, while addressing physical and social constraints and opportunities associated with the diverse topographic and social conditions that occur in the unincorporated territory of the County.

#### **5.14.1 ENVIRONMENTAL SETTING**

There are no existing parks or other recreational features on the Project site, as the site is privately owned. However, a variety of jurisdictions own and/or maintain open space areas, parks, and recreational facilities in the vicinity of the Project site. Exhibit 5.14-1, Existing Open Space and Recreation Areas, depicts the location of recreational areas in the vicinity of the Project site and Exhibit 5.14-2, Existing and Proposed Trails in the Project Vicinity and Exhibit 4-8, Conceptual Bicycle Plan, located in Section 4.0, Project Description, depicts the location of both existing and proposed trails and bikeways, respectively, on and near the site with Project implementation.



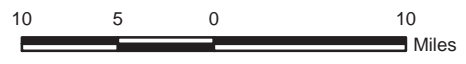
- Project Boundary
- ★ Regional and Local Parks
- ★ Federal and State Open Space and Recreation Areas
- Existing Pacific Crest Trail Alignment
- Wind Wolves Preserve (San Emidio)
- Los Angeles County Park Planning Area 48

D:\Projects\CEN\Centennial\MXD\EIR\EX\_5.14-1\_fed\_reg\_parks\_20150805.mxd

## Existing Open Space and Recreation Areas

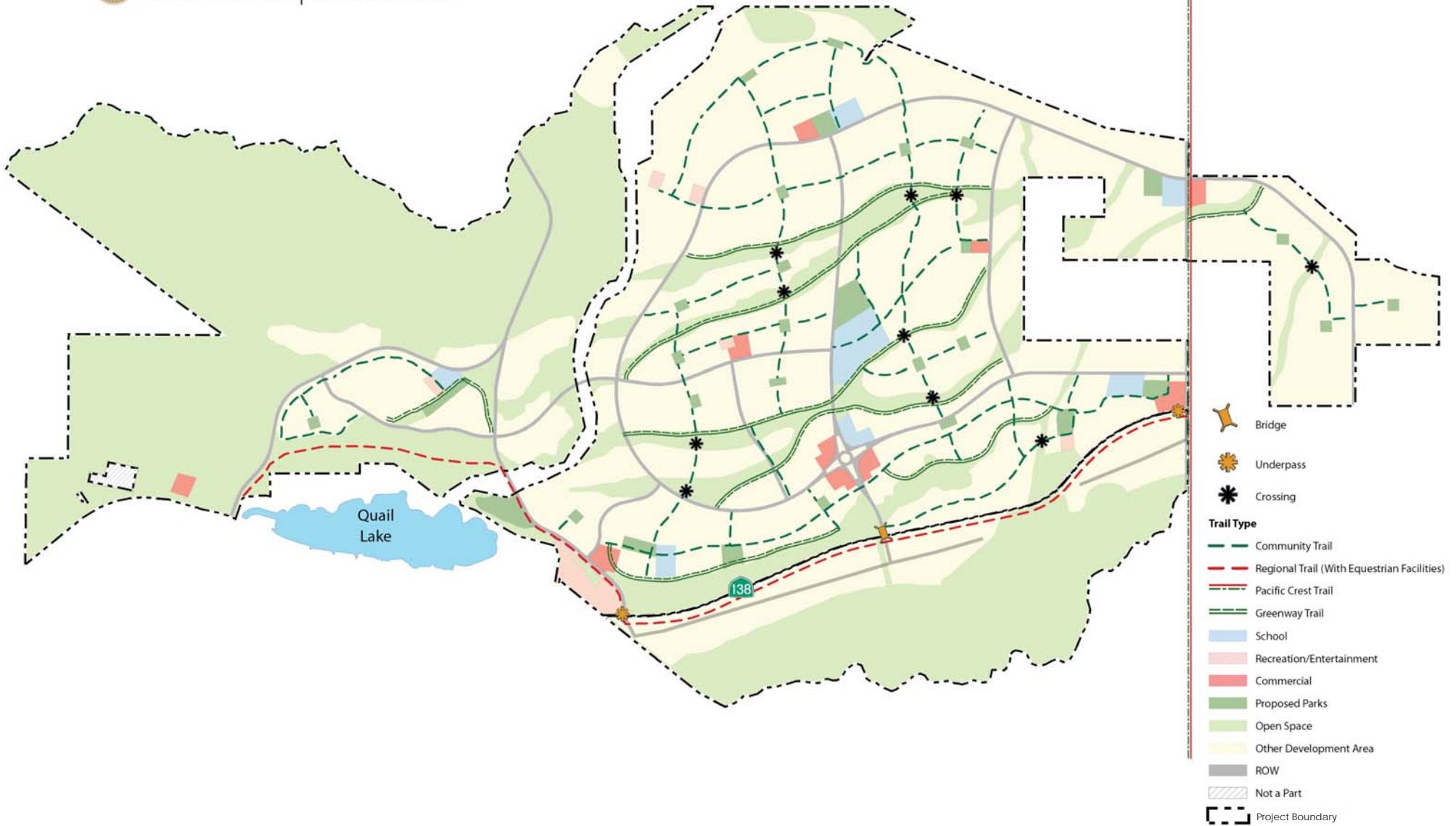
## Exhibit 5.14-1

Centennial Project





# RECREATION PLAN CENTENNIAL | TEJON RANCH



Source: Placeworks 2016

## Existing and Proposed Trails in the Project Vicinity

## Exhibit 5.14-2

Centennial Project



3,200 1,600 0 3,200  
Feet



---

## Open Space and Recreation Areas

### *Federal*

#### Angeles and Los Padres National Forests

The Angeles National Forest (ANF), now including the San Gabriel Mountains National Monument, covers about 700,000 acres of land in the San Gabriel Mountains, which is about one-quarter of Los Angeles County. The lower elevations of the ANF are covered with chaparral, and oak, sycamore, and alder trees, and at elevations above 5,000 feet above mean sea level feature pine, cedar, and fir trees (USDA Forest Service 2016a). The Los Padres National Forest (LPNF) is located primarily in the northern section of Ventura County and encompasses almost two million acres and covers the coastal mountains of central California and the Transverse Ranges, extending from the western edge of Los Angeles County to the Big Sur Coast in Monterey County. In addition, the LPNF has 10 congressionally designated wilderness areas that comprise 875,000 acres (approximately 48 percent of the 1.75 million acres). The nearest designated wilderness area to the Project site (the Chumash Wilderness) is located to the west near the town of Frazier Park (USDA Forest Service 2016b).

The ANF is approximately one mile southeast of the Project at the site's southernmost boundary. The LPNF is approximately five miles southwest of the Project site at the nearest point (as measured from the Quail Lake vicinity); the northeastern edge of the LPNF is approximately four miles south of State Route (SR) 138. The Forest Service and the U.S. Department of Agriculture (USDA) are the ANF's and LPNF's administering agencies. The nearest ANF district office to the Project site, the Santa Clara/Mojave Rivers Ranger District, is located in Saugus, approximately 35 miles to the south. The nearest LPNF district office, the Mount Pinos Ranger District, is located in Frazier Park approximately ten miles to the northwest of the Project site, as measured from the Quail Lake vicinity.

### *State*

#### Quail Lake

Quail Lake, located adjacent to SR-138 in the western Antelope Valley and adjacent to the southwestern boundary of the Project site, is one of the State Water Project's (SWP) 29 storage facilities. Quail Lake is maintained and operated by the California Department of Water Resources (DWR) as part of the California Aqueduct to move water safely across the San Andreas Fault Zone. Quail Lake's 290 acres and 3 miles of shoreline offer limited recreational opportunities including shoreline fishing, hiking, and bird watching. Swimming and boating are not permitted, but picnic tables and restroom facilities are available in the parking lot. About 10,000 people fish at the lake annually (DWR 1997).

#### Pyramid Lake

Pyramid Lake is another of the SWP's 29 storage facilities; is situated within the ANF; and is located on Piru Creek (8 miles southwest of the Project site). Not only does it provide storage for water delivery, it is a source of energy for the Castaic Power Plant, which is owned and operated by the Los Angeles City Department of Water and Power. Pyramid Lake provides for water-related recreational opportunities, including boating, waterskiing, swimming, and

fishing. Pyramid Lake also offers picnicking opportunities along its 21 miles of shoreline and camping locations (DWR 2016).

#### Hungry Valley State Vehicular Recreation Area

The Hungry Valley State Vehicular Recreation Area (SVRA) is the second largest unit of California State Park's Off-Highway Motor Vehicle Recreation Division and is located approximately three miles west of the Project site, as measured from the Quail Lake vicinity. Hungry Valley offers 19,000 acres and over 130 miles of scenic trails for motorcycles, all-terrain vehicles (ATVs), dune buggies, and 4x4 vehicle recreation as well as hikers and bicyclists. Although primarily an off-highway vehicle (OHV) facility, there are additional trails and areas of the park that are only accessible to hikers and bicyclists. Elevations at Hungry Valley range from 3,000 feet above mean sea level (msl) to nearly 6,000 feet above msl (CDPR 2015c).

#### Antelope Valley California Poppy State Reserve

The Antelope Valley California Poppy Reserve was established to protect and perpetuate outstanding displays of native wildflowers, particularly the California poppy (*Eschscholzia californica*), which is the state flower. This 1,745-acre State Reserve, nestled in the Antelope Buttes, is approximately 20 miles east of the Project site at an elevation ranging from 2,600 feet above msl to 3,000 feet above msl; it is located on California's most consistent poppy-bearing public land. Other wildflowers in the reserve include owl's clover (*Castilleja exserta* ssp. *Exserta*), lupine (*Lupinus* sp.), goldfield (*Lasthenia californica*), cream cups (*Platystemon californicus*), and coreopsis (*Coreopsis lanceolata*). Eight miles of trails, including a paved section for wheelchair access, wind through the wildflower fields. The reserve is a natural area, where only day use (hiking and picnicking) is allowed. Activities include exhibits and programs, guided tours, hiking trails, and nature trails. Facilities include parking, picnic areas, restrooms, and a visitor center (CDPR 2015d).

#### Arthur B. Ripley Desert Woodland State Park

Added to the State Park system in 1988, the 566-acre Ripley Desert Woodland State Park is located approximately 5 miles west of the Antelope Valley California Poppy Reserve on Lancaster Road (an extension of West Avenue I) at 210<sup>th</sup> Street West, and approximately 15 miles southeast of the Project site. The park protects and preserves a large stand of native Joshua trees (*Yucca brevifolia*) and juniper trees (*Juniperus* sp.), which once grew in great abundance throughout the Antelope Valley. Today, only remnants of this woodland community remain in the valley. Facilities at the park primarily include hiking trails (CDPR 2015e).

#### Fort Tejon State Historic Park

Fort Tejon State Historic Park (SHP) is located off Interstate (I) 5 at the Fort Tejon exit near the top of Grapevine Canyon. Fort Tejon was originally built to protect and control the Native Americans who were living on the Sebastian Indian Reservation, and to protect both Native Americans as well as white settlers from raids by the Paiutes, Chemeheui, Mojave, and other native groups of the desert regions to the southeast. The park has many restored adobe structures that were part of the original Fort, and the park offers guided tours, exhibits,

interpretive programs, group campsites, picnic areas and a visitor center. The park's museum features exhibits from historic army life and local history (CDPR 2015f).

## **Regional and Local**

### ***Los Angeles County***

As of 2010, the Antelope Valley PPA (48), which includes the Project site, has approximately 50 acres of local parks and 3,870 acres of regional parks. Based on the 2010 population and the County's parkland acreage goals, the County reports a deficit of 244 acres of local parks and a surplus of 1,573 acres of regional parks in the Antelope Valley Planning Area (DRP 2015b).

As shown on Exhibit 5.14-1, PPA 48 encompasses the Project site and the western portion of the Antelope Valley. The eastern boundary of PPA 48 extends east to 170<sup>th</sup> Street West in Lancaster, west to the Los Angeles/Ventura County line, north to the Los Angeles/Kern County line, and south to the northern portion of Castaic Lake. The County General Plan's Figure 10.3: Community, Neighborhood and Pocket Park Service Radius Map, indicates that the northwestern portion of the County currently has no local park coverage (DRP 2015b). Because local parks are typically associated with existing urban environments and functioning communities and because they are intended to offer opportunities for daily recreation, local parks are sized according to the community's needs. According to the County General Plan, local parks can range in size from less than ¼ acre to 20 acres. The nearest County-owned local parks—not including wildlife sanctuaries, reserves, and natural areas—are located in the communities of Castaic (Del Valle Park, Hasley Canyon Park, and Hasley Canyon Equestrian Center), Quartz Hill (George Lane Park), Acton (Acton Park), and Valencia (West Creek Park and Tesoro Adobe Historic Park) (DPR 2015b). All these facilities are 20 miles or more from the Project site.

Two County regional/specialized facilities of note are the Castaic Sports Complex, which covers approximately 54 acres and is located at 31230 Castaic Road in the unincorporated community of Castaic, approximately 20 miles south of the Project site, and the approximately 54-acre Apollo Community Regional Park (Apollo Park), located approximately 25 miles from the Project site in the City of Lancaster. The sports complex includes baseball fields, picnic facilities, aquatics complex, children's play areas, and public restrooms as well as a proposed in-ground skate park. Apollo Park includes a fishing lake, children's play areas, restrooms, an outdoor amphitheater, maintenance building and office, and parking area (DPR 2015b).

### **Castaic Lake State Recreation Area**

The Castaic Lake State Recreation Area (CLSRA) is located approximately 20 miles south of the Project site, at 32132 Ridge Route Road, in the unincorporated community of Castaic. Castaic Lake is one of the State Water Project's (SWP's) largest reservoir facilities and offers 29 miles of shoreline and a main attraction is the 425-foot-tall Castaic Dam. The CLSRA is maintained and operated by the County of Los Angeles Department of Parks and Recreation. CLSRA has two bodies of water, the lower lake and upper lake. The lower lake is for non-power boating and canoeing, with a swimming season from mid-May to mid-September. The

upper lake is for sailing, power boating, water and jet skiing, and fishing, being stocked with bass, trout, and catfish. Boat rentals and a tackle bait shop are available for visitors. The CLSRA also provides hiking and biking trails, playgrounds, and picnic areas; rental group picnic areas are available for up to 600 persons (CDPR 2015g).

### ***Kern County***

Because of the Project site's proximity to the Kern County boundary, the location and accessibility of facilities at Kern County parks were investigated. The County of Kern Parks and Recreation Department manages 8 regional parks, 40 neighborhood parks, and 25 public buildings, and it supervises 3 golf courses. The nearest and most accessible park facility to the Project site is Frazier Mountain Park in Frazier Park, approximately ten miles northwest of the Project site (as measured from the Quail Lake vicinity). Other, more distant, parks in Kern County that are accessible from I-5 include the Buena Vista Aquatic Recreation Area (just outside Taft) and the Metropolitan Recreation Center in Bakersfield (see Exhibit 5.14-1, Existing Open Space and Recreation Areas). Both facilities are located more than 40 miles north of the Project site off I-5 and SR-99, respectively. Another Kern County facility is Tehachapi Mountain Park. Geographically, this Park is only about 25 miles northeast of the Project site. However, because there is no direct access to this facility through the Tehachapi Mountains, access to the park is possible via SR-138, SR-14, and ultimately, SR-58. Travel distance from the Park to the Project site is approximately 70 miles (KCPRD 2016).

### **Private Facilities**

#### ***Wind Wolves Preserve***

The Wildlands Conservancy (TWC) purchased more than 93,000 acres to create the Wind Wolves Preserve (Preserve), which is the largest nonprofit preserve on the West Coast (TWC 2015). Located in Kern County, it is west of the Tejon Industrial Complex and southwest of where SR-166 and I-5 intersect. The Preserve is located approximately ten miles northwest of the Project site.

The Preserve is home to the federally-listed Endangered and State-listed Threatened San Joaquin kit fox (*Vulpes macrotis mutica*) and the State- and federally-listed Endangered blunt-nosed leopard lizard (*Gambelia sila*), and includes one of the largest stands of the State-listed Endangered Bakersfield cactus (*Opuntia basilaris* var. *treleasei*). Vegetation types include grasslands, California blue oak, valley oak savanna, and extensive riparian wetlands. At higher elevations, juniper and pinyon forests are present that ascend to stands of big-cone spruce (*Pseudotsuga macrocarpa*) and ponderosa pine (*Pinus ponderosa*). TWC activities on the Preserve include guided outdoor education programs, such as hiking and vehicle tours, an annual Nature Festival, and movie/picnic evenings (TWC 2015).

### **Trails and Bikeways**

The region surrounding the Project site has an existing and proposed trail system, composed of paths under federal, State, and County jurisdictions. These trails are described further below. There are numerous existing unpaved roads on the Project site related to ranching operations and utility access; however, the Project site is private land and there are no public



access trails. Exhibit 5.14-2, Existing and Proposed Trails, and Exhibit 4-8, Existing and Proposed Bikeways, depicts the location of existing and proposed trails and bikeways, respectively, on and near the Project site.

### ***Angeles and Los Padres National Forest Trails***

The ANF offers 557 miles of hiking and equestrian trails, which include 73 miles of National Recreation Trails and 176 miles of the Pacific Crest National Scenic Trail (PCT), discussed further below (USDA Forest Service 2010). The LPNF contains 1,257 miles of maintained trails for both day-use and extended backpacking opportunities (USDA Forest Service 2016b).

### ***Pacific Crest Trail***

#### Existing Alignment

The PCT is a designated National Scenic Trail that traverses approximately 2,650 miles through 3 states (California, Oregon, and Washington); it begins at the Mexican border and reaches the Canadian border. It was established under the National Trails System Act of 1968. Only non-mechanized activities, including foot and horse travel, are permitted; bicycle use is prohibited. The U.S. Forest Service has the overall responsibility for the PCT, and, relevant to the California portion of the trail, has established a Pacific Crest Trail Program Manager in the Pacific Southwest Regional Office. However, responsibility for trail operations is shared by the National Park Service, the Bureau of Land Management, California State Parks, and the Pacific Crest Trail Association, as well as managers of the tribal, provincial, state, and county lands through which the trail passes (USDA Forest Service 2015c). A segment of the PCT extends for 160 miles through the Angeles National Forest.

The nearest existing point of the PCT to the Project site is approximately 1.75 miles to the east-southeast (measured from the most eastern area of the Project site). The existing alignment of that portion of the PCT which is nearest the Project site travels due north where it emerges from the Angeles National Forest and aligns with 270<sup>th</sup> Street West and turns due east at the California Aqueduct for approximately one mile to the bridge at Three Points Road. From there, the PCT continues generally moving in a northeasterly direction into the Tehachapi Mountains.<sup>2</sup> Exhibit 5.14-2 depicts the existing alignment of the PCT. The Pacific Crest Trail Association (PCTA), a non-profit public benefit organization, holds as its mission to “protect, preserve and promote the Pacific Crest National Scenic Trail so as to reflect its world-class significance for the enjoyment, education and adventure of hikers and equestrians” (PCTA 2007).

#### Proposed Alignment

The PCT has an existing alternative alignment referred to as the “1973 Permanent Alignment”. The 1973 Permanent Alignment begins where the trail intersects SR-138 and Pine Canyon Road/County Road N2. Across from the trail is Oso Canyon, which is parallel to the California Aqueduct and which runs through the center of the Project site. However,

---

<sup>2</sup> The existing alignment described is based on the Google Earth .kmz layer provided by the USDA Forest Service.

approving the relocation of a public access trail near a major water facility is unlikely, given public health and safety concerns. Additionally, the Project site is private land, despite the planned alignment of a public trail pathway across the site by another agency.

The Forest Service, the PCTA, the Conservancy, and the Tejon Ranch Company are in ongoing discussions regarding an alternative realignment for the PCT. Specifically, the Forest Service, the PCTA, the Conservancy, and the Tejon Ranch Company are discussing the relocation of the segment of the PCT, discussed above, that currently crosses Lancaster Road at 270<sup>th</sup> Street West approximately two miles east-southeast of the Project site so that it is generally aligned along 300<sup>th</sup> Street West between SR-138 and the northeastern corner of the Project site, as shown on Exhibit 5.14-2. A portion of the western right-of-way of 300<sup>th</sup> Street West has been reserved for the conceptual PCT realignment where this conceptual realignment is contiguous with a portion the Project site and where it bisects the northeastern corner of the site. An appropriate buffer would be a buffer between the easement and Project development in the easternmost areas of the site (see Exhibit 4-10a, Centennial Project – Recreation and Trails Plan).

However, the precise location of the conceptual new alignment has not been finalized and discussions are still underway. Although not finalized, the 300<sup>th</sup> Street West alignment described above is assumed to be the future proposed alignment in this EIR. It should be emphasized that, although the PCT realignment is being considered as part of Project site development so that its ultimate location is beneficial to both the Project site and the wider Project area, it is not proposed by the Applicant and is not part of the Project. When and if implemented, the PCT realignment would be a separate Project with a separate environmental permitting process.

### ***Los Angeles County Trails***

The County General Plan's Figure 10.1: Regional Trail System Map, as reflected on the AVAP's Map 3.2: Town and County Planning Area-Trails, does not indicate existing or proposed trails on or near the Project site. The nearest trails are proposed alignments overlapping or near the PCT in the Three Points area approximately two miles to the east of the site (DRP 2015a, 2015b).

Additionally, although the County's Regional Trail System Map does not indicate existing or proposed trails within the Project site, the Project shall provide a County multi-use (hiking, equestrian, and mountain biking) trail that would connect to other (or non-County) trails and greenways, the PCT, and proposed open space. All proposed County regional trails shall be planned, designed, and developed in accordance with the County's Trail Manual.

### ***Los Angeles County Bikeways***

The County General Plan's Bicycle Master Plan, a sub-element of the Mobility Element and adopted in March 2012, provides policy guidance for building a comprehensive bicycle network throughout the unincorporated areas. The Bicycle Master Plan identifies bikeways and transportation systems that are available for use by bicyclists (e.g., roadways with bike lanes or designated bike routes) and dedicated off-road bike paths (e.g., bike paths along the flood protection channels) (DRP 2015b). The Bicycle Master Plan indicates a proposed Class

III Bike Route, more than 15 miles from the Project site, following Pine Canyon Road/County Road N2 from its intersection with SR-138 near Quail Lake southeast to Lake Hughes Road (LACDPW 2012).

### ***Kern County Trails***

The private Tejon Ranch property extends northward from Los Angeles County into Kern County; there are no official Kern County trails in this area. Additionally, there is little to no trail connectivity between the Kern County trail system and the Los Angeles County trail system other than the PCT described above, as evidenced by the trails maps in the County General Plan and the AVAP (DRP 2015a, 2015b).

## **5.14.2 PROJECT DESIGN FEATURES**

**PDF 14-1** The Project shall provide an extensive system of community trails and greenways within the Project site. The Project shall provide a County multi-use (hiking, equestrian, and mountain biking) trail with connectivity to other (or non-County) proposed trails and greenways, the Pacific Crest Trail, and proposed open space. All proposed County regional trails shall be planned, designed, and developed in accordance with the County's Trails Manual and the County General Plan's Regional Trail System adopted in October 2015.

**PDF 14-2** The Green Development Program will require the implementation of measures to encourage an environmentally healthy environment. Following are required Green Program practices related to parks and recreation (please see Table 1-B-1 of Appendix 1-B in the Project, which is Appendix 4.0-A of this EIR):

- Provide an extensive system of community trails, greenway trails, and natural corridors to serve as recreational opportunities and as alternative means of transportation to reduce vehicular traffic.
- Provide "complete streets" throughout the community to provide alternative modes of transport (walking, biking, low-speed vehicles (LSVs) such as neighborhood electric scooters, bikes and other low-speed electric vehicles (NEVs).
- Incorporate sidewalks (separated by a parkway from streets) and trees to be the main street elements to create a walking environment, promoting pedestrian activity.
- Provide Class I – IV bike lanes throughout the Project to ensure a variety of alternative transportation options.
- Provide permanently anchored bicycle racks within 200 feet of visitors' entrance of nonresidential buildings, readily visible to passers-by, for 5 percent of new visitor motorized vehicle parking spaces being added, with a minimum of two-bike capacity rack.

- For new nonresidential buildings with over 10 tenant-occupants or for additions or alterations that add 10 or more tenant vehicular parking spaces, provide secure bicycle parking spaces at a rate of 5 percent of tenant parking being added, with a minimum of one space.
- For residential buildings, provide permanently anchored bicycle racks within 100 feet of the visitor's entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity with a minimum of one two-bike capacity rack.
- Nonresidential buildings within the Business Park and Commercial areas with 75,000 or more square feet of gross floor area shall provide locker rooms and shower facilities.
- For multifamily buildings, provide on-site bicycle parking for at least one bicycle per every two dwelling units
- Include planned green space, which are integrated pockets of open space (including greenways, tree stands, hillsides, and community parks) with minimal developed amenities. Planned green space reduces evapotranspiration; allows natural percolation of runoff from adjacent lands; reduces the heat island effect; adds aesthetic value; and provides for or helps protect habitat values.

**PDF 14-3** The Project includes 163 acres of public Park Overlay, which includes acreage to meet the County's Parkland Dedication Ordinance requirement. In addition, the Applicant will fund the cost of constructing and equipping the public parks on the Project site, pursuant to a park development agreement; statutory development agreement pursuant to Section 65864 et seq. of the *California Government Code*; or other condition of approval.

**PDF 14-4** The Project includes private recreational facilities, including one or more community-wide recreation centers. The community recreation centers may include pools, sports courts, workout equipment, crafts, meeting rooms and ballrooms, among other amenities. No specific locations for the community-wide recreation centers have been identified. Other private recreational facilities could include clubhouses for active adult communities and small recreation centers for multi-family developments that could include amenities such as a pool, cabana, meeting room, and kitchen.

## Threshold Criteria

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact if it would:

**Threshold 14-1** Increase the use of the existing neighborhood and regional parks or other recreational facilities such that a substantial physical deterioration of the facilities would occur or be accelerated.

- Threshold 14-2** Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.
- Threshold 14-3** Interfere with regional open space connectivity.
- Threshold 14-4** Create capacity or service level problems, or result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, in order to maintain acceptable service ratios, response times or other performance objectives for parks.

### 5.14.3 ENVIRONMENTAL IMPACTS

- Threshold 14-1** **Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?**

#### **On-Site Impacts**

##### ***On-Site Recreational Facilities and Trails***

As the Project site is privately owned, there are no existing public parks or other recreation facilities on the Project site. Therefore, Project implementation would not have an effect on any existing on-site recreational facilities.

##### ***Off-Site Recreational Facilities and Trails***

The Project would provide ample on-site recreational opportunities, including parks, playgrounds, hiking, biking, picnicking, and wildflower and wildlife viewing/bird watching areas (discussed under Threshold 14-2 below); however, the increase in population on the Project site of 57,150 persons would also create a demand for the use of existing off-site regional facilities.

Recreational opportunities at surrounding (off-site) federal, State, and County (Los Angeles and Kern) facilities include activities such as camping, fishing, target shooting, hunting, hang-gliding, rock-climbing, OHV use, boating and water sports, water play, and skiing that would not be available on the Project site. It is reasonable to assume that a portion of Project residents would take advantage of their proximity to these alternate recreational facilities, even with the availability of recreational amenities on the Project site. Future Centennial residents would potentially travel to National Forests as well as State recreational facilities farther to the north or elsewhere in the region for a portion of their recreational activities, especially given the Project site's location at the outskirts of northern Los Angeles County and convenience to I-5, the major Statewide highway, as well as the variety of parks available to Southern Californians.

A portion of the new Centennial residents are expected to relocate from the greater Los Angeles metropolitan area, including the Santa Clarita Valley, and would already be users of the recreational facilities throughout northwestern Los Angeles County and other facilities in the state. It is possible that future Project residents would be drawn to relocate to the Centennial Project because of its proximity to these recreational amenities. However, the Project is also anticipated to result in an overall increase in the residents and visitors to this portion of the County. Therefore, it would be expected that implementation of the Project would result in an increase in the number of visitors (i.e., Project residents) to these surrounding facilities.

With the abundant and varied park and recreational facilities available to Southern Californians and the particular abundance of such facilities in northern Los Angeles County, the visits to off-site recreational facilities by the future residents of the Centennial Project who would pursue such interests would be widely dispersed among these different facilities. With an increase in use at off-site recreational facilities, a corresponding increase in maintenance demands would occur. As described in Section 5.14.2, Relevant Plans, Policies, and Regulations, the federal, State, and County agencies that operate and maintain public recreational facilities have implemented various fee programs. Therefore, future visitors from the Project site at surrounding recreational facilities would contribute fees as established at each facility to supplement other funding, such as tax and other government revenue, for maintenance activities for all facilities of each agency. As such, an increase in visitation would correlate with a corresponding increase in park revenue to those agencies and facilities that have fee programs.

Therefore, although the Project would result in an increased use of regional parks and recreational facilities, it is anticipated that the majority of the Project's demand for recreation will be satisfied through on-site facilities (see Threshold 14-4). For those future residents that would also utilize nearby National Forests as well as State recreational facilities, the potential impact on recreational facilities would be accounted for through user fees and tax revenues. The Project would not result in a substantial physical deterioration of the off-site recreational facilities, and impacts would be less than significant.

Regarding trail usage, the Project would provide for on-site greenway trails in addition to community trails, bicycle paths, and other accessways that promote non-vehicular modes of travel throughout the Project site (see Threshold 14-2). A system of on-site recreational trails is proposed as part of the Project's non-vehicular circulation system and a subset of these trails would be able to accommodate bicyclists and is designed to link to the conceptual location of the adjacent, off-site bikeway extending from SR-138 near Quail Lake planned by the County pursuant to the Bikeway Master Plan. As such, the Project is consistent with the intent of the County General Plan for a network of bikeways.

In addition to on-site trail use, it is expected that a portion of future residents would seek out other nearby regional trails such as the PCT as well as the more distant off-site County, State, and federal trails in the western Antelope Valley. As previously mentioned, the Forest Service, the PCTA, the Conservancy, and the Tejon Ranch Company are in ongoing discussions regarding an alternative realignment for the PCT near 300<sup>th</sup> Street West. Overall, the number of users and frequency of use of off-site trails in the immediate area would likely

increase over time due to the increase in population associated with the Project. Project residents would also be expected to use the realigned PCT.

Public trails are usually designated for certain types of use. County and other trails are generally signed as to the allowed uses.

Because the Project would introduce a new population to nearby existing trails, some of which would restrict off-road bicycle use, there could be an increase in unauthorized off-road bicycle traffic on trails. As this is a unique and specific form of recreation among a given population, the percentage of Project-related mountain bike enthusiasts would be comparatively small, with an even smaller subset of people that would not adhere to posted trail restrictions. Although a small portion of Project residents may utilize off-site trails for unauthorized off-road biking, it is anticipated that this proportion would not be large enough to cause substantial deterioration of the existing off-site trails and impacts would be less than significant.

In summary, while an increase in use of existing recreational facilities (e.g., parks, forests, trails) is expected, for the reasons discussed above, implementation of the Project is not anticipated to require the construction or expansion of off-site recreational facilities and trails or otherwise cause substantial physical deterioration at any one of these facilities and trails. Therefore, the Project would have a less than significant impact on off-site recreation facilities.

## **Off-Site Impacts**

The off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, are not, by themselves, population-generating land uses. As such, the off-site features would have no impact on existing recreational facilities and no mitigation is required.

**Impact Summary:** There are no on-site recreational facilities that would be impacted by Project implementation. The Project would increase the local population that would be expected to increase visitation to off-site federal, State, and County recreational facilities and trails in the Project area. While implementation of the Project would increase visitation to regional recreational amenities, it is not expected that the increased visitation at any single facility or trail would result in substantial physical deterioration or would necessitate the construction or expansion of off-site recreation facilities or trails that could result in a physical environmental impact. The Project would result in less than significant impacts related to existing, off-site federal, State, and County recreational facilities and trails, such as the National Forests and PCT.

**Threshold 14-2**      **Would the project include recreational facilities or require the construction or expansion of recreational facilities that could have an adverse physical effect on the environment?**

## On-Site Impacts

### *On-Site Recreational Facilities and Trails*

The Project would provide a variety of parkland and recreational facilities within the Project site for use by these new residents as well as visitors to the area. The Project includes approximately 163 acres of public parks within the Park Overlay. This acreage would include neighborhood parks, community parks, and community regional parks (PDFs 14-1 through 14-4, MMs 14-1 through 14-5). The Project would provide parks and recreational facilities, including trails, consistent with the AVAP's Goal PS 8 and Policies PS 8.3, 8.5, and 8.7 in amount, amenities, and location, as discussed further under Threshold 14-4.

Per the Los Angeles County General Plan, pocket parks are less than three acres in size, and serve residential or business areas within a ¼-mile radius or within walking distance. Amenities for pocket parks can include both active and passive features, depending on the community's setting and need, such as children's play apparatus, picnic areas, fountains, and seating areas, and include squares and plazas associated with commercial and civic uses. Pocket parks within the Project would be privately owned and maintained, but open to the public.

Neighborhood parks are typically between 3 and 10 acres and are located to serve surrounding neighborhoods within a ½-mile radius. Amenities can include informal open play areas, children's play apparatus, picnic facilities and barbeques, and sports fields.

Community parks are typically 10 to 20 acres and serve several neighborhoods within a 1- to 2-mile radius; they are intended to provide a wide variety of active and passive recreational activities, including group activities that may not be feasible in a neighborhood park. Amenities can include those provided for neighborhood parks as well as group picnic areas with overhead shelters, lighted sports fields, basketball and tennis courts, concession buildings, maintenance buildings, on-site parking areas, and information kiosks.

Community regional parks are typically 20 to 100 acres and have a service radius of 20 miles. Amenities for community regional parks can include a jogging exercise course, informal open play areas, children's play apparatus, group picnic areas with overhead shelters, barbecues, lighted sports fields, basketball courts and tennis courts, information kiosks, public restrooms, concession buildings, recreation offices, maintenance buildings, and on-site parking areas. Community regional parks may also have one or more of the following features: multiple sports facilities, an aquatics center, a fishing lake, a community building and gymnasium, and scenic views and vistas.

The Project includes a County multi-use (hiking, equestrian, and mountain biking) trail and a system of community trails within the street right-of-way that can also be used as a bike path, as trails within the greenways (also considered bike paths), and as Class II Bicycle Lanes (PDFs 14-1 and 14-2, MM 14-1). The trail system would connect residential neighborhoods to commercial, employment, school, parks, civic, and institutional land uses. The trail system would connect through the use of underpasses beneath on-site roadways. By including a County multi-use (hiking, equestrian, and mountain biking) trail and a system



of community trails that reflect on-site mobility, connection to the regional trail system (i.e., PCT) and existing ecological resources, the Project is consistent with AVAP Goal M 10 and related Policies M 10.2 through 10.5. MM 14-1 would also require components of the Green Development Program to be implemented as part of the Project.

The physical impacts of the proposed recreational facilities are considered throughout this EIR as part of the overall impact footprint and construction plan for the Project. The development of these facilities, from preliminary earthwork and grading to construction to landscaping, would contribute to the environmental impacts of site development on the environment. As described through EIR Sections 5.1 through 5.21, the Project would result in environmental impacts that can be partially attributable to the creation of on-site recreational facilities. Some impacts would be less than significant, some would require mitigation, and some would be significant and unavoidable with the inclusion of mitigation.

### ***Off-Site Recreational Facilities and Trails***

As discussed under Threshold 14-1 above, the Project would not require the construction or expansion of off-site recreational facilities, and no environmental impacts would occur.

### **Off-Site Impacts**

The off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, are not, by themselves, population-generating land uses. As such, the off-site features would have no impact on existing or future recreational facilities and no mitigation is required.

***Impact Summary:*** The development of on-site recreational facilities, from preliminary earthwork and grading to construction to landscaping, would contribute to the environmental impacts described through EIR Sections 5.1 through 5.21. The Project would result in environmental impacts that can be partially attributable to the creation of on-site recreational facilities. Some impacts would be less than significant, some would require mitigation, and some would be significant and unavoidable with the inclusion of mitigation. As discussed under Threshold 14-1, less than significant impacts to off-site recreational facilities and trails are anticipated. As a result, no construction or expansion of off-site federal, State, and County recreational facilities and trails are anticipated. Impacts would be less than significant.

**Threshold 14-3      Would the project interfere with regional open space connectivity?**

### **On-Site Impacts**

Currently, there are no existing public parks or other recreation facilities on the Project site. However, several recreational facilities are proposed. As a result, the Project would facilitate regional open space connectivity.

The proposed on-site multi-use trail system is planned to link to the planned location of the County bikeway near the intersection of SR-138 and Quail Lake adjacent to the Project site. The County multi-use (hiking, equestrian, and mountain biking) trail would traverse the Project site just south of the SR-138 and connect with the proposed re-alignment of the PCT along 300<sup>th</sup> Street West (PDFs 14-1 and 14-2, MM 14-1), increasing regional trail connectivity. Regarding open space, of the 5,624 acres of designated Open Space, approximately 5,478 acres (44 percent of the total Project site) are intended to (1) remain in their original natural condition; (2) be restored; and/or (3) be enhanced by weed abatement, fencing, and native species planting, among other means. Of this amount, approximately 3,867 acres are designated as Los Angeles County Significant Ecological Area (SEA) 17 to be preserved within the Project site boundaries. Because the Project site is private property that did not previously result in recreational connectivity of open spaces, the presence of the proposed regional trail with equestrian access and facilities would also increase regional connectivity.

The open space areas that contain grasslands also have seasonal wildflower displays that would continue to be available for viewing from publicly accessible vantage points, including the proposed County multi-use (hiking, equestrian, and mountain biking) trail, and from within the Project site by future residents and visitors. Also, a Public Access Plan will be developed in connection with the development of the Ranch Wide Management Plan (RWMP) to ensure significant, but well-managed, public access into the Conservation Easement Area.

## Off-Site Impacts

The off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, are not, by themselves, population-generating land uses. As such, the off-site features would have no impact on existing recreational facilities and no mitigation is required.

***Impact Summary:*** Currently, there are no existing public parks or other recreational facilities on the Project site. The Project is not located on existing lands dedicated as regional open space. The Project does not physically bisect regional open space, nor is it located between two areas designated as regional open space. With inclusion of features like the multi-use trail, with the continuance of open space areas, and with implementation of the Public Access Plan, the Project would not interfere with regional open space connectivity. In fact, the Project would facilitate regional open space connectivity. Impacts would be less than significant regarding regional open space connectivity.

**Threshold 14-4** **Would the project create capacity or service level problems, or result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, in order to maintain acceptable service ratios, response times or other performance objectives for parks?**

## On-Site Impacts

As discussed in Section 5.14.2, Relevant Plans, Policies and Regulations, there are two County-level parkland standards applicable to the Project, the County Parkland Dedication Ordinance (i.e., Quimby Act) and the County General Plan local park standard. Both are included in the discussion of County parkland requirements. The County General Plan parkland standard is 4 acres of local parkland per 1,000 residents in the unincorporated areas, and 6 acres of regional parkland per 1,000 residents of the total population of Los Angeles County (incorporated and unincorporated). Preliminary parkland requirements for the Project have been calculated under the County Parkland Dedication Ordinance, as shown further below in Table 5.14-1, Quimby Act/Parkland Dedication Ordinance Requirement for the Centennial Project, representing full buildout; parkland standards have been calculated under the County's General Plan, as shown below in Table 5.14-2, General Plan Parkland Standard for the Centennial Project.

These parkland estimates are calculated using the County's park space obligation formula and associated average household sizes for PPA 48, defined in Section 21.24.340 of the County Code, which is adjusted annually on July 1<sup>st</sup>. Therefore, pursuant to the State CEQA Guidelines, the analysis of parkland obligation is based on the formula published in the County Code in effect at the time of Notice of Preparation (NOP) distribution (i.e., effective July 1, 2015) and subsequently updated July 1, 2016, rather than the estimated population calculated as part of the Project. As discussed further below, the parkland obligation, and the Project's credit against that obligation, would be determined for each future tract map based on the Parkland Dedication Ordinance formula in effect at that time.

Also, these are preliminary calculations of parkland requirements because tract maps have not yet been developed and therefore the number and balance of housing types (which drives the calculation of parkland requirements for the County) would be refined as tract maps are developed. However, the Applicant has consulted with County DPR, including the Director, regarding the Project's planned recreation features and their relationship with County parkland requirements under the Parkland Dedication Ordinance and the General Plan. As discussed further below, based on consultation with the County DPR, the types and amounts of recreation amenities proposed for the Project would meet and exceed Parkland Dedication Ordinance requirements and General Plan standards.

### ***Preliminary Parkland Dedication Ordinance Requirement***

As shown in Table 5.14-1, based on Quimby Act/County Parkland Dedication Ordinance requirements, the Project would have a preliminary parkland obligation of approximately 147 acres. The County's parkland obligation can be met several ways, including dedication of undeveloped land only; payment of in-lieu park fees based on the Representative Land Value (RLV) per acre defined in the Parkland Dedication Ordinance; dedicate a lesser acreage of parkland but developed with amenities of equal value to the park fee based on estimated park development costs; or do a combination of the above. The County provides Quimby Act/Parkland Dedication Ordinance "credit" for parkland based on the proposed use that is dedicated for public park purposes, and the development costs for public parks using the equivalent RLV acreage in effect when the tract map (including each park) is adopted. The

County makes a determination regarding both the acreage and condition (i.e., slope, cost of amenities) of public parkland considered acceptable as part of the tract map review process.

**TABLE 5.14-1  
QUIMBY ACT/PARKLAND DEDICATION ORDINANCE REQUIREMENT  
FOR THE CENTENNIAL PROJECT**

No. of Dwelling Units (U)	Average Household Size <sup>a</sup>	Estimated Population under Parkland Dedication Ordinance	Parkland Assessment Factor <sup>b</sup>	Obligation In Acres
14,098 Detached and Attached SF	2.52	35,527	0.003	106.58
2,643 MF (2 to 4 du/bldg)	3.80	10,043	0.003	30.13
2,592 MF (>5 du/bldg)	1.26	3,266	0.003	9.80
<b>19,333 Total Units</b>	<b>N/A</b>	<b>47,708</b>	<b>N/A</b>	<b>146.51</b>
SF: single family; MF: = multi-family; du: dwelling units; bldg: building Under the Quimby Act/County Parkland Dedication Ordinance, the County parkland obligation is calculated using the formula defined in the Parkland Dedication Ordinance ( $X = 0.003 [U \times P]$ ). The park space obligation (X) is calculated by multiplying 0.003 (mathematically equivalent to 3 acres per 1,000 persons) by the number of dwelling units (U) times the average household size for each type of household defined for each Park Planning Area (P). <sup>a</sup> Based on <i>Los Angeles County Code</i> , Section 21.24.340 <sup>b</sup> Equivalent to 3 acres per 1,000 persons Source: <i>County of Los Angeles Code</i> , Section 21.24.340.				

As described in PDF 14-3 and required through implementation of MM 14-3, the Project includes approximately 163 acres of Park Overlay, which would include neighborhood parks, community parks, and community regional parks. Also, each public (i.e., County-owned and operated) park would be developed in accordance with schematic designs recommended by the County DPR and/or as approved by the Regional Planning Commission and/or the County Board of Supervisors as part of approval of each tentative tract map. The exact acreage to be credited for the construction and equipping of parks would be refined through estimates prepared for each park for each future tract map and continued review by County DPR as each tract map moves through the County's planning process, subsequent to the CEQA process (MM 14-4). Therefore, the Project is anticipated to meet, and substantially exceed, the preliminary Parkland Dedication Ordinance/Quimby Act requirement of approximately 147 acres when considering the total amount of Park Overlay (163 acres) combined with the RLV acreage equivalent for the cost of development of each park, which generally runs into multi-million dollar figures.

In compliance with the Parkland Dedication Ordinance, (1) the quantity of public parks shall be provided consistent with the conditions of approval defined by the County for each tract map and (2) parkland would be dedicated to the County in a developed condition, providing for acreage equivalency credit. The conditions of approval for each tract map would stipulate the timing of construction and dedication of each public park based on the number of residential units proposed in each tract map. As With implementation of PDF 14-3, and MMs 14-2 through 14-4, there would be less than significant impacts related to the County Parkland Dedication Ordinance/Quimby Act requirements.

### **Preliminary County General Plan Parkland Standard**

As shown in Table 5.14-2 below, based on the County's General Plan standard of 4 acres of local parkland per 1,000 persons, the Project would have a preliminary requirement to provide approximately 195 acres of parkland. The County General Plan standard can be met with the same methods as the Parkland Dedication Ordinance, discussed above. In addition, the Project includes acreage for additional amenities beyond that which is required by the County General Plan standard (MM 14-5). There are proposed recreation amenities beyond public parks that could potentially be utilized to meet the General Plan standard. These include pocket parks (public and private); private commercial recreation facilities; private community recreation facilities (e.g., in multi-family complexes); and the County multi-use (hiking, equestrian, and mountain biking) trail.

**TABLE 5.14-2  
GENERAL PLAN PARKLAND STANDARD FOR THE CENTENNIAL PROJECT**

<b>No. of Dwelling Units (U)</b>	<b>Average Household Size<sup>a</sup></b>	<b>Estimated Population under Parkland Dedication Ordinance</b>	<b>Parkland Assessment Factor<sup>b</sup></b>	<b>Obligation In Acres</b>
14,098 Detached and Attached SF	2.52	35,527	0.004	142.11
2,643 MF (2 to 4 du/bldg)	3.80	10,043	0.004	40.17
2,592 MF (>5 du/bldg)	1.26	3,266	0.004	13.06
<b>19,333 Total Units</b>	<b>N/A</b>	<b>47,708</b>	<b>N/A</b>	<b>195.34</b>
SF: single family; MF: multi-family; du: dwelling units; bldg.: building The proposed General Plan County parkland obligation is also calculated using the formula defined in the Parkland Dedication Ordinance as in Table 5.14-2 above, with the requirement for 4 acres per 1,000 persons for local parkland. <sup>a</sup> Based on <i>Los Angeles County Code</i> , Section 21.24.340 <sup>b</sup> Equivalent to 4 acres per 1,000 persons Source: <i>County of Los Angeles Code</i> , Section 21.24.340.				

The General Plan local parkland standard (approximately 195 acres) would be met by the 163 acres of Park Overlay combined with the other recreation amenities to be provided on-site. While the precise acreage of recreational amenities beyond the public parks dedicated to the County would not be quantified until each tract map is being processed, for instance the 163 acres of Park Overlay and the approximate 46 acres of Recreation Centers, private pocket parks, and a Regional Trail equates to approximately 209 acres of recreation features that could be credited against the General Plan standard. Therefore, it is anticipated the Project would also meet and exceed the General Plan local parkland standard.

Regarding the County's regional park standard of 6 acres per 1,000 residents of Los Angeles County, the approximate 163-acre Park Overlay would include County-owned and operated community regional parks, among other public park types. As discussed in Section 5.14.2, Environmental Setting, the County General Plan reports a deficit of 244 acres of local parks and a surplus of 1,573 acres of regional parks in the Antelope Valley Planning Area (i.e. PPA 48) (LACDRP 2017). The estimated population shown in Table 5.14-2 (47,708 persons) equates to a regional parkland demand of approximately 286 acres, which could be met by PPA 48's existing surplus parkland (1,573) by more than five times. However, the Project

would include community regional parks that would be dedicated to the County of Los Angeles in a developed condition, which would contribute to the County's need for regional parks and recreational amenities commensurate with the population in the region. As discussed previously, based on consultation with the County DPR, the types and amounts of recreation amenities proposed in the Project would meet and exceed General Plan standards.

In summary, the Project will provide public and private recreational amenities that meet the acreage requirements of the General Plan parkland standard and each tract map submitted for the County DPR's review and clearance will have a table with a breakdown of acreage per lot for the categories of parkland to be credited against both the Parkland Dedication Ordinance/Quimby Act requirement and the General Plan standard. With implementation of PDFs 14-1 through 14-4, MMs 14-1 through 14-3, and MM 14-5, there would be a less than significant impact related to the County General Plan standard.

### **Off-Site Impacts**

The off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, are not, by themselves, population-generating land uses and, as such would have no County parkland requirements. The off-site features would have no direct or indirect impacts to recreational facilities, nor would they include the construction of recreational facilities. There would be no impact related to the need for additional recreational facilities and no mitigation is required.

**Impact Summary:** The Project would provide abundant and varied on-site recreational amenities, including County parks, in an area that currently has little local parkland. The Project includes 163 acres of Park Overlay, which includes developed public (i.e., County-owned and operated) parks that would meet and exceed the County's Parkland Dedication Ordinance requirement of approximately 147 acres when considering both acreage and equivalent RVL acreage for construction and equipping of each park. The General Plan parkland standard would be met by the public parks combined with the other recreation amenities to be provided on site, including public and private pocket parks, private commercial recreation facilities, private community recreational facilities (e.g., in multi-family complexes), and the County multi-use (hiking, equestrian, and mountain biking) trail. The exact acreages to be credited towards the Parkland Dedication Ordinance/Quimby Act requirements and General Plan standards would be refined through continued review by County DPR as each tract map moves through the County's planning process, and after the CEQA process is completed. With implementation of PDFs 14-1 through 14-4 and MMs 14-1 through 14-5, there would be a less than significant impact.

## 5.14.4 MITIGATION MEASURES

**MM 14-1** The Project shall implement the following components of the Green Development Program to provide healthy outdoor parks and recreational resources on the Project site:

- Provide a functional system of community trails, greenway trails, and natural corridors to serve as recreational opportunities and as alternative means of transportation to reduce vehicular traffic.
- Provide “complete streets” throughout the community to provide alternative modes of transport (walking, biking, low-speed vehicles (LSVs) such as neighborhood electric scooters, bikes and other low-speed electric vehicles (NEVs).
- Incorporate sidewalks (separated by a parkway from streets) and trees to be the main street elements to create a walking environment, promoting pedestrian activity.
- Provide Class I – IV bike lanes throughout the Project to ensure a variety of alternative transportation options.
- Provide permanently anchored bicycle racks within 200 feet of visitors’ entrance of nonresidential buildings, for 5 percent of new visitor motorized vehicle parking spaces being added, with a minimum of two-bike capacity rack.
- For new nonresidential buildings with over 10 tenant-occupants or for additions or alterations that add 10 or more tenant vehicular parking spaces, provide secure bicycle parking spaces at a rate of 5 percent of tenant parking being added, with a minimum of one space.
- For residential buildings, provide permanently anchored bicycle racks within 100 feet of the visitor’s entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity with a minimum of one two-bike capacity rack.
- Nonresidential buildings within the Business Park and Commercial areas with 75,000 or more square feet of gross floor area shall provide locker rooms and shower facilities.
- For multifamily buildings, provide on-site bicycle parking for at least one bicycle per every two dwelling units.
- Include planned green space, which are integrated pockets of open space (including greenways, tree stands, hillsides, and community parks) with minimal developed amenities. Planned green space reduces evapotranspiration; allows natural percolation of runoff from adjacent lands; reduces the heat island effect; and adds aesthetic value to a site. Planned green space can provide habitat as well as linkages to other habitat areas.

**MM 14-2** The Project Applicant/Developer shall implement the Parks and Recreation Plan as set forth in Chapter 3.12 of the *Centennial Specific Plan* to provide visually appropriate parks and recreational amenities to the Project site.

**MM 14-3** The Project Applicant/Developer shall construct 163 acres of parks consistent with the Park Overlay requirements of the *Centennial Specific Plan*, which includes acreage to meet the County's Parkland Dedication Ordinance requirements. In addition, the Project Applicant/Developer will fund the cost of constructing and equipping the public parks within the Project, pursuant to a park Development Agreement, a statutory Development Agreement pursuant to Section 65864 et seq. of the *California Government Code*, or other condition of approval.

For purposes of this measure, and as applied to all future Tentative Maps, the County shall deem all parks that are 3.0 acres or more in size as public parks, so long as each park site meets County standards for site suitability. The Project shall provide public parks to be developed in accordance with the schematic designs approved by the County.

Neighborhood and community parks shall contain various types of improvements that may include, but not be limited to, parking lot, walkways, plazas and other forms of hardscape, shade trellis, security lighting, trash enclosures, locking gates, fencing, open turf sports fields, basketball courts, multi-purpose ballfields, tennis courts, children's play areas, picnic areas (picnic tables with pads), shade structures/pavilions, restrooms with drinking fountains, recreation building, office and storage space/service yards, trees, landscaping (including plant material, grading, drainage, and irrigation), and park entry monuments.

**MM 14-4** The Project shall provide public parkland in compliance with the County of Los Angeles Parkland Dedication Ordinance/Quimby Act, with all acreage figures stated as "net" (three percent slope, maximum). Additionally, public parks shall be dedicated to the County in a developed condition, in accordance with the schematic designs recommended by the County and/or as approved by the Regional Planning Commission and/or the County Board of Supervisors as part of approval of each tract map as each phase of development occurs throughout the Project site with amenities consistent with County-approved plans. Developed public parks shall also be credited with an equivalency acreage correlating with the current Representative Land Value for the applicable Park Planning Area (currently Park Planning Area 48). All public parks must comply with County's Park Design Guidelines and Standards, Public Parks.

**MM 14-5** The Project shall provide public and private recreation amenities that equate to the acreage requirements of the County of Los Angeles General Plan local parkland standard (4 acres for every 1,000 persons in the unincorporated County). For purposes of monitoring compliance with the General Plan



standard, whenever either a Tentative Map or a Final Map is submitted for the County's review and clearance, those maps shall have a table that provides a breakdown of acreage per lot for the following categories: (1) Public Park acreage (maximum slope 3 percent or less), ; (2) Public Park Acreage Equivalency (which shall be based upon estimated Public Park Improvement Values derived from Total Project Cost Estimates required at the time of map clearance and the Parkland Dedication Ordinance/Quimby Ordinance in effect at the time the map is submitted); (3) Private Park acreage, including pocket parks; (4) Greenway and County multi-use (hiking, equestrian, and mountain biking) trail acreage; (5) Community Recreation Facility acreage; and (6) Private Recreation Facility acreage.

### 5.14.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

With incorporation of PDFs and MMs described above, the Project's impacts on parks and recreation would be less than significant.

### 5.14.6 REFERENCES

California Department of Parks and Recreation (CDPR). 2015a (Last accessed June 26). About Us. Sacramento, CA: CDPR. [http://www.parks.ca.gov/?page\\_id=91](http://www.parks.ca.gov/?page_id=91).

———. 2015b. California State Parks: Park Management. Sacramento, CA: CDPR. [http://www.parks.ca.gov/?page\\_id=24689](http://www.parks.ca.gov/?page_id=24689).

———. 2015c. California State Parks: Hungry Valley SVRA: Welcome to Hungry Valley State Vehicular Recreation Area. Sacramento, CA: CDPR. [http://ohv.parks.ca.gov/?page\\_id=1192](http://ohv.parks.ca.gov/?page_id=1192).

———. 2015d. Antelope Valley California Poppy Reserve State Natural Reserve. Sacramento, CA: CDPR. [http://www.parks.ca.gov/?page\\_id=627](http://www.parks.ca.gov/?page_id=627).

———. 2015e. Arthur B. Ridley Desert Woodland State Park. Sacramento, CA: CDPR. [http://www.parks.ca.gov/?page\\_id=634](http://www.parks.ca.gov/?page_id=634).

———. 2015f. Fort Tejon State Historic Park. Sacramento, CA: CDPR. [http://www.parks.ca.gov/?page\\_id=585](http://www.parks.ca.gov/?page_id=585).

———. 2015g. Castaic Lake State Recreation Area. Sacramento, CA: CDPR. [http://www.parks.ca.gov/?page\\_id=628](http://www.parks.ca.gov/?page_id=628).

California Department of Water Resources (DWR). 2016 (Last accessed April 22). Locations: Pyramid Lake. Sacramento, CA: CDWR. <http://www.water.ca.gov/recreation/locations/pyramid>.

———. 1997 (July). Quail Lake (Brochure). Sacramento, CA: CDWR.

California, State of. 2014 (effective date). *California Government Code* (Title 7, Planning and Land Use; Division 2, Subdivision; chapter 4, Requirements; Article 3, Dedications; Section 66477). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=2.&title=7.&part=&chapter=4.&article=3](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=2.&title=7.&part=&chapter=4.&article=3).

———. 1984. *California Government Code* (Title 7, Planning and Land Use; Division 1, Planning and Zoning; Chapter 4, Zoning Regulations; Article 2.5, Development Agreements; Section 65864). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=4.&article=2.5](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=4.&article=2.5).

Kern, County of, Parks and Recreation Department (KCPRD). 2016 (February 26, last modified). Parks. Kern, CA: the County. <http://www.co.kern.ca.us/gsd/parks/>.

Los Angeles, County of. 2017 (January 24, last accessed). *Los Angeles County, California – Code of Ordinances*. Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles. [https://www.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances](https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances).

Los Angeles, County of, Department of Parks and Recreation (LACDPR). 2015a (June 26, last accessed). Parks Locator. Search for parks in Castaic, Quartz Hill, Acton, and Valencia. Los Angeles, CA: LACDPR. <http://parks.lacounty.gov/wps/portal/dpr/parkslocator/>.

———. 2015b (June 27, Last accessed). Activities Reservation & Registration System. Los Angeles, CA: LACDPR. <http://reservations.lacounty.gov/>.

Los Angeles, County of, Department of Los Angeles, County of, Department of Public Works (LACDPW). 2012 (March 13, adopted). *County of Los Angeles Bicycle Master Plan*. Los Angeles, CA: LACDPW.

Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.

———. 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.

———. 2004 (March 2004). *Notice of Preparation: Centennial Specific Plan Project Description* (Project Number 02-232, Specific Plan, Conditional Use Permits, Oak Tree Permit, Zone Change, Development Agreement, Vesting Tentative Tract Map Numbers 60020, 60021, 60023, and Vesting Tentative Parcel Map Number 60022). Los Angeles, CA: DRP (Appendix 2.0-A).

Pacific Crest Trail Association (PCTA). 2007. About the Pacific Crest Trail Association.

Placeworks. 2017. *Centennial Specific Plan*. Santa Ana, CA: Placeworks (Appendix 4.0-A).

- U.S. Department of Agriculture, Forest Service (USDA Forest Service). 2016a (Last accessed April 22). Angeles National Forest, San Gabriel Mountains National Monument Visitor Guide. Sacramento, CA: USDA Forest Service. [http://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/fseprd493608.pdf](http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd493608.pdf).
- . 2016b (April). Welcome to the Los Padres National Forest. Sacramento, CA: USDA Forest Service. <http://www.fs.usda.gov/main/lpnf/home>.
- . 2015a (June 25, last accessed). Meet the Forest Service. Washington, D.C.: USDA Forest Service. <http://www.fs.fed.us/about-agency/meet-forest-service>.
- . 2015b (Last accessed June 25). Pacific Southwest Region: Planning. Sacramento, CA: USDA Forest Service. <http://www.fs.usda.gov/main/r5/landmanagement/planning>.
- . 2015c (Last accessed June 26). Pacific Crest Trail: National Scenic Trail, Mexico to Canada. Sacramento, CA: USDA Forest Service. [http://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5330516.pdf](http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5330516.pdf).
- . 2015d (Last accessed June 26). Angeles National Forest: Hiking Trails. Sacramento, CA: USDA Forest Service. <http://www.fs.usda.gov/activity/angeles/recreation/hiking>.
- . 2008 (October 30, last update). Pacific Southwest Region Passes & Permits, National Forests in California. Vallejo, CA: USDA Forest Service, Pacific Southwest Region. <http://www.fs.usda.gov/detailfull/r5/passes-permits/recreation/?cid=stelprdb5208699&width=full>.
- U.S. Department of the Interior, National Park Service (USDOI NPS). 2016 (February 16, last modified). National Trails System: General Information: Frequently Asked Questions. Washington, D.C.: USDO1 NPS. [http://www.nps.gov/nts/nts\\_faq.html](http://www.nps.gov/nts/nts_faq.html).
- Wildlands Conservancy, The (TWC). 2015 (June 26, last accessed). Wind Wolves Preserve. Oak Glen, CA: TWC. [http://www.wildlandsconservancy.org/preserve\\_windwolves.html](http://www.wildlandsconservancy.org/preserve_windwolves.html).

*This page is intentionally left blank.*

---

## 5.15 EDUCATION

### 5.15.1 INTRODUCTION

#### Purpose

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that public service issues, including schools, be evaluated as part of the environmental documentation process. The Project's impacts on schools are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively. Other sections of this EIR evaluate the potential environmental impacts (e.g., traffic, air quality, utilities) associated with the development of the seven schools proposed on the Project site.

#### Summary

The Project would increase the resident population of the area and would therefore result in the generation of new students. These new students would be served by one of the three respective school districts that encompass the Project site. The Project includes locations for one Kindergarten through 5<sup>th</sup> grade (K-5) school; five Kindergarten through 8<sup>th</sup> grade (K-8) schools (mitigation measure [MM] 15-1); and one high school (MM 15-3). The designation of school sites allows the respective school districts to plan for the provision of school facilities to serve the Project as needed. In addition, the Project Applicant/Developer shall finalize and sign agreements with the school districts for a contribution to facilitate the financing, construction, and operation of new school facilities in the Project area, as an alternative to the payment of school impact fees and as allowed under Section 65996(b) of the *California Government Code*. The Project Applicant/Developer shall demonstrate to the County of Los Angeles Department of Regional Planning that they have complied with all applicable School Facilities and Funding Agreements with the school districts (MM 15-2). In addition, compliance with California Department of Education Title 5 requirements for school site selection and school design and construction would reduce impacts to public schools to a less than significant level.

Because school facilities would be centrally located within the planning areas on the Project site, a majority of the Project site would not require busing. It is anticipated that the first K-8 school (initially a K-12 facility) would be opened by the Gorman Joint School District at occupancy of the first residential units. The planned approach is to initially construct a K-12 campus in order to provide public school accommodations at all education levels at Project opening. As Project buildout occurs, this school would revert to a K-8 school when the high school is constructed. There would be no impacts related to school transportation and no mitigation would be required.

There would be no impacts to education services associated with the proposed off-site access roads, and utilities would not result in any uses or activities that would generate additional students or otherwise create an increased demand for schools.

---

## Section Format

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce significant impacts; and level of significance after mitigation, if any. This information is presented in the following format (please refer to Section 2.0, Introduction, and Section 5.0, Environmental Setting, Impacts, and Mitigation, for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Relevant Plans, Policies, and Regulations
- Environmental Setting
- Project Design Features
- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- References

## References

Although all references cited for preparation of this analysis are listed in Section 5.15.9, the primary technical references for this section are listed below.

1. Antelope Valley Community College District (AVCCD). 2009 (October 2). Letter from J.L. Fisher, Sr., Superintendent/President (Antelope Valley College) to S. Dea, Supervisor of Regional Planning (County of Los Angeles, Department of Regional Planning) (Appendix 5.15-A).
2. Gorman Joint School District and Centennial Founders LLC. 2009 (July 15). School Facilities and Funding Agreement (Appendix 5.15-B).
3. Antelope Valley Union High School District and Centennial Founders, LLC. 2009 (February 18). School Facilities and Funding Agreement (Appendix 5.15-C).

---

## 5.15.2 RELEVANT PLANS, POLICIES, AND REGULATIONS

### Federal

No federal plans and policies have been identified related to education.

### State

#### *School Facilities Construction*

Title 5 of the *California Code of Regulations* contains general standards for school site selection, site planning, and construction of school facilities in the State of California. Educational facilities planned by school districts are required to meet minimum standards, and districts must ensure that school sites provide safety and support learning as they relate to site location and size; school layout; building design and construction; playgrounds and field areas; classroom sizes and specialized areas/classrooms; and other standards that are used by the California Department of Education and the District Architect in the review and approval of school sites and school construction plans.

#### *Assembly Bill 2926*

The State has traditionally been responsible for funding local public schools. To assist in providing facilities to serve students generated by new development projects, the State passed Assembly Bill (AB) 2926 in 1986. This bill allows school districts to collect impact fees from developers of new residential and commercial/industrial building space to fund school construction and reconstruction. AB 2926 also established maximum fees (adjusted for inflation) which can be collected under this and any other school fee authorization.

#### *Senate Bill 50*

Senate Bill (SB) 50 (or “Leroy Greene School Facilities Act”) and Proposition 1A (both of which passed in 1998) provide a comprehensive school facilities financing and reform program by, among other methods, authorizing both a \$9.2 billion school facilities bond issue and school construction cost containment provisions. Specifically, the bond funds are to provide for new construction and for reconstruction/modernization needs. The provisions of SB 50 (1) prohibit local agencies from denying either legislative or adjudicative land use approvals on the basis that school facilities are inadequate and (2) reinstate the school facility fee cap for legislative actions (e.g., general plan amendments, specific plan adoption, zoning plan amendments). According to Section 65996 of the *California Government Code*, the development fees authorized by SB 50 are deemed to be “full and complete school facilities mitigation”. In January 2007, the State Allocation Board proposed to update the provisions of SB 50 to reflect adjustments to current cost of school construction and modernization. The action was approved on January 30, 2008. The State Allocation Board approved increases in 2012 and 2014. Subsequent biannual review by the State Allocation Board will evaluate future updates and changes to fee schedules. Currently, the maximum fees allowed under SB 50 are \$3.36 per square foot (sf) for new residential development and \$0.54 per sf for commercial/industrial development (California Allocation Board 2014).

SB 50 establishes three levels of developer fees that may be imposed upon new development by a school district's governing board. These fee levels depend upon certain conditions within a district. These three levels include:

**Level 1:** Level 1 fees are the base statutory fees. As of January 2014, Level 1 fees are \$3.36 per square foot (sf) for new residential development and \$0.54 per sf of chargeable, covered, and enclosed floor space for new commercial/industrial development. These amounts represent the maximum that can currently be legally imposed upon new development projects by a school district unless the district qualifies for a higher level of funding. Payment of this fee is deemed to constitute full, complete, and adequate mitigation of a project's impacts on school facilities.

**Level 2:** Level 2 fees allow the school district to impose developer fees above the statutory levels up to 50 percent of school construction costs under designated circumstances. The State provides grant amounts for new school construction, if funds are available.

**Level 3:** Level 3 fees apply if the State runs out of bond funds, allowing the school district to impose 100 percent of the cost of the school facility or mitigation on the developer minus any local dedicated school monies.

In order to qualify for Level 2 funding, the district must satisfy at least two of the four requirements stated below.

1. Multi-Track Year-Round Education (MTYRE) should be imposed with:
  - at least 30 percent of K-6 enrollment in the high school attendance area on MTYRE for unified and elementary school districts; or
  - at least 30 percent of high school district enrollment on MTYRE; or
  - at least 40 percent of K-12 enrollment on MTYRE within boundaries of the high school attendance area for which the district is applying for funding.
2. A local bond measure should have been placed on the ballot in the last four years that received at least 50 percent plus 1 of the votes.
3. Issued debt or incurred obligations for capital outlay are equal to a specified (under *California Government Code*, Section 65995.5[b][3][C]) percentage of its local bonding capacity.
4. At least 20 percent of teaching stations within the district are relocatable classrooms.

To accommodate students from new development projects, school districts may alternatively finance new schools through special school construction funding resolutions and/or agreements between developers, the affected school districts and, occasionally, other local governmental agencies. These special resolutions and agreements often allow school districts to realize school mitigation funds in excess of the developer fees allowed under SB 50.



The California Public Education Facilities Bond Initiative was approved in the November 2016 ballot. This measure would provide \$9 billion bonding authority for new school construction, renovation, and upgrades for elementary, secondary, and community college districts.

## County

### *County of Los Angeles General Plan and Antelope Valley Area General Plan*

The *County of Los Angeles General Plan* and *Antelope Valley Area Plan* address education issues that affect the County and the Antelope Valley. Relevant goals and policies in the Antelope Valley Area Plan include those listed below.

#### Mobility Element

**Goal M 11:** A continuous, integrated system of safe and attractive pedestrian routes linking residents to rural town center areas, schools, services, transit, parks, and open space areas.

**Policy M 11.5:** Implement traffic calming methods in areas with high pedestrian usage, such as school zones.

#### Conservation and Open Space Element

**Policy COS 6.6:** Provide educational resources to farmers.

**Policy COS 11.3:** Promote the use of renewable energy systems in public facilities, such as hospitals, libraries, and schools, to ensure access to power in the case of major disasters.

#### Public Safety, Services and Facilities Element

**Policy PS 8.5:** Encourage the use of school playgrounds and sporting fields for community recreation (“joint use”) when school is not in session.

**Goal PS 10:** A wide range of educational opportunities for Antelope Valley residents.

**Policy PS 10.1:** Coordinate with all Antelope Valley school districts to ensure that new schools are provided as additional development occurs or as the population grows.

**Policy PS 10.2:** Encourage new schools to locate in rural town center areas, rural town areas, and economic opportunity areas, where they will be accessible by pedestrian walkways, trails, bikeways, and bicycle routes.

**Policy PS 10.3:** Encourage new schools to locate near parks and recreational facilities.

**Policy PS 10.4:** Encourage the use of school playgrounds and sporting fields for community recreation (“joint use”) when school is not in session.

**Policy PS 10.5:** Promote the creation of a four-year public university in the Antelope Valley to provide opportunities for continuing education and workforce development.

---

## Economic Development Element

**Policy ED 1.19:** Promote the creation of a four-year public university in the Antelope Valley to provide opportunities for continuing education and workforce development.

A consistency analysis of the Project's specific goals and policies with the County's relevant plans, policies, and regulations is provided in the Land Use, Entitlements, and Planning section (Section 5.8) of this document.

### 5.15.3 ENVIRONMENTAL SETTING

The Project site is within the jurisdiction of two public elementary school districts and one public high school district.

- **Gorman Joint School District (Gorman District):** provides K–8 education (which includes elementary and junior/middle school grades) to the western and central sections of the site.
- **Westside Union Elementary School District (WUSD):** provides K–8 education (which includes elementary and junior/middle school grades) to the eastern section of the site.
- **Antelope Valley Union High School District (AVUHSD):** provides high school education (grades 9–12) to the Project site.

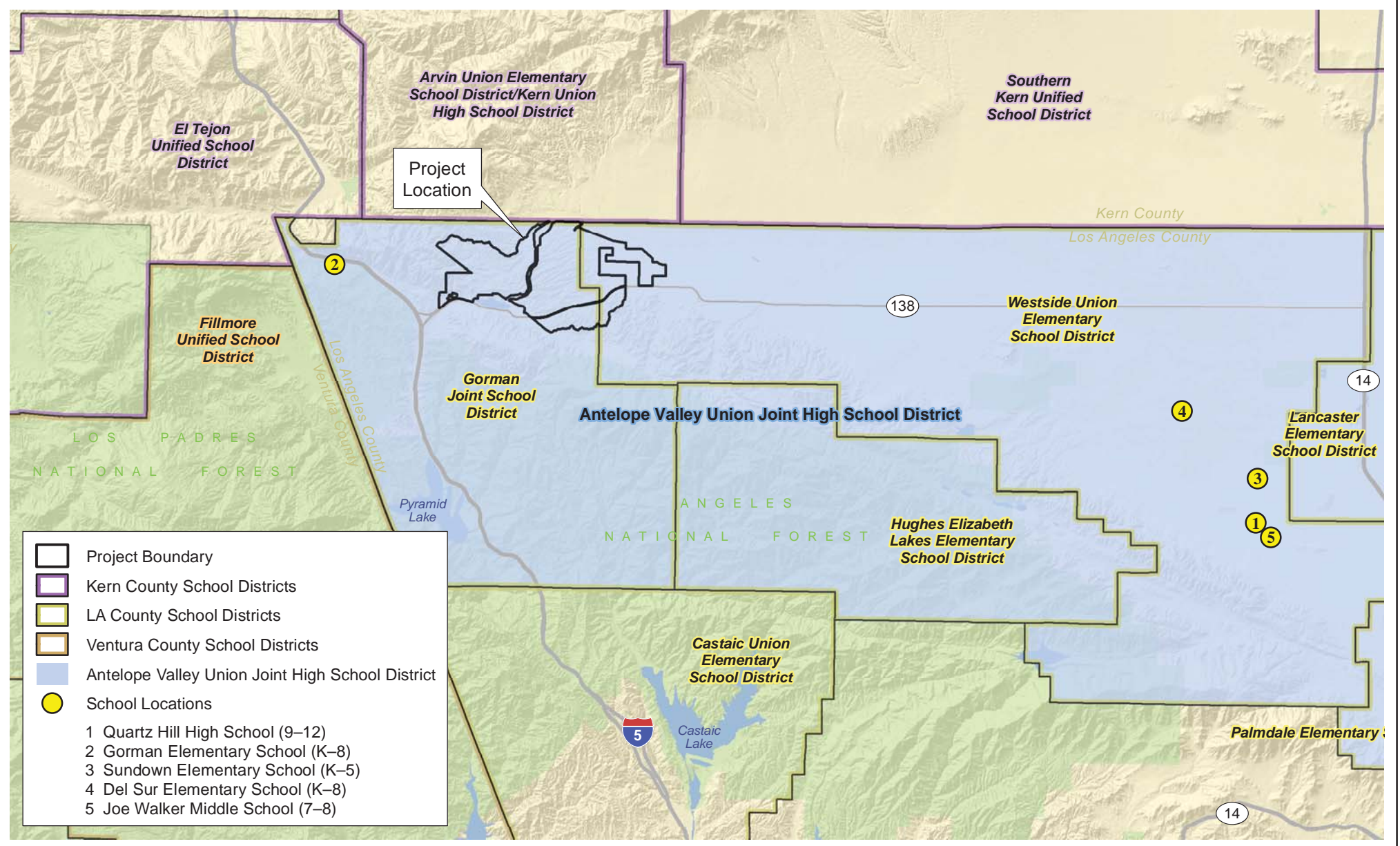
Exhibit 5.15-1, Local School Districts, identifies the local school districts in the Project area. There are no existing schools on the Project site. Within the school districts serving the site, the nearest elementary schools to the Project site are Gorman Elementary School (K–8), Sundown Elementary School (K–5), and Del Sur Elementary School (K–8). The nearest middle schools to the Project site is Joe Walker Middle School (7–8). The nearest high school of the AVUHSD to the Project site is Quartz Hill High School (9–12).

### **K–8 Schools**

As shown in Exhibit 5.15-1, the western portion of the Project site lies within the Gorman District. The Gorman District has one K–8 school, Gorman Elementary School, which is located at 49847 Gorman School Road in Gorman. This school served 103 students from the communities of Gorman, Frazier Park, Neenach, Lebec, and Lake of the Woods in the 2015–2016 school year (CDE 2017). It has five teachers in split level classes, two teacher aides, one accountant, one receptionist, one maintenance person, and one superintendent/principal (Gorman Joint School District 2015b, 2016).

In addition, the Gorman Learning Center, chartered by the Gorman District, serves grades K–12 at three resource centers and offices at 1826 Orange Tree Lane in Redlands, California. Charter schools are non-sectarian public schools of choice and can provide education in any

D:\Projects\CEN\Centennial\MXD\EIR\Ex\_school\_districts\_20160303.mxd



**Legend**

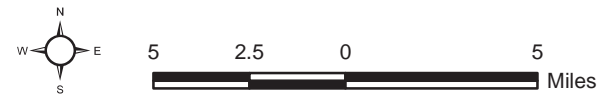
- Project Boundary
- Kern County School Districts
- LA County School Districts
- Ventura County School Districts
- Antelope Valley Union Joint High School District
- School Locations

- 1 Quartz Hill High School (9–12)
- 2 Gorman Elementary School (K–8)
- 3 Sundown Elementary School (K–5)
- 4 Del Sur Elementary School (K–8)
- 5 Joe Walker Middle School (7–8)

### Local School Districts

Centennial Project

### Exhibit 5.15-1



of the grades kindergarten through 12.<sup>1</sup> Gorman Learning Center had 2,236 K–12 students during the 2015–2016 school year. Table 5.15-1 provides district-wide enrollment in the Gorman District. For the 2015–2016 school year, the District had a total of 2,339 students (CDE 2017).

---

<sup>1</sup> A charter school is generally exempt from most laws governing school districts, except where specifically noted in the law. California public charter schools are required to participate in the statewide assessment test, STAR (Standardized Testing and Reporting). A charter school is usually created or organized by a group of teachers, parents, and community leaders or a community-based organization, and it is usually sponsored by an existing local public school board or county board of education. Specific goals and operating procedures for the charter school are detailed in an agreement (or “charter”) between the sponsoring board and charter organizers.

**TABLE 5.15-1  
GORMAN JOINT SCHOOL DISTRICT  
FACILITIES, ENROLLMENT, AND CAPACITY**

<b>School (Grade Level)</b>	<b>Enrollment<sup>a</sup> (2004–2005)</b>	<b>Enrollment<sup>a</sup> (2005–2006)</b>	<b>Enrollment<sup>a</sup> (2006–2007)</b>	<b>Enrollment<sup>a</sup> (2007–2008)</b>	<b>Enrollment<sup>a</sup> (2008–2009)</b>		<b>Enrollment<sup>a</sup> (2009–2010)</b>
Gorman Elementary (K–8)	56	52	48	50	44		68
Gorman Learning Center (K–12)	1,926	2,169	2,022	848	971		1,198
<b>Gorman District Total</b>	<b>1,982</b>	<b>2,221</b>	<b>2,070</b>	<b>898</b>	<b>1,015</b>		<b>1,266</b>
<b>School (Grade Level)</b>	<b>Enrollment<sup>a</sup> (2010–2011)</b>	<b>Enrollment<sup>a</sup> (2011–2012)</b>	<b>Enrollment<sup>a</sup> (2012–2013)</b>	<b>Enrollment<sup>a</sup> (2013–2014)</b>	<b>Enrollment<sup>b</sup> (2014–2015)</b>	<b>Enrollment<sup>b</sup> (2015–2016)</b>	<b>Capacity (2016)*</b>
Gorman Elementary (K–8)	96	98	99	104	103	103	N/A <sup>c</sup>
Gorman Learning Center (K–12)	1,415	1,539	1,641	1,788	1,947	2,236	Unlimited <sup>d</sup>
<b>Gorman District Total</b>	<b>1,511</b>	<b>1,637</b>	<b>1,740</b>	<b>1,892</b>	<b>2,050</b>	<b>2,339</b>	<b>N/A</b>
* Historic capacities and changes in capacity over the years are not available.							
Sources:							
<sup>a</sup> CDE 2015.							
<sup>b</sup> CDE 2017.							
<sup>c</sup> School has no set capacity							
<sup>d</sup> GLC 2016.							

Gorman Elementary School serves both elementary and middle school students. It is located at 49847 Gorman School Road in Gorman, approximately 3.5 miles west of the Project site. As shown in Table 5.15-1, enrollment at Gorman Elementary School for the 2015–2016 school year is 103 students but the school has not set capacity (CDE 2017).

The Gorman Learning Center, chartered by the Gorman District, serves five counties (Kern, Los Angeles, Orange, San Bernardino, and Ventura Counties) and offers independent study/home schooling and special education studies. It has resource centers in the Cities of Lancaster, Santa Clarita and Redlands. As shown in Table 5.15-1, enrollment for the 2015–2016 school year is 2,236 students (CDE 2017). Due to the nature of independent studies, the Gorman Learning Center has unlimited capacity (GLC 2016).

As shown in Table 5.15-1, student enrollment at the Gorman District increased slightly in the school years from 2004–2005 to 2005–2006 and decreased in the school years from 2006–2007 to 2007–2008. The decrease in district-wide enrollment is due to a decrease in enrollment at the Gorman Learning Center. District-wide enrollment increased again in years 2007–2008 and 2014–2015. Enrollment at Gorman Elementary School decreased from 2004–2005 to 2006–2007 and increased from 2006–2007 to 2007–2008, decreased from 2007–2008 to 2008–2009 and was increasing from 2009 to 2014, but has recently decreased. Student enrollment in the Gorman District (K–8) does not exceed existing capacity on a district-wide basis. Again, student capacity is unlimited for the Gorman Learning Center (GLC 2016).

As shown in Exhibit 5.15-1, the eastern portion of the Project site falls within the boundary of the WUSD. The WUSD is responsible for serving K–8 grade levels, and currently serves the communities of West Lancaster, Quartz Hill, West Palmdale, and Leona Valley with six elementary schools that serve grades K–6, two middle schools that serve grades 7 and 8, and three schools that serve grades K–8. Sundown Elementary School (K–5), Del Sur Elementary School (K–8), and Joe Walker Middle School (7–8) are located closest to the eastern boundary of the Project site. Sundown Elementary School is located at 6151 West Avenue J-8 in Lancaster and is approximately 25 miles southeast of the eastern boundary of the Project site; Del Sur Elementary School is located at 9023 West Avenue H in Lancaster and is approximately 21 miles southeast of the Project site; and Joe Walker Middle School is located at 5632 West Avenue L-8 in Quartz Hill and is approximately 25 miles from the eastern boundary of the Project site.

As shown in Table 5.15-2, Westside Union Elementary District School Enrollment and Capacity, the WUSD’s enrollment is 9,070 students in 2015–2016 and current permanent capacity is 8,123 seats. Student enrollment in WUSD exceeds existing permanent capacity at all school levels on a district-wide basis. The WUSD is currently meeting school facility needs through the use of portable classrooms (WUSD 2015, 2016).

**TABLE 5.15-2  
WESTSIDE UNION ELEMENTARY DISTRICT  
SCHOOL ENROLLMENT AND CAPACITY**

<b>School (Grade Level)</b>	<b>Enrollment<sup>a</sup> (2004-2005)</b>	<b>Enrollment<sup>a</sup> (2005-2006)</b>	<b>Enrollment<sup>a</sup> (2006-2007)</b>	<b>Enrollment<sup>a</sup> (2007-2008)</b>	<b>Enrollment<sup>a</sup> (2008-2009)</b>		<b>Enrollment<sup>a</sup> (2009-2010)</b>
Elementary (K-6)	5,716	6,269	6,227	6,712	6,522		6,462
Middle School (7-8)	2,121	2,259	2,829	2,403	2,311		2,253
<b>WUSD Total</b>	<b>7,837</b>	<b>8,528</b>	<b>9,056</b>	<b>9,115</b>	<b>8,833</b>		<b>8,715</b>
<b>School (Grade Level)</b>	<b>Enrollment<sup>a</sup> (2010-2011)</b>	<b>Enrollment<sup>a</sup> (2011-2012)</b>	<b>Enrollment<sup>a</sup> (2012-2013)</b>	<b>Enrollment<sup>a</sup> (2013-2014)</b>	<b>Enrollment<sup>a</sup> (2014-2015)</b>	<b>Enrollment<sup>b</sup> (2015-2016)</b>	<b>Capacity<sup>c</sup> (2015)</b>
Elementary (K-6)	6,364	6,367	6,569	6,778	6,780	6,949	6,381
Middle School (7-8)	2,241	2,158	2,076	2,173	2,161	2,121	1,742
<b>WUSD Total</b>	<b>8,605</b>	<b>8,525</b>	<b>8,645</b>	<b>8,951</b>	<b>8,941</b>	<b>9,070</b>	<b>8,123</b>
Sources:							
a CDE 2015.							
b CDE 2017.							
c WUSD 2015, 2016.							

## High School

As shown in Exhibit 5.15-1, the AVUHSD is responsible for serving students in grades 9 through 12 in the Project area. The AVUHSD operates 16 schools located throughout the Antelope Valley, including 2 continuation high schools, a community day school, 2 alternative education (independent charter) schools, 2 adult education schools, 1 early college high school, and 8 comprehensive high schools. Quartz Hill High School is the closest comprehensive high school to the Project site and is located approximately 25 miles from the southeastern portion of the Project site.

As shown in Table 5.15-3, the 2015–2016 school year enrollment for Quartz Hill High School was 3,063 students. Currently, there are 54 portable classrooms at the campus. Student capacity at Quartz Hill High School is a maximum of 3,500 students; therefore, with an occupancy rate of 87.5 percent, Quartz Hill High School operates within the limits of its available capacity. As shown in Table 5.15-4, Antelope Valley Union High School District School Enrollment and Capacity, the current enrollment (2015–2016) in the AVUHSD is 24,127 students with capacity for 25,778 students.



**TABLE 5.15-3  
ANTELOPE VALLEY UNION HIGH SCHOOL DISTRICT  
SCHOOL ENROLLMENT AND CAPACITY**

<b>School (Grade Level)</b>	<b>Enrollment<sup>a</sup> (2004–2005)</b>	<b>Enrollment<sup>a</sup> (2005–2006)</b>	<b>Enrollment<sup>a</sup> (2006–2007)</b>	<b>Enrollment<sup>a</sup> (2007–2008)</b>	<b>Enrollment<sup>a</sup> (2008–2009)</b>		<b>Enrollment<sup>a</sup> (2009–2010)</b>
Quartz Hill High School	3,379	3,692	3,590	3,408	3,193		3,118
<b>AVUHSD Total</b>	<b>23,900</b>	<b>25,312</b>	<b>26,341</b>	<b>26,453</b>	<b>26,159</b>		<b>26,255</b>
<b>School (Grade Level)</b>	<b>Enrollment<sup>a</sup> (2010–2011)</b>	<b>Enrollment<sup>a</sup> (2011–2012)</b>	<b>Enrollment<sup>a</sup> (2012–2013)</b>	<b>Enrollment<sup>a</sup> (2013–2014)</b>	<b>Enrollment<sup>a</sup> (2014–2015)</b>	<b>Enrollment<sup>b</sup> (2015–2016)</b>	<b>Capacity<sup>c</sup> (2015)</b>
Quartz Hill High School	3,154	3,146	3,198	3,135	3,133	3,063	3,500
<b>AVUHSD Total</b>	<b>26,084</b>	<b>25,537</b>	<b>24,816</b>	<b>24,468</b>	<b>24,619</b>	<b>24,127</b>	<b>25,778</b>
Sources:							
a CDE 2015.							
b CDE 2017.							
c AVUHSD 2015, 2016.							

## School Transportation

The Antelope Valley Schools Transportation Agency (AVSTA) provides busing for all K–12 students in the Antelope Valley area. The AVSTA is a Joint Powers Authority (JPA) that currently serves four school districts, including the AVUHSD; the WUSD; the Lancaster School District; and the Keppel Union School District. The AVSTA provides home-to-school transportation for regular education, special needs education, and field trips (AVSTA 2015).

## Community College

The Antelope Valley Community College District (AVCCD) serves northern Los Angeles County and southern Kern County. Communities served by the AVCCD include Acton, Antelope Acres, Lake Hughes, Lake Los Angeles, Lancaster, Leona Valley, Llano, Palmdale, Pearblossom, Quartz Hill, Rosamond, and Sun Village. The AVCCD's single college, Antelope Valley College, is located on 135 acres at 3401 West Avenue K in Lancaster, approximately 28 miles from the southeastern corner of the Project site. A second campus is located at 1529 East Palmdale Boulevard in the Palmdale area to better meet the needs of residents of the southern portion of the Antelope Valley. Classes are held at other locations as well, including a Federal Aviation Administration certification program in airframe manufacturing technology at Fox Field in Lancaster.

The AVCCD worked with the AVUHSD to open a high school campus on the main college campus, known as Students on the Academic Rise (SOAR) High School. This high school integrates college courses into the high school curriculum and allows students to work towards a high school diploma and an associate's degree concurrently.

California State University, Bakersfield's (CSUB's) Antelope Valley Regional Center offers classes at their facility in Lancaster, providing educational opportunities for residents of Inyo, southeast Kern, and northern Los Angeles County to obtain bachelor's and master's degrees. The AVCCD has also established a dual admission agreement with CSUB, which allows freshman students who have been admitted to CSUB to complete 56 lower division units and Antelope Valley College and transfer without requiring a second application (AVCCD 2009) (see Appendix 5.15-A).

### 5.15.4 PROJECT DESIGN FEATURES

No project design features have been identified.

### 5.15.5 THRESHOLD CRITERIA

The following significance threshold criterion is derived from the County of Los Angeles Environmental Checklist. The Project would have a significant impact related to school services if it would:

**Threshold 15-1** Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the

construction of which could cause significant environmental impacts, in order to maintain acceptable performance objectives for any of the public services: schools.

## 5.15.6 ENVIRONMENTAL IMPACTS

**Threshold 15-1** **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable performance objectives for any of the public services: schools?**

### On-Site Impacts

#### *K-8 Public Schools*

Implementation of the Project would result in the generation of new students to be served by the Gorman District and the WUSD, which could result in a significant impact to these school districts without mitigation.

At buildout, the Project site would include as many as 14,098 single-family detached units, 2,643 single-family attached units,<sup>2</sup> and 2,592 multi-family units. In order to estimate the number of new students who would be occupying these housing units, student generation factors for each housing type were obtained from the school districts. In addition, the K-8 school facility needs are based on an assumed standard classroom size of 20 students per classroom for grades K-3 and 30 students per classroom for grades 4-8 and corresponding school capacity of 1,380 students per school.<sup>3</sup>

As described in Section 4.0, Project Description, the Project includes generalized locations for a one K-5 school and five K-8 schools (essentially about 5.5 elementary schools) (MM 15-1); each K-8 school is expected to have a capacity of 1,380 students and the K-5 school would have a capacity of 840 students (based on 7 classrooms for each grade and 20 students in each classroom) for a total elementary school capacity for approximately 7,740 students.

A number of goals and policies in the AVAP address schools and the provision of educational services. In compliance with these goals and policies, the Project Applicant/Developer has coordinated with the school districts serving the site, including K-8 and high school districts, and the Project would provide schools sites to serve residents of the Project. These school sites would be located adjacent to parks and open spaces and would be accessible to planned residential areas or Villages. As discussed in Section 5.8, Land Use, Entitlements, and Planning, the Project would not conflict with goals and policies in the Antelope Valley Area

<sup>2</sup> Single-family attached units are typically defined by school districts as units that share a common wall and are not for rental purposes.

<sup>3</sup> This assumes 6 classrooms for each grade, with 20 students in each classroom for grades K-3 and 30 students in each classroom for grades 4-8.

Plan that address the provision of schools and educational services. An analysis of elementary school facility for the Gorman District and WUSD, separately, is provided below.

### Gorman Joint School District

The School Facilities and Funding Agreement between the Gorman District and the Developer (see Appendix 5.15-B) sets the initial student generation rates for residential land uses and a maximum of 19,000 dwelling units within the service boundaries of the Gorman District. Up to approximately 13,249 dwelling units are proposed within the Gorman District, which is less than the maximum of 19,000 units in the agreement. Table 5.15-4, Centennial Buildout Demand for Gorman District Facilities Based on the School Facilities and Funding Agreement, provides an estimate of student generation using the factors defined in the agreement and shows that slightly more than three K–8 schools would be needed within the Gorman District to serve future residential development on the site.

**TABLE 5.15-4  
CENTENNIAL BUILDOUT DEMAND FOR GORMAN DISTRICT FACILITIES  
BASED ON THE SCHOOL FACILITIES AND FUNDING AGREEMENT**

<b>Residential Use</b>	<b>Full-Time Dwelling Units<sup>a</sup></b>	<b>Generation Rates<sup>a</sup></b>	<b>Total Estimated Students</b>	<b>Required Classrooms<sup>b</sup></b>	<b>Required Schools<sup>c</sup></b>
Single-Family Detached	8,519	0.4778	4,070	160	2.95
Single-Family Attached	2,540	0.1453	369	14	0.27
Apartment	2,190	0.1227	269	11	0.19
<b>Totals</b>	<b>13,249</b>	<b>-</b>	<b>4,708</b>	<b>185</b>	<b>3.41</b>
Formula to calculate required classrooms and required schools (3 steps): 1. Dwelling units x generation rate = estimated number of students 2. Estimated number of students ÷ 25.5 students per classroom = required classrooms 3. Estimated number of students ÷ 1,380 school capacity = required schools.					
<sup>a</sup> Source: Gorman Joint School District (see Appendix 5.15-B).					
<sup>b</sup> Based on an average of 25.5 students per classroom.					
<sup>c</sup> Based on an average K–8 school capacity of 1,380 students.					

The one proposed K–5 and three proposed K–8 schools in the western section of the site within the Gorman District boundaries would have a total capacity for 4,980 students, which would be adequate to accommodate the estimated 4,708 students who would reside within the Gorman District service area. Impacts would be less than significant with the implementation of MM 15-1.

While the first school is planned to be open in the same or nearby residential village within the school year that the first occupancy permit is issued, prior to completion of the first K–8 school on site, students from the Project have the option to attend Gorman Elementary School, based on the District's agreement with the Developer. The agreement generally outlines the mitigation for Project impacts to the Gorman District, in lieu of payment of school impact fees. It includes the formation of a community facilities district (CFD) and the issuance of bonds by the CFD; the use of federal, State, and local funds; the approximate location of school sites; the initial student generation rates; a minimum capacity of 1,248

students in permanent facilities and 8 modular classrooms for 256 students in each school; interim use of relocatable classrooms in existing and new schools; 20-acre school sites; and Developer advances, staffing needs, funding thresholds, school facilities plan, and other terms related to the construction of schools on the Project site. The agreement provides for an amendment process to reflect final changes to the Project, the school site locations, and other related terms of the agreement.

Regarding initial school facilities on the Project site, with the consent of the Gorman District (which includes the first phase of Project implementation), the AVUHSD, and the AVCCD, the first K-8 school campus could provide pre-school through high school classes during the day and offer community college classes in the evenings. As Project buildout occurs, this school would revert to a K-8 school as other schools are constructed and become operational. The proposed K-8 schools would be located in Villages 1, 3, and 5, and the K-5 school would be located in Village 9. One of these schools would open within the first year of occupancy of the first residential units within each Village and adjacent Villages, with the second K-8 school opening in compliance with the school district mitigation agreements. The remaining elementary schools are projected to open during future phases, in compliance with the school district mitigation agreements. The need for school facilities is based on the conceptual plan for the Project, and the timing of school facilities construction would depend on the rate of Project development and the actual demand for school facilities, as determined by the respective school districts. Therefore, with implementation of MM 15-1 and MM 15-2, which requires the Project Applicant/Developer to demonstrate to the County that it has complied with all applicable school district agreements, impacts related to elementary school facilities in the Gorman District would be less than significant.

#### Westside Union Elementary School District

The WUSD has provided student generation factors to estimate the number of students that may be generated by development. Use of these student generation rates for the Project is provided in Table 5.15-5, Centennial Buildout Demand for WUSD Facilities Based on WUSD Rates, below. As shown, as many as 2,551 students are expected from the residential development proposed within the WUSD boundaries on the site, resulting in the need for slightly less than 2 elementary (K-8) schools based on an average school size of 1,380 students.

**TABLE 5.15-5  
CENTENNIAL BUILDOUT DEMAND FOR WUSD FACILITIES BASED ON WUSD RATES**

<b>Residential Use</b>	<b>Full-Time Dwelling Units</b>	<b>Generation Rates<sup>a</sup></b>	<b>Total Estimated Students</b>	<b>Required Classrooms<sup>b</sup></b>	<b>Required Schools<sup>c</sup></b>
Single-Family Units	5,435	0.4407	2,395	94	1.74
Multi-Family Units*	649	0.2411	156	6	0.11
<b>Totals</b>	<b>6,084</b>	-	<b>2,551</b>	<b>100</b>	<b>1.85</b>
<p>* This includes single-family attached and apartment units            Formula to calculate required classrooms and required schools (3 steps): 1. Dwelling units x generation rate = estimated number of students 2. Estimated number of students ÷ 25.50 students per classroom = required classrooms 3. Estimated number of students ÷ 1,380 school capacity = required schools.</p> <p><sup>a</sup> WUSD 2015.  <sup>b</sup> Based on an average of 25.5 students per classroom.  <sup>c</sup> Based on an average K-8 school capacity of 1,380 students.</p>					

The Project has included generalized locations for two K-8 schools in the WUSD. These schools would have a total capacity for 2,760 students, which would be adequate to accommodate the estimated 2,551 students who would reside within the WUSD service area. Two K-8 schools to be located in Villages 7 and 8 would serve students within the WUSD service area. Impacts would be less than significant with the implementation of MM 15-1.

As per MM 15-2, the facilities and funding mitigation agreement with WUSD, to be executed in accordance with Section 65996 of the *California Government Code*, will be completed once planning begins for new development in areas within the WUSD service area. Therefore, with implementation of MM 15-1 and MM 15-2, impacts related to elementary school facilities in the WUSD would be less than significant.

### K-8 School Sites

As discussed previously, the Project has included generalized locations for one K-5 school and five K-8 schools to accommodate the demand for elementary school facilities generated by future residents (see Exhibit 4-1, Centennial Project – Conceptual Land Use Plan). Final school site locations would be determined as future tract maps are prepared and in coordination with the respective school districts (e.g., through interdistrict transfers so that students from the same neighborhood go to the same schools if they choose).

According to the California Department of Education's (CDE's) *Guide to School Site Analysis and Development*, the amount of land recommended to serve a 1,200 student elementary or middle school would generally range from 17.6 to 23.1 acres per school, although the guide allows each school district to tailor its schools to specific needs and as necessary to accommodate unusual conditions. The sizing of school sites would also depend on the grade breakdown of students, the implementation of classroom size reduction, building layout/configuration, and the outdoor facilities that would be provided (CDE 2000). As shown in Table 5.15-6, K-8 School Location/Acres, each of the proposed school sites would occupy between 11 to 15 acres. The purchase of additional land to meet CDE recommendations is at the school district's discretion.

**TABLE 5.15-6  
K-8 SCHOOL LOCATIONS/ACRES**

<b>Village</b>	<b>Acres</b>
1	15
3	15
5	15
7	15
8	15
9	11
<b>Total</b>	<b>86</b>
Source: Placeworks 2017.	

The designation of school sites on the Project site, as each future tract map is developed, will allow the school districts to acquire the sites and provide school facilities as needed. The Project Applicant/Developer has a signed agreement with the Gorman District to facilitate the financing, construction, and operation of new school facilities in the Project area to ensure the timely provision of schools that correspond to the phasing of development on the Project site within its service area. This agreement will be amended to reflect the Project and needed school facilities. The Agreement with WUSD will be completed when planning begins for new development in areas within the WUSD service area (refer to MM 15-3). School site location, sizing, and other details would be subject to Title 5 of the *California Code of Regulations* and will be determined in consultation with the affected school district pursuant to the executed agreement(s). Therefore, with implementation of MMs 15-1 and 15-2, there would be less than significant impacts related to school site selection.

### Public High Schools

Implementation of the Project would result in the generation of new high school students to be served by the AVUHSD, which could result in a significant impact to the school district. Table 5.15-7, Centennial Buildout Demand for High Schools Based on AVUHSD Rates, presents the estimated student generation based on current (2015) AVUHSD student generation rates. As shown, the Project would generate 2,885 students at buildout and would need one high school.

**TABLE 5.15-7  
CENTENNIAL BUILDOUT DEMAND FOR HIGH SCHOOLS BASED ON AVUHSD RATES**

<b>Residential Use</b>	<b>Full-Time Dwelling Units</b>	<b>Generation Rates<sup>a</sup></b>	<b>Total Estimated Students</b>	<b>Required Classrooms<sup>b</sup></b>	<b>Required Schools<sup>c</sup></b>
Single-Family Detached	13,954	0.180	2,512	84	0.88
Single-Family Attached	3,024	0.067	203	7	0.07
Apartment	2,355	0.072	170	6	0.06
<b>Totals</b>	<b>19,333</b>	<b>–</b>	<b>2,885</b>	<b>97</b>	<b>1.01</b>
Formula to calculate required classrooms and required schools (3 steps): 1. dwelling units x generation rate = estimated number of students 2. estimated number of students ÷ 30 students per classroom = required classrooms 3. estimated number of students ÷ 2,850 school capacity = required schools.					
<sup>a</sup> AVUHSD 2015.					
<sup>b</sup> Based on an average of 30 students per classroom.					
<sup>c</sup> The Project provides a high school site to accommodate a school ranging in capacity size of 2,850 to 3,350 students. The required school factor in this table assumes an average high school capacity of 2,850 students.					

The Project has included a generalized location, in the central portion of the development area, for one high school (grades 9–12). The planned high school site, which would be refined during preparation of the future tract map that encompasses the proposed location or an alternate location agreed upon by AVUHSD (MM 15-3), would have a minimum size of 60 acres and be capable of accommodating up to 3,350 students. Thus, the total Project-generated high school students (i.e., 2,885 students) could be fully accommodated within the one high school proposed with the Project.

The first school will be built and operational prior to the first certificate of occupancy. It is anticipated that the K–8 school (initially a K–12 facility) would be opened by the Gorman District at occupancy of the first residential units. The planned approach is to initially construct a K–12 campus in order to provide public school accommodations at all education levels at Project opening. As Project buildout occurs, this school would revert to a K–8 school when the high school is constructed. Students from the Project would also have the option of attending Quartz Hill High School (by busing through AVSTA) or applying for an interdistrict transfer to attend the El Tejon Unified School District’s Frazier Mountain High School, which is located approximately ten miles northwest of the site. Frazier Mountain High School 2015- 2016 enrollment was 286 students (CDE 2017) and has capacity for additional students (ETUSD 2016). The El Tejon Unified School District also allows interdistrict transfers subject to approval of the student’s home district (ETUSD 2015).

The on-site high school (grades 9–12) is anticipated to open in compliance with the school district mitigation agreements required under MM 15-3. This schedule was anticipated on the basis that there would not be enough high school students to justify, on an operational basis, the opening of a comprehensive high school on the site until there would be enough students. The actual development of the high school would depend on the Project’s rate of development, and according to the School Facilities and Funding Agreement between the AVUHSD and the Project Applicant/Developer, with the construction of the high school coinciding with the development of residential uses as specified in the Agreement. The Agreement also includes the construction of interim and permanent facilities, to serve as



mitigation for Project impacts to AVUHSD, in lieu of payment of school impact fees. It includes the formation of a CFD and the issuance of bonds by the CFD; the use of federal, State and local funds; approximate school site locations; initial student generation rates; a minimum capacity of 2,860 students in permanent facilities and 17 modular classrooms for 500 students in each school; 60-acre school sites; Developer advances, interim facilities at a K-8 school site, staffing needs, school facilities plan, and other terms related to the construction of high schools on the Project site. The agreement provides for an amendment process to reflect final changes to the Project, the high school site locations, and other related terms of the agreement. Therefore, with implementation of MM 15-2 and MM 15-3, impacts related to high school facilities in the AVUHSD would be less than significant.

### High School Sites

The CDE has developed a “functional approach” for determining the size of a school site. The approach was based on the amount of area required to support the functions or activities of the proposed educational program. According to the CDEs *Guide to School Site Analysis and Development*, the recommended acreage for a 2,400-student high school is generally 52.7 net usable acres, with sizes of 58.3 to 61.5 acres for 2,401 to 2,600 students and up to 75.1 to 79.8 acres for 3,601 to 3,800 students. The Centennial Project includes a 60-acre high school site in Village 6. The actual sizing of school facilities is ultimately the decision of the school district. However, the Project’s current preliminary sizing of school facilities (i.e., 60 acres minimum) is considered adequate. School site location, sizing, and other details would be subject to Title 5 of the *California Code of Regulations* and determined in consultation with the affected school district pursuant to the executed agreement (MM 15-3). Therefore, with implementation of MMs 15-2 and 15-3, there would be less than significant impacts related to high school site selection.

### ***Student Transportation***

Exhibit 4-1 identifies the conceptual locations for the school sites designated in the Project site. Each of the school sites would be centrally located among the Villages and pedestrian trails (i.e., greenways/paseos) are generally near the school sites. Because these school facilities would be centrally located, a majority of the students on the Project site would not require busing. However, busing would be available to the expected limited number of students outside the Transportation Agency’s established “walk-in” areas (i.e., farther than three miles from the school). Therefore, the increase in the student population would not create transportation problems for anticipated school trips internal to the Project site. No impact would occur and no mitigation would be required.

### ***College (Secondary Education)***

The residents of the Project would be expected to seek higher education that would be provided by various public and private colleges and universities through the County, the State and the nation. As discussed, the Project site is within the service boundaries of the AVCCD and its Antelope Valley College campus. This campus would provide Project residents with educational opportunities to earn a high school diploma and various associates’, bachelor’s, and master’s degrees at their Antelope Valley College campuses in Lancaster, Palmdale and at Fox Field. The AVCCD has indicated that they support the Project and will

provide similar programs and services to the Project in both a traditional classroom setting and using the latest technology (e.g., distance learning supported by broadband internet access). Impacts on AVCCD facilities and other higher education facilities in the County and elsewhere would be less than significant and no mitigation is required.

## Off-site Impacts

The proposed off-site Project features, including intersection improvements with SR-138, utility connections, water wells, and California Aqueduct crossings, do not include residential uses that would directly generate additional students or otherwise create an increased demand for schools. There would be no impact and no mitigation is required.

**Impact Summary:** The Project would increase the population and would result in the generation of new students to be served by the respective school districts. The Project includes generalized locations for one K–5 school site, five K–8 school sites (MM 15-1), and one high school site (MM 15-3). In addition, the Project Applicant/Developer has signed agreements with the Gorman District and AVUHSD, and will sign an agreement with the WUSD to facilitate the financing, construction, and operation of new school facilities on the Project site (MM 15-2). With implementation of MM 15-1, MM 15-2, and MM 15-3, impacts related to public school facilities would be less than significant. With compliance with State regulations, all school sites would be located, sized, and otherwise meet California Department of Education Title 5 requirements and there would be a less than significant impact.

### 5.15.7 MITIGATION MEASURES

- MM 15-1** The Project Applicant/Developer shall designate one K–5 and five K–8 school sites in the Project area in accordance with the conceptual land use plan or alternate location(s) that shall be agreed upon by the authorized school districts.
- MM 15-2** The Project Applicant/Developer shall demonstrate to the County that they have an executed agreement with all school districts that operate within the boundaries of the Project site.
- MM 15-3** The Project Applicant/Developer shall designate one high school site in the Project area in accordance with the conceptual land use plan or alternate location(s) that shall be agreed upon by the authorized school district.

### 5.15.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of MMs 15-1, 15-2, and 15-3 would reduce potentially significant impacts related to education to levels that are less than significant.

## 5.15.9 REFERENCES

- Antelope Valley Community College District (AVCCD). 2009 (October 2). Personal communication. Letter from J.L. Fisher, Sr., Superintendent/President (Antelope Valley College) to S. Dea, Supervisor of Regional Planning (County of Los Angeles, Department of Regional Planning) (Appendix 5.15-A).
- Antelope Valley Schools Transportation Agency (AVSTA). 2015 (May 14, access date). Antelope Valley Schools Transportation Agency. Lancaster, CA; AVSTA. <http://www.avsta.com/>.
- Antelope Valley Union High School District (AVUHSD). 2015 (May 26). Personal communication. Email Correspondence from Cyndie Thompson (AVUHSD) to Josephine Alido (BonTerra Psomas).
- . 2016 (March 18). Personal communication. Telephone conversation between Rhonda Hickman (AVUHSD) and Josephine Alido (BonTerra Psomas).
- Antelope Valley Joint Union High School District and Centennial Founders, LLC. 2009 (February 18). School Facilities and Funding Agreement (Appendix 5.15-C).
- California Department of Education (CDE). 2017 (January 27, access date). DataQuest California. [Enrollment data regarding Gorman School District, Westside Union Elementary School District, Antelope Valley Union High School District, and El Tejon Unified School District.]. Sacramento, CA: CDE. <http://dq.cde.ca.gov/dataquest/>.
- . 2000. *Guide to School Site Analysis and Development*. Sacramento, CA: CDE. <http://www.cde.ca.gov/ls/fa/sf/guideschoolsite.asp>.
- California, Allocation Board. 2014 (January 22). Report of the Executive Officer – State Allocation Board Meeting, January 22, 2014, Index Adjustment On The Assessment For Development. Sacramento, CA: the State.
- California’s Coalition for Adequate School Housing (CASH). 2015 (June 3, access date). Senate Bill 50 and School Facility Fees. Sacramento, CA: CASH. <https://www.cashnet.org/resource-center/resourcefiles/71.pdf>.
- California Office of Administrative Law. 2016 (access date). *California Code of Regulations* (Title 5, Education). Sacramento, CA: the State. [https://govt.westlaw.com/calregs/index?\\_lrTS=20160229201702744&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/calregs/index?_lrTS=20160229201702744&transitionType=Default&contextData=(sc.Default)).
- California, State of. 2015 (last amended). *California Government Code* (Title 7, Planning and Land Use; Division 1, Planning and Zoning; Chapter 4.9, Payment of Fees, Charges, Deductions, or Other Requirements Against a Development Project [65995–65998]). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=4.9.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=4.9.&article=)

- El Tejon Unified School District (ETUSD). 2016 (March 16). Personal communication. Telephone conversation between Sarah Morris (ETUSD) and Josephine Alido (BonTerra Psomas).
- . 2015 (July 1). Personal communication. Telephone conversation between Sarah Morris (ETUSD) and Josephine Alido (BonTerra Psomas).
- Gorman Joint School District. 2016 (March 16). Personal communication. Telephone conversation between Lise Wastaferro (Gorman Joint School District) and Josephine Alido (BonTerra Psomas).
- . 2015a (May 22). Personal communication. Telephone conversation between Lise Wastaferro (Gorman Joint School District) and Josephine Alido (BonTerra Psomas).
- . 2015b (June 29). Personal communication. Telephone conversation between Wendy Nierhoff (Gorman Joint School District) and Josephine Alido (BonTerra Psomas).
- Gorman Joint School District and Centennial Founders LLC. 2009 (July 15). School Facilities and Funding Agreement (Appendix 5.15-B).
- Gorman Learning Center (GLC). 2016 (March 16). Personal communication. Telephone conversation between Barbara Buchanan (GLC) and Josephine Alido (BonTerra Psomas).
- . 2015 (May 27). Personal communication. Telephone conversation between Donna Swaynie (GLC) and Josephine Alido (Bonterra Psomas).
- Los Angeles County Department of Regional Planning (LACDRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: LACDRP. <http://planning.lacounty.gov/tnc>.
- . 2015b (May 27, date accessed). Los Angeles County General Plan 2035. Los Angeles, CA: LACDRP. <http://planning.lacounty.gov/generalplan>.
- Placeworks. 2017. *Centennial Specific Plan*. Santa Ana, CA: Placeworks (Appendix 4.0-A).
- Westside Union Elementary School District (WUSD). 2015 (May 22). Personal communication. Telephone conversation between Cindy Vidinha (WUSD) and Josephine Alido (BonTerra Psomas).
- . 2016 (March 17). Personal communication. Telephone conversation between Cindy Vidinha (WUSD) and Josephine Alido (BonTerra Psomas).

*This page is intentionally left blank.*

## 5.16 FIRE AND LAW ENFORCEMENT SERVICES

This section of the Draft Environmental Impact Report (EIR) describes the potential impacts to fire and law enforcement services from implementation of the Centennial Project.

### 5.16.1 INTRODUCTION

#### **Purpose**

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that impacts to fire and law enforcement services be evaluated as part of the environmental documentation process. The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively. Analysis of wildfire hazards is discussed in Section 5.3, Hazards and Fire Safety.

#### **Summary**

The Project would result in the development of a maximum of 19,333 residential units, generating approximately 57,150 residents, and over 10.0 million square feet of non-residential development that would create approximately 23,675 jobs. This anticipated Project-related growth in population and employment would result in an increase in demand for fire and law enforcement services on the Project site.

#### **Fire Services**

Fire services and emergency response for fire incidents during the initial development phases of the Project would be provided from Fire Station 77, located at 46833 Peace Valley Road in Gorman, which is currently staffed with a three-person engine company. This station would serve the Project until such time that the 1,000<sup>th</sup> dwelling unit is built on the site (at which time the first on-site fire station would be operational) (see MM 16-3).

As shown on Exhibit 4-1, Centennial Project – Conceptual Land Use Plan, the Project includes conceptual site locations for up to four new fire stations on the Project site. In Village 1, one fire station is proposed east of the National Cement Plant Road. The second fire station is proposed in Village 4, and the third fire station is proposed in Village 7, with the location of a potential fourth station to be determined. These new fire stations are projected to provide an average five-minute response time for the first arriving unit for fire and eight minutes for the advanced life support (paramedic) unit on the site at Project buildout. This is consistent with the County of Los Angeles Fire Department's (LACFD's) goals for response times in urban areas. Ultimately, the LACFD would approve the final station site locations, and the Applicant would construct and equip the fire stations (MM 16-3). The LACFD has indicated that the proposed fire stations on the site would provide adequate fire service to the Project.

The Applicant would construct fire protection facilities in accordance with the approved Project, in lieu of paying established developer fees at the time building permits are issued (MMs 16-1 through 16-3). The proposed fire stations on the site would be staffed by a minimum four-person engine company. Implementation of MMs 16-1 through 16-3 would provide for fire station sites, construction of fire station facilities, and funding for fire protection apparatus/equipment to serve the Project. Therefore, impacts on fire services would be reduced to a less than significant level.

### ***Law Enforcement Services***

The Project would also result in an increase in the demand for law enforcement services, including those provided by the Los Angeles County Sheriff's Department (Sheriff's Department or LASD) and the California Highway Patrol (CHP). The Project includes the construction of a Sheriff's station on the Project site (in the Business Park area north of State Route [SR] 138). The ultimate location and timing for implementation of this station would be determined by the LASD in coordination with the Project Applicant and would be dependent upon the development rate on the Project site and its location. Prior to development of this permanent Sheriff's station, the LASD would operate out of a "store front" sub-station until the permanent station is required to be developed. This LASD "store front" sub-station would be properly outfitted in accordance with applicable occupancy requirements of the LASD for this type of facility, and would be fully operational prior to the issuance of the first occupancy permit (refer to MMs 16-2 and 16-4) to ensure that response times to the site for emergency and non-emergency calls would be within the County guidelines.

The Applicant may provide the "store front" and/or permanent Sheriff's stations in lieu of part or all the Sheriff Development Impact Fee, as determined appropriate pursuant to Section 22.74.090, "Consideration in Lieu of Fee", of the County Code. The addition of the "store front" and permanent Sheriff's stations, payment of developer fees by the Project Applicant/ Developer, if applicable (refer to MM 16-4) and revenues from taxes generated (for LASD) and vehicle registration fees (for California Highway Patrol [CHP]) would offset increased demands on the LASD and the CHP. Therefore, impacts on law enforcement services would be reduced to a less than significant level.

The analysis in this section focuses on the projected demand for fire and law enforcement services and the facilities necessary to meet this demand. The physical environmental impacts related to the implementation of necessary fire and law enforcement infrastructure are addressed as part of the Project analysis provided throughout this EIR.

### **Section Format**

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential project effects and identification of significant impacts; identification of a mitigation program, if required, to reduce the impacts; and level of significance after mitigation. This information is presented

in the following format (Please refer to Section 2.0, Introduction, and Section 5.0 for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Fire Services
  - Relevant Plans, Policies, and Regulations
  - Environmental Setting
  - Project Design Features
  - Threshold Criteria
  - Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
    - On-Site Impacts
    - Off-Site Impacts
  - Mitigation Measures
  - Level of Significance After Mitigation
- Law Enforcement Services
  - Relevant Plans, Policies, and Regulations
  - Environmental Setting
  - Project Design Features
  - Threshold Criteria
  - Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
    - On-Site Impacts
    - Off-Site Impacts
  - Mitigation Measures
  - Level of Significance After Mitigation
- References

## References

All references cited for preparation of this analysis are listed in Section 5.16.4.

### 5.16.2 FIRE SERVICES

#### Relevant Plans, Policies, and Regulations

##### *Federal*

No federal plans and policies have been identified related to Fire Services.



**State**

California Fire Plan

In a collaborative effort between the State Board of Forestry and the California Department of Forestry and Fire Protection (CDF), the *2010 Strategic Fire Plan for California* (Fire Plan), last revised in April 2016, was prepared to address the protection of lives and property from California wildfires while recognizing that wildfires are a natural phenomenon and can have beneficial effects, particularly on ecosystem health. The Fire Plan is a comprehensive update to the *California Fire Plan* prepared in 1996, the first such collaborative statewide wildfire planning document. The overarching vision of the Fire Plan is to have “A natural environmental that is more resilient and man-made assets which are more resistant to the occurrence and effects of wildland fire through local, state, federal and private partnerships” (CAL FIRE 2016a).

This vision is supported by seven goals and related objectives, and the application of adaptive management as a fundamental strategy of Fire Plan implementation. The purpose of applying adaptive management is to allow for changing conditions and to better meet environmental, social, and economic goals; to increase scientific knowledge regarding wildfires; and to foster understanding among stakeholders over time. The following are the Fire Plan’s seven goals to support the vision of “A natural environment that is more resilient and man-made assets which [sic] are more resistant to the occurrence and effects of wildland fire through local, state, federal and private partnerships” (CAL FIRE 2016a). The Fire Plan states that each sequential goal is meant to build upon the accomplishment of the previous goal.

1. Identify and evaluate wildland fire hazards and recognize life, property and natural resources assets at risk, including watershed, habitat, social and other values of functioning ecosystems. Facilitate the sharing of all analyses and data collection across all ownerships for consistency in type and kind.
2. Articulate and promote the concept of land use planning as it relates to fire risk and individual landowner objectives and responsibilities.
3. Support and participate in the collaborative development and implementation of wildland fire protection plans and other local, County, and regional plans that address fire protection and landowner objectives.
4. Increase awareness, knowledge and actions implemented by individuals and communities to reduce human loss and property damage from wildland fires, such as defensible space and other fuel reduction activities, fire prevention, and fire safe building standards.
5. Develop a method to integrate fire and fuels management practices with landowner priorities and multiple jurisdictional efforts within local, State, and federal responsibility areas.
6. Determine the level of fire suppression resources necessary to protect the values and assets and risk identified during planning processes.

7. Address post-fire responsibilities for natural resource recovery, including watershed protection, reforestation and ecosystem restoration (CAL FIRE 2016a).

### **County**

#### Los Angeles County Fire Department Strategic Fire Plan

The LACFD is one of the six county agencies that executed a contract with the State of California to provide wildland fire protection on State Responsibility Areas (SRAS) and to implement the CDF's *2010 Strategic Fire Plan for California*, discussed above. The LACFD's 2016 Strategic Fire Plan, last updated June 1, 2016, outlines the Department's pre-fire management strategies and tactics for fire prevention, vegetation management, fire suppression, fire protection, and pre-fire projects for fire hazard reduction, habitat restoration, and training (LACFD 2016a).

#### County of Los Angeles Code of Ordinances

The Los Angeles County Code of Ordinances serves as the municipal code for the County. Title 32 of the County Code is the Los Angeles County Fire Code and identifies fire zones, brush clearance requirements, and structure requirements with respect to fire prevention and suppression. In the Los Angeles County Code of Ordinances (specifically, Title 20, Los Angeles County Utilities Code; Division 1, Water; Chapter 20.16, Design and Construction), requirements related to fire flow and fire hydrant placement are identified. Requirements related to parcel and dwelling access are identified in Chapter 21.24 of the Los Angeles County Subdivisions Code.

#### County Fire Department Developer Fee Program

On July 12, 1990, the Los Angeles County Board of Supervisors adopted the County Developer Fee Program (*California Government Code*, Sections 66000–66008) to fund (1) the purchase of fire station sites; (2) the construction of new stations and facility improvements; and (3) the purchase of equipment. The County annually adjusts developer fees to reflect changing costs. The Applicant would pay fees as annually updated in the County Developer Fee Program for the purchase of land for fire station sites; the construction of fire stations; and the provision of certain equipment. As an alternative to fee payment, the Developer Fee Program allows the LACFD and the Applicant to enter into an agreement whereby the Applicant would provide land and would construct and equip some or all fire stations required for the Project.

#### County of Los Angeles General Plan and Antelope Valley Area Plan

The *County of Los Angeles General Plan* and *Antelope Valley Area Plan* address issues that affect the County, including, but not limited to, fire protection and prevention. Relevant goals and policies in the *Antelope Valley Area Plan* include those listed below.

*Land Use Element*

**Policy LU 3.2:** Except within economic opportunity areas, limit the amount of potential development in Very High Fire Hazard Severity Zones, through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

*Conservation and Open Space Element*

**Policy COS 15.2:** Prohibit continuous all-night outdoor lighting in rural areas, unless required for land uses with unique security concerns, such as fire stations, hospitals, and prisons.

**Policy COS 16.2:** Maximize the use of native vegetation in landscaped areas, provided that vegetation meets all applicable requirements of the Fire Department and the Department of Public Works.

*Public Safety, Services and Facilities Element*

**Goal PS 1:** Protection of the public through fire hazard planning and mitigation.

**Policy PS 1.1:** Limit the amount of potential master-planned development in Very High Fire Hazard Severity Zones through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

**Policy PS 1.2:** Require that all new developments provide sufficient access for emergency vehicles and sufficient evacuation routes for residents and animals.

**Policy PS 1.3:** Promote fire prevention measures, such as brush clearance and the creation of defensible space, to reduce fire protection costs.

**Policy PS 1.4:** Provide strict enforcement of the Fire Code and all Fire Department policies and regulations.

**Goal PS 7:** Emergency services that respond in a timely manner.

**Policy PS 7.1:** Require visible addresses on buildings and at entrances to properties as required by the Fire Code.

**Policy PS 7.2:** Ensure that Fire Stations are adequately staffed.

**Policy PS 7.3:** Strive for a timely response to every call for service.

The Project's consistency with the County's relevant plans, policies, and regulations is analyzed in the Section 5.8, Land Use, Entitlements, and Planning section of this document.

## **Environmental Setting**

### ***County of Los Angeles Fire Department***

Fire protection service is provided to the Project area by the Consolidated Fire Protection District of Los Angeles County, commonly known as the County of Los Angeles Fire Department (LACFD). LACFD Fire Station 77, located at 46833 Peace Valley Road in Gorman, is the jurisdictional engine company for the Western Antelope Valley, including the Project site. This station is located approximately two miles southwest of the site. The response time

from Station 77 to the nearest Project access road is approximately eight minutes. LACFD Station 149, located at 31770 Ridge Route Road in Castaic, provides paramedic services to the Project site. The response time from Station 149 to the nearest Project boundary is approximately 28 minutes (LACFD 2015a). There is also a heliport at Fire Station 77 that is used for refueling and patient pick up. The locations of Stations 77 and 149 are illustrated on Exhibit 5.16-1, Existing Fire Station Locations.

Additional fire protection services would be provided by the closest available LACFD response units listed in Table 5.16-1, Closest County of Los Angeles Fire Stations. Should a significant incident occur within the jurisdiction of the LACFD, the Project would be served by the resources of the LACFD as a whole instead of just the station nearest to the site. A description of the operational characteristics of the stations closest to the site and, therefore, most likely to respond are provided below in Table 5.16-1.

**TABLE 5.16-1  
CLOSEST COUNTY OF LOS ANGELES FIRE STATIONS**

<b>Fire Station</b>	<b>Distance to Project Site</b>	<b>Address</b>	<b>Company Type</b>	<b>Personnel</b>
Station 77	2 miles	46833 Peace Valley Rd Gorman	1 Engine	3-person engine company
Station 149	24 miles	31770 Ridge Route Castaic	1 Engine 1 Paramedic Squad	3-person engine company 2-peron paramedic squad
Station 157	24 miles	15921 Spunky Canyon Rd Green Valley	1 Engine	On-call fire station*
Station 112	21 miles	8812 West Ave E-8 Lancaster	1 Engine	On-call fire station*
Station 76	26 miles	27223 Henry Mayo Dr Valencia	1 Engine 1 Patrol	4 firefighters
* no permanent staff Source: LACFD 2015a, 2015b.				

According to the LACFD, fire protection services in the Project area appear to be adequate for its current rural development (LACFD 2015a).

In response to increased demands for new facilities, equipment, and staffing created by new development, the County of Los Angeles has implemented a Developer Fee Program to fund the purchase of station sites; to construct new stations and facility improvements; and to fund needed equipment. The County annually adjusts the developer fees to reflect changing costs. The Developer Fee, \$0.9180 per square foot of new development (for all land uses) in the Antelope Valley (Area of Benefit 3), is effective February 1, 2017 (LACFD 2016b) and collected at the time building permits are issued. This Developer Fee Program allows for station funding and land dedication in lieu of payment of fees.

As part of this program, the LACFD prepares a Developer Fee Detailed Fire Station Plan to identify anticipated facilities that would be constructed during the LACFD's five-year

D:\Projects\3CEN\Centennial\MXD\EIR\Ex\_fire\_stations\_20150927.mxd



- Fire Stations
- Los Angeles County Fire Stations**
  1. Station 77 - 46833 Peace Valley Road, Gorman
  2. Station 149 - 31770 Ridge Route, Castaic
  3. Station 157 - 15921 Spunky Canyon Road, Green Valley
  4. Station 112 - 8812 West Avenue E-8, Lancaster
  5. Station 76 - 27223 Henry Mayo Dr., Valencia
- Kern County Fire Stations**
  6. Station 56 - 1548 Golden State Highway, Lebec
  7. Station 57 - 729 West End Drive, Frazier Park
  8. Station 55 - 5441 Dennis McCarthy Road, Mettler
  9. Station 58 - 2420 Symonds Drive, Pine Mountain

### Existing Fire Station Locations

Centennial Project



### Exhibit 5.16-1

planning horizon. This plan is updated annually, and the latest plan lists four future fire stations in the Gorman area for the Centennial Project (LACFD 2016b). Funding for staffing and operations of all fire stations would be incorporated into the LACFD annual operating budget. These costs are partially funded through additional property tax revenue as a result of development. Increased property tax revenue associated with the Project would provide additional funding that would offset any increase in the LACFD staffing and operational costs as a result of the Project.

In the case of a significant incident requiring additional fire protection resources, the LACFD participates in a statewide mutual aid system that allows unaffected fire agencies to voluntarily provide aid to other agencies, local governments, operational areas, and the State. The State of California also participates in a nationwide mutual aid system (County of Los Angeles 2012). In addition, the LACFD has automatic mutual aid agreements with the Kern County Fire Department, the Ventura County Fire Department, and the United States Forest Service (USFS), which would allow for these other fire agencies to respond to fire incidents at the site and for the LACFD to respond to fire incidents in Kern County, Ventura County, and the Angeles National Forest (LACFD 2015b).

### ***Kern County Fire Department***

The Kern County Fire Department (KCFD) serves an area spanning over 8,140 square miles, including the unincorporated areas of Kern County and the Cities of Arvin, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco. Over 546 uniformed firefighters are stationed in 46 fire stations throughout Kern County. The KCFD has 14 Mutual Aid Agreements with neighboring fire suppression organizations to further strengthen the emergency response services (KCFD 2015a).

As stated above, the LACFD participates in an automatic mutual aid agreement with the KCFD where the LACFD provides reciprocal services to the KCFD in exchange for the KCFD's response to this area. Under this agreement, the LACFD responds to fire incidents in areas within approximately 6.0 miles north of the County line from Interstate (I) 5 to Edwards Air Force Base, and the KCFD responds to fire incidents in areas within approximately 3.0 miles south of the County line from Edwards Air Force Base to west of I-5 (LACFD and KCFD 2001). This agreement makes the equipment of each Fire Department available to the other on a one to one basis (KCFD 2015c).

Battalion 5 (South Kern County) includes four Kern County fire stations that are located closest to the Project site, as listed in Table 5.16-2, Closest Kern County Fire Stations.

**TABLE 5.16-2  
CLOSEST KERN COUNTY FIRE STATIONS**

<b>Fire Station</b>	<b>Approximate Driving Distance to Project Site</b>	<b>Address</b>	<b>Equipment*</b>	<b>Personnel</b>
Station 56	12 miles	1548 Golden State Hwy Lebec	1 Type 2 engine, 1 Type 3 engine, 1 Type 6 engine	3 firefighters
Station 57	16 miles	729 West End Dr Frazier Park	1 Type 3 engine, 1 Type 6 engine	3 firefighters
Station 55	18 miles	5441 Dennis McCarthy Rd Mettler	1 Type 2 engine, 1 Type 2 truck	6 firefighters
Station 58	29 miles	2420 Symonds Dr Pine Mountain	1 Type 3 engine, 1 Type 6 engine	3 firefighters
* Type 1 and 2 engines typically apply to structural engines and Types 3-7 engines typically apply to wildland engines. Source: KFCFD 2015b, 2015c.				

Battalion 5 serves an area that is mostly in the wildland urban interface, and response times vary due to remote locations. However, the service levels are considered adequate and mirror the staffing levels used in the County's metropolitan areas (KCFD 2015c).

#### ***Existing Fire Conditions on the Project Site***

Information regarding the fire history on the Project site was obtained from CAL FIRE. CAL FIRE, the USFS Region 5, the Bureau of Land Management (BLM), the National Park Service (NPS), Contract Counties, and other agencies jointly maintain a comprehensive fire perimeter geographic information systems (GIS) layer for public and private lands throughout the state. The data includes fires that have occurred on ten acres or more dating from 1878 through 2015 (the most recent data available). According to CAL FIRE, 21 fires on 10 acres or more have occurred on site and within ½ mile of the Project site within the last 137 years. Of those fires, 8 occurred on portions of the site and 12 occurred near the site (see Table 5.16-3, Fire History On and Near Centennial Project Site, below for fire name, date of fire, acres burned and location within the Project site) (CAL FIRE 2016b).

**TABLE 5.16-3  
FIRE HISTORY ON AND NEAR CENTENNIAL PROJECT SITE**

<b>Fire Name</b>	<b>Year of Fire</b>	<b>Total Acres Burned</b>	<b>Acres Burned On Site</b>	<b>Approximate Location of Fire</b>
No Name Given	1917	211.66	0.00	South of the site
No Name Given	1919	1,680.74	715.10	East of Aqueduct
No Name Given	1921	508.61	0.00	Southeast of the site
No Name Given	1923	86.71	0.00	South of the site
No Name Given	1926	489.33	0.00	South of the site
Oakland Ridge Rte 62	1928	1,002.89	857.98	East of Aqueduct and across from SR-138
Liebre Fire	1968	48,564.26	0.17	Southern section of the site
No Name Given	1986	596.70	0.00	West of the site
Pine Canyon Fire	1987	204.33	0.00	Southeast of the site
No Name Given	1988	83.16	0.00	Southwest of the site
Cement Fire 1	1994	122.02	115.96	North of Quail Lake and east of Aqueduct
Cement Fire 2	1994	625.35	601.09	Northeast section of the site
Gorman Fire	1997	187.83	0.00	Southwest of the site
Aqueduct	2003	356.09	0.00	Southwest of the site
Post	2003	37.28	0.00	Southwest of the site
Pine	2004	16,271.65	66.25	Eastern section of the site
Hwy 138 and 300 West Fire	2006	192.61	145.84	Eastern section of the site
Quail Fire	2006	4,769.78	0.00	West of the site
Pine	2014	117.05	0.00	South of the site
SR: State Route Source: CAL FIRE 2016b.				

The lack of significant historical fire activity on the Project site may be attributed to cattle grazing operations. Cattle operations coincide with the historical fire data. Cattle grazing limits fuel that would otherwise be more abundant, which results in a lower probability that a wildfire would ignite and spread. In addition, ongoing ranching activities ensure that more people are on site and able to extinguish smaller fires quickly.

### **Project Design Features**

No PDFs have been identified for this environmental issue.



## Threshold Criteria

The following significance threshold criterion is derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact if it would:

**Threshold 16-1** Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need of new or physical altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: fire protection.

## Environmental Impacts

**Threshold 16-1** **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need of new or physical altered governmental facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: fire protection?**

### *On-Site Impacts*

#### Construction-Related Impacts

Fires can occur at construction sites. Factors affecting fire risk at construction sites include, but are not limited to, stockpiling construction materials and electrical, plumbing, and mechanical systems installation. A large amount of wood framing is expected to be used on the Project site during its 20-year buildout period. In association with the framing operations, electrical, plumbing, communications, and ventilation systems would be installed in each structure. It is expected that the electrical, plumbing, and mechanical systems would be properly installed during framing operations (i.e., they would be subject to County codes and inspections by County personnel prior to installing dry wall). In addition, construction sites would also be subject to County requirements relative to water availability and accessibility to fire-fighting equipment. During each phase of construction over the 20-year buildout period, construction activities would be required to comply with all applicable building and fire code requirements for such items as roofing materials, building construction, brush clearance, water mains, fire hydrant flows, hydrant spacing, access and design, and other hazard-reduction programs for areas identified within the Very High Fire Hazard Severity Zone (VHFHSZ),<sup>1</sup> as set forth by the County Forester and Fire Warden. During each phase of construction, the Construction Contractor, the Applicant, and the County would coordinate to determine the most feasible locations for construction staging and equipment/materials storage.

---

<sup>1</sup> As discussed in Section 5.3.3, Fire Safety, of Section 5.3 (Hazards and Fire Safety), portions of the Project site are located in a VHFHSZ and, therefore, the site is considered to have a high fire potential.

Fire services and emergency response for fire incidents during the initial construction phases of the Project would be provided from LACFD Fire Station 77, located at 46833 Peace Valley Road in Gorman, which is currently staffed with a three-person engine company. Emergency access to the construction sites would be provided and maintained. As stated in Section 4.5.4, Mobility Plan, National Cement Plant Road would be realigned at the southern segment but the existing road would remain in place and would be available for use for emergency access during construction.

Therefore, adherence to County fire codes and requirements (see Section 5.3, Hazards and Fire Safety) and coordination between the Construction Contractor, Project Applicant, and the County during construction would reduce potential impacts related to fire hazards at the Project site to a less than significant level.

### Operational Impacts

The Project would result in the development of a maximum of 19,333 residential units, approximately 57,150 residents, and over 10.0 million square feet of non-residential development creating approximately 23,675 jobs. This development would introduce people and structures into currently undeveloped areas. With a greater number of people and structures, there is a greater potential for activities and accidents involving the use of fire, flammable/combustible materials, and electrical systems, along with the creation of fire hazards from candles, cooking, electrical and heating sources, and smoking and the use of equipment, appliances, and materials that may cause fire, explosion, or the release of smoke, gas, and/or hazardous materials. Thus, new development on the site would substantially increase the likelihood of incidents requiring LACFD response and calls for service over existing conditions. This would create a significant impact if not mitigated as required by the County of Los Angeles.

The LACFD has indicated that each additional development creates greater demands on their existing resources. They estimate that up to four additional fire stations could be needed to provide adequate fire service to the Project and meet its response time goals, with the actual number of stations determined by the LACFD based on the road network (LACFD 2015a). The Project would construct up to four stations (three medium stations and one large station) on the Project site to the LACFD's specifications. A medium station would consist of an approximate 10,000-square-foot (sf) building on an approximate 1.25-acre lot. A large station consists of an approximate 15,500-sf building on an approximately 4.00-acre lot. The large station lot is sized to also accommodate training facilities for fire fighters. It should be noted that fire station size requirements are continually modified to meet federal, State, and local requirements. The actual square footage of each fire station would be determined by the LACFD at the time of Project development.

As discussed in Section 4.0, Project Description, the Project includes conceptual site locations for three new fire station sites, with a potential fourth location to be determined on the Project site. However, without the development of the on-site fire stations on the Project site, there would be significant fire-related impacts to people and structures. As required by MM 16-1, these new fire stations are projected to provide an average five-minute response time for the first arriving unit for fire services and an eight-minute response time

for advanced life support (paramedics) to the Project site at buildout. Because MM 16-1 would ensure that fire station sites are located to meet the LACFD goal of a five-minute response time for fire and an eight-minute response time for paramedics, the impact on response times for fire protection would be reduced to a less than significant level.

Until such a time that the first fire station is conveyed to the Fire District (1,000<sup>th</sup> dwelling unit), the Project Developer would be required to pay developer fees. The County of Los Angeles requires the Applicant to pay fees as detailed in the County Fire Department Developer Fee Program (MM 16-2). Upon completion of the first fire station, the Project Developer would be issued a developer fee credit and, at the completion of the 6,000<sup>th</sup> residential occupancy, the second fire station would become operational and be conveyed to the Fire District; at this time, the Project Developer would be issued a developer fee credit (and so on) until all required fire stations are constructed. As previously stated, the Project Applicant has agreed to dedicate the land and construct and equip up to four new fire stations. Construction of these fire stations will be subject to approval by the LACFD and costs would be borne solely by the Applicant (MM 16-3). The LACFD would assign a project manager to liaison with the Applicant and/or the designated contractor and architect. The Project includes conceptual fire station sites to serve the Project's residents and non-residential development, as shown on Exhibit 4-1, Centennial Project – Conceptual Land Use Plan.

Property tax revenues, which would increase annually as the Project is built out over time, would provide funds for the operation and staffing of the fire stations. Ultimately, it would be the LACFD's responsibility to ensure that staffing and resource service levels balance with the rate of Project development. Because the Project accommodates adequate opportunities for the development of on-site fire stations to serve Project development and because MMs 16-2 and 16-3 would ensure that funding and fire station sites are provided for these new fire stations as part of the implementation of the Project (as discussed below), the impact on the demand for new fire stations would be reduced to a less than significant level.

Fire services and emergency response for fire incidents during the initial development phases of the Project would be provided from Fire Station 77. This station would serve the Project until such time that the 1,000<sup>th</sup> dwelling unit is built on the site (at which time the first on-site fire station shall be operational) (MM 16-3). The KCFD may also provide fire service and emergency response under the mutual aid agreement with LACFD.

As discussed in Section 5.3, Hazards and Fire Safety, the Project roadways would be built to County of Los Angeles standards or would be modified by the Project for unique types of roadways. The internal roadways would be designed to ensure that proper access for emergency ingress and egress would be provided for evacuation and for emergency vehicle access. The National Cement Plant Road would be part of the Project's circulation system. The southern segment of this road would be realigned to connect to SR-138 west of Quail Lake, but the existing southern segment of the roadway would be improved to become an access point into the Project site (east of Quail Lake). There would be no impact with the continued use of National Cement Plant Road.

To ensure that future residents, visitors, employees and other people on the Project site are informed regarding evacuation routes and other aspects of an emergency response, the Project Applicant has prepared an Emergency Response Plan for the Project; in accordance with MM 3-8 in Section 5.3, Hazards and Fire Safety, this Evacuation Plan will be reviewed and approved by the County of Los Angeles Department of Regional Planning, the LACFD, and the LASD. The Emergency Response Plan would be distributed to each property tenant or purchaser in accordance with MM 3-8 in Section 5.3, Hazards and Fire Safety.

Land uses in the Business Park land use category planned on the Project site may use substances and/or chemicals considered to be hazardous/flammable by the State of California. Refer to Section 5.3, Hazards and Fire Safety, for a discussion of hazardous materials that are potentially associated with the Project. Impacts related to hazardous materials use would be less than significant with implementation of the MMs.

As stated in Section 5.3, Hazards and Fire Safety, the Project shall comply with all applicable LACFD code and ordinance requirements for building construction, access, water mains, fire flows, and hydrants. Thus, development on the site would be constructed to prevent the creation of fire hazards; to have the necessary fire alarm and sprinkler systems; and to have adequate emergency fire access.

As stated in the Project Description (Section 4.5.9), the Project includes a domestic (potable) water supply, treatment, storage, and distribution system (Potable Water System). The design, construction, and operation of the Potable Water System would be required to comply with standards set by the California Department of Health Services and Los Angeles County Department of Public Works. The planned domestic water facilities are depicted on Exhibit 4-13, Centennial Project – Conceptual Domestic Water System, and include the following: water treatment facility, storage tanks, booster pump stations, pressure reducing stations, recharge basins, wells, and distribution lines. It should be noted that the potable water distribution system requires four pressure zones, each of which would provide an appropriate water pressure to meet peak demand and County-required fire flow requirements. The domestic water system would provide the necessary fire flows for fire incidents at the site.

#### Wildland Fires

The Project would introduce urban development into an undeveloped area that is subject to wildfire hazards. Portions of the Project site are within a VHFHSZ, which includes areas that are subject to high fire hazards due to the presence of high brush, woodlands, and steep slopes. The Project's potential to result in wildland fire hazards is addressed in Section 5.3, Hazards and Fire Safety. As discussed in Section 5.3.3, the Project will comply with all Very High Fire Hazard Severity Zone and High Fire Hazard Severity Zone code and ordinance requirements for fuel modification. As required by Section 4908.1 of the County of Los Angeles Fire Code, a Fuel Modification Plan must be submitted to the Forestry Division and be preliminarily approved prior to issuance of a permit for any permanent habitable structure. The Project will comply with all applicable LACFD code and ordinance requirements for construction, access, water mains, fire flows, and hydrants. MM 3-10 requires the Property Owner/Developer to provide all new Property Owners with recorded

Covenants, Conditions, and Restrictions (CC&Rs) or disclosure statements that identify the responsibilities for maintaining the fuel modification zone(s) on their property, as defined in the approved Fuel Modification Plan. The Project, for fire protection, is required to be compliant with State and County fire regulations, standards, and guidelines. This would ensure that the Project would not result in an increased potential for wildland fire hazards, and impacts would be less than significant.

The Project Description (Section 4.5.14) provides more detail regarding the Project's landscape concept and Fuel Modification Plan. The landscape concept and fuel modification plan would reduce the potential for wildland fire and brush fire hazards on the Project site.

The existing heliport at Fire Station 77 would be operational for refueling and patient pick up and could be used to scoop water from Quail Lake for brush fire protection. On site, a fire hydrant system would be constructed to fight fires within the development area. Development would eliminate the potential for brush fires, and the on-site water system and fire hydrants would be available to provide fire flows for fire suppression. Therefore, there would be a less than significant impact on brush fire protection services.

#### Response Times

According to the Insurance Service Office (ISO), using a Fire Suppression Rating Schedule (FSRS), a five-minute response time is typically the standard for adequate fire protection. The development of up to four new fire stations, in combination with Fire Station 77, are projected to provide an average five-minute response time within the Centennial development at Project buildout (MM 16-1). This is consistent with the LACFD goal of a five-minute or less average first-due response time in urban areas (LACFD 2015a).

#### ***Off-Site Impacts***

The off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, would not, by themselves, generate population growth that would result in additional demand for fire protection services. Additionally, the installation of the proposed well system as part of the Project would assist fire protection and emergency response capabilities by assuring adequate fire flows and pressures at the site. There would be no impact on fire protection services and no mitigation is required.

Where off-site features would necessitate construction activity within a roadway right-of-way, implementation of MM 10-8 from Section 5.10, Traffic, Access, and Circulation, would ensure that Traffic Management Plans are prepared and submitted to the County of Los Angeles Public Works Department for review and approval. The Traffic Management Plans would describe traffic-control measures that would be implemented to maintain traffic flow in all directions including where utilities and other improvements are being implemented in existing roadways. Because impacts to circulation would be minor and temporary and because traffic-control measures would be detailed in the Traffic Management Plans, traffic movements would not be disrupted and emergency vehicles would be accommodated. Therefore, less than significant impacts would occur.

**Impact Summary:** Development of the Project site would introduce people and structures into currently undeveloped areas resulting in an increase in the demand for fire services, which is considered a significant impact. Adherence to County fire codes and requirements during construction would reduce the potential for fire hazards at the Project site. The presence of Station 77, which is located approximately two miles from the Project site, and the proposed on-site fire station sites would adequately serve the Project. Up to four on-site fire stations would be built and equipped as part of the Project (MM 16-1 and MM 16-3). Project development fees would also generate tax revenue (MM 16-2) to provide funding for staffing of fire service resources; therefore, no significant impact would result related to fire protection services. Compliance with MMs 16-1 through 16-3 would provide for sites and funding for fire protection; therefore, the impact to fire services would be less than significant.

## **Mitigation Measures**

The following mitigation measures reflect the consideration of fire services as part of the Project. MMs 16-1 through 16-3 provide fire station sites and funding for fire protection services to serve the Project.

- MM 16-1** At buildout, the Los Angeles County Fire Department (LACFD) fire stations shall be located such that response times to the Project site shall be 5 minutes or less for fire service responses and 8 minutes or less for the advanced life support (paramedic) unit responses within the Project site.
- MM 16-2** The Project Applicant/Developer shall pay developer fees in effect at the time of building permit issuance, in accordance with the LACFD Developer Fee Program until such time the Project Applicant/Developer has conveyed an approved, operational fire station to the LACFD. As an alternative to fee payment, the Developer Fee Program allows the LACFD and the Project Applicant to agree on a program whereby the Project Applicant would provide land and would construct and equip the fire stations required for the Project in exchange for a credit towards the Project's fee payments.
- MM 16-3** The Project Applicant/Developer shall provide land, convey title, and shall construct and equip to the specifications and requirements of the LACFD, for up to four new Fire Stations to the LACFD. The approved final plans and specifications for the Project shall identify locations of the fire stations. The LACFD shall have final approval over the fire station site locations. The timing for the construction of the on-site fire stations shall be established by the LACFD dependent upon the phasing of development, with the first on-site fire station operational no later than the time the 1,000<sup>th</sup> dwelling unit is built on site.

## Level of Significance After Mitigation

Implementation of MMs 16-1 through 16-3 would reduce potentially significant impacts related to fire protection services to levels that are less than significant.

### 5.16.3 LAW ENFORCEMENT SERVICES

The following analysis is based on information provided by the Los Angeles County Sheriff's Department (LASD) and the California Highway Patrol (CHP).

## Relevant Plans, Policies, and Regulations

### *Federal*

No federal plans and policies have been identified related to Law Enforcement Services.

### *State*

No State plans and policies have been identified related to Law Enforcement Services.

### *County*

#### Law Enforcement Facilities Mitigation Fee

On June 24, 2008, the Los Angeles County Board of Supervisors approved Ordinance No. 2008-0033, which amends Title 22 (Planning and Zoning) of the Los Angeles County Code with the addition of Chapter 22.74, Law Enforcement Facilities Fee. This Ordinance became effective August 23, 2008. This amendment established a Law Enforcement Facilities Mitigation Fee (LEFMF) plan for new residential, commercial, office, and industrial development in the unincorporated Santa Clarita, Newhall, and Gorman areas. The adoption of the ordinance established a fee to be imposed upon new development projects. This fee serves to finance land acquisition, engineering, construction, installation, purchasing, and other direct costs related to capital law enforcement facilities and equipment, as required to serve new development in unincorporated areas of North Los Angeles County.

#### County of Los Angeles General Plan and Antelope Valley Area Plan

The *County of Los Angeles General Plan* and *Antelope Valley Area Plan* address issues affecting the provision of law enforcement services. Relevant goals and policies in the Antelope Valley Area Plan include:

#### *Public Safety, Services and Facilities Element*

**Goal PS 4:** Protection of public safety through law enforcement and crime prevention strategies.

**Policy PS 4.1:** Support an increased law enforcement presence in every Antelope Valley community and explore new funding mechanisms to expand law enforcement services.

**Policy PS 4.2:** Support a strong law enforcement presence on highways and streets to strictly enforce speed limits and other vehicle safety laws.

**Policy PS 4.3:** Promote and support neighborhood watches to create more eyes and ears in the community.

**Policy PS 4.4:** Educate the public on crime prevention programs and resources offered by the Sheriff's Department.

A consistency analysis of the Project's specific goals and policies with the County's relevant plans, policies and regulations is provided in the Land Use, Entitlements, and Planning Section (Section 5.8) of this document.

## **Environmental Setting**

### ***Los Angeles County Sheriff's Department***

The Santa Clarita Valley Station of the LASD is responsible for providing general law enforcement for all crimes against persons or property in the Project area, and the CHP provides traffic control and accident investigation. The closest LASD Station is located near the intersection of Magic Mountain Parkway and Valencia Boulevard at 23740 Magic Mountain Parkway in Valencia, approximately 28 miles south of the Project site, as shown on Exhibit 5.16-2, Existing Law Enforcement Station Locations. This station's service area includes the Angeles National Forest and the communities of Bouquet Canyon, Canyon Country, Castaic, City of Santa Clarita, Gorman, Hasley Canyon, Newhall, Neenach, Sand Canyon, Saugus, Six Flags Magic Mountain, Sleepy Valley, Southern Oaks, Stevenson Ranch, Sunset Point, Tesoro del Valle, Valencia, Val Verde, West Hills, and Westridge. This area is generally bound on the north by the Kern County Line, on the east by the township of Agua Dulce, on the south by the Los Angeles City limits, and on the west by the Ventura County line.

The Santa Clarita Valley LASD Station provides general law enforcement services, including patrol and response, a crime prevention unit, investigation, and traffic control. It provides these services via patrol units, detectives, a Special Problems Unit, a homeless program, school deputies, business alliance programs, valley force tram, and a juvenile team. Their service area also includes the City of Santa Clarita, which contracts with the LASD for law enforcement services. The Santa Clarita Valley LASD Station maintains a staff of 200 sworn deputies and 43 civilian employees and is equipped with patrol vehicles, aircraft, search and rescue assets, mounted patrols, and emergency operations assets.

The Santa Clarita Valley LASD Station administers various community-based programs, including the Volunteers on Patrol, Explorer, Neighborhood Watch, Vital Intervention and Directional Alternatives (VIDA), and Drug Abuse Resistance Education (DARE) programs. The Search and Rescue (SAR) operations are conducted by the Sheriff's Department Reserve Forces Bureau from seven stations, including the Santa Clarita Valley LASD Station, which has a Mounted SAR team that uses specially-trained horses and riders in terrain that is not accessible by motorized vehicles or helicopters. The LASD provides facilities, some vehicles, and some life-saving equipment to perform core functions but not operating funds. Rather, SAR teams are largely reliant on donations of their time and equipment.



D:\Projects\3CEN\Centennial\MXD\EIR\Ex\_police\_stations\_20150901.mxd



## Existing Law Enforcement Station Locations

Centennial Project



Exhibit 5.16-2

The LASD staff has indicated that the generally accepted service ratio is 1 deputy for every 1,000 residents. The resident population in the Santa Clarita Valley LASD Station's service area is approximately 279,000 people and that Station currently has 1 deputy per 2,364 residents, well below the standard.

Generally accepted response times for law enforcement agencies are 10 minutes or less for emergency situations (i.e., a crime or incident that is in progress and includes a life-threatening situation); 20 minutes or less for priority incidents (i.e., a crime or incident that is in progress but does not include a life-threatening situation); and 60 minutes or less for routine or non-emergency situations (i.e., a crime or incident that has already occurred and does not include a life-threatening situation). The response time is measured by the Station as being from the time a call is received until the time a responding unit arrives at the incident location.

The Station's anticipated response times to the Project site for emergency, priority, and routine incidents are 1 to 10 minutes; 1 to 20 minutes; and 1 to 60 minutes respectively. Response times are variable because the responding patrol units may be deployed elsewhere within the Station's service area and not necessarily dispatched from the Station itself.

Current demand for LASD services to the Project site are limited due to its largely undeveloped condition. Part 1 crime data for Reporting Districts 0681 and 0685, which are located in the unincorporated northwest portion of Los Angeles County and which include the Project site, included 1 aggravated assault, 2 burglaries, and 1 larceny (excluding motor vehicle theft) from January 1 to June 30, 2015.

Mutual aid agreements with various other law enforcement agencies in and beyond Los Angeles County allow for reciprocal services to be provided across jurisdictional boundaries in the event of disaster or other crises. These agreements are organized through the State's Office of Emergency Services, with associated costs for mutual aid servicers subject to reimbursement by the assisted agency.

### ***California Highway Patrol***

The CHP is the traffic law enforcement organization for California and is divided into eight geographical regions throughout the state. The primary responsibilities of the CHP are to enforce traffic laws on County and State highways; to assist in emergencies exceeding local capabilities; to provide disaster and life-saving assistance; to complete truck and bus inspections; to perform air operations and vehicle theft investigation and prevention measures; to protect State property and employees; and to complete public education on driver safety (CHP 2015a). The CHP has mutual aid agreements with the Los Angeles and Kern County law enforcement agencies and provides service and assistance when requested.

The CHP stations in the vicinity of the Project site are the Newhall Area, Fort Tejon Area, and Antelope Valley Area stations. The locations of these three CHP stations are shown on Exhibit 5.16-2. The Newhall Area and Antelope Valley Area CHP stations are located in the CHP's Southern Division, which serves the Los Angeles County area. The Southern Division includes 10 area offices, 1 commercial inspection facility, 1 communication and dispatch center, and 1,024 officers. The Fort Tejon Area CHP station is located in the CHP's Central

Division. The Central Division includes 15 Area Offices and 2 commercial inspection facilities.

The Newhall Area CHP station is located at 28648 The Old Road in Valencia, near the I-5 and SR-126 interchange. This station has 76 officers, and patrols 204 miles of freeway and 224 miles of unincorporated roadways within a 674-square-mile area (CHP 2015b). The Fort Tejon Area CHP station is located at 1033 Lebec Road in Lebec. This station has 30 officers and patrols 1,300 miles of freeways, roadways, and unincorporated areas in 3 counties. The Antelope Valley Area CHP station is located at 2041 West Avenue I in Lancaster. This station patrols freeways and County roadways in the Antelope Valley.

There are no long-range planning documents or uniform staffing requirements used by the CHP to project future needs in each service area. Rather, each station determines its own staffing allocation relative to the geographical needs within the station area's boundaries based on the service area's unique requirements and budget constraints. The CHP does not receive or base its deployment on the revenues that may be generated within its service area. The primary funding source for CHP facilities and staffing is State motor vehicle registration fees. Allocation of these fees to each service area is determined by CHP Headquarters in Sacramento. The Newhall CHP Area, which includes the Project site, has submitted requests for future staffing; however, there are no immediate plans to increase either Newhall Area-based personnel or equipment (Miler 2016).

## Project Design Features

No PDFs have been identified for this environmental issue.

## Threshold Criteria

The following significance threshold criterion is derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact if it would:

**Threshold 16-2** Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need of new or physical altered governmental facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: sheriff protection.

## Environmental Impacts

**Threshold 16-2** Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need of new or physical altered governmental facilities, the construction of which could cause significant environmental impacts in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: sheriff protection?

## ***On-Site Impacts***

### Los Angeles County Sheriff's Department

#### *Construction-Related Impacts*

The LASD would be responsible for providing general law enforcement services to the Project site during construction, including response to calls for service in the cases of trespassing, theft, and vandalism that can occasionally occur at construction sites. Security fencing and private security would be provided by the Applicant in construction areas within the Project site and would reduce the need for LASD services. With these services, short-term, construction-related impacts would be less than significant.

#### *Operational Impacts*

Buildout of the Project would result in a maximum of 19,333 residential units, approximately 57,150 residents, over 10.0 million square feet of non-residential development creating approximately 23,675 jobs (refer to Section 5.9, Population, Housing and Employment). Based upon the generally accepted standard for officer-to-population ratio, as provided by the LASD (i.e., 1 field deputy per 1,000 residents), the Project would require 56 additional field deputies. This increase in field personnel would necessitate a concurrent increase in support resources such as detectives, complaint desk officers, support staff, vehicles, and portable radios which, if not provided, would result in a significant impact.

The Project would have to Law Enforcement Facilities Mitigation Fee (LEFMEF) in compliance with MM 16-4, which would reduce this potentially significant impact. The LEFMEF, which would be paid by the Applicant, will provide sufficient revenues to pay for land acquisition, engineering, construction, installation, purchasing, and any other direct costs necessary to provide the capital law enforcement facilities and equipment needed to serve new development in unincorporated areas of North Los Angeles County.

In addition, the Project includes the construction of a permanent LASD station on the Project site, as shown in Exhibit 4-1, Centennial Project – Conceptual Land Use Plan. The proposed LASD station would be located in the Business Park area along the north side of the SR-138. This LASD station, its precise location, its timing, and its associated staffing levels would be developed at a future time to be determined by the LASD and the Applicant based on the Project site's development rate.

The LASD's operating budget is generated through tax revenues, penalties and services, and allowed government assistance. Facilities, personnel, and equipment expansion and acquisition are tied to the County budget process and rely on tax-base expansion. Tax-base expansion would occur with development of the Project. The additional tax-base generated by the Project would offset the increased costs of providing LASD personnel and other support resources to the Project and therefore would not result in a significant impact related to LASD protection services.

Prior to development of the permanent LASD Substation, the LASD could operate out of "store front" sub-station at the first development area – Village 1 (MM 16-4). This "store front" sub-station would be properly outfitted in accordance with applicable occupancy

requirements of the LASD for such “store front” facilities, and would become operational before the first certificate of occupancy for the Project is issued. Upon approval of the applicable future tract map, the Applicant and the LASD will coordinate to finalize plans for a permanent LASD Station. The costs associated with the construction of this temporary sub-station would be paid by the Applicant and credited toward the LEFMM (LASD 2016).

With the addition of the “store front” LASD station and the permanent LASD Station on the Project site by buildout, response times to the Project site for emergency and non-emergency calls would improve due to the decreased distance from the site to the station. It is expected that the number of service calls and the types of incidents at the Project site and surrounding areas as the Project is built out would be similar in frequency and character to those experienced throughout the Santa Clarita Valley service area or other urbanized areas. Aside from the demand generated by the daytime and nighttime populations associated with the residential, commercial, and business park uses and public facilities, the Project does not provide for land uses that would create any new or unique types of law enforcement requirements. Any illegal on-site off-road vehicular activity would not present a law enforcement issue, as the LASD has determined that the proposed on-site facilities would adequately serve the Project (LASD 2016). The Hungry Valley State Vehicular Recreation Area, located approximately five miles west of the Project site, is a motorcycle, four-wheel drive, and all-terrain vehicle use area that provides a legal off-road alternative to illegal use of the site.

The placement of development adjacent to open space areas would result in increased use of these areas. In the event of an emergency, the Search and Rescue team from the Santa Clarita Valley LASD Station may be asked to assist. According to the LASD, the Search and Rescue team is adequately staffed and equipped to perform Search and Rescue operations and can, if necessary, obtain assistance from other equipped Search and Rescue teams located both in and outside Los Angeles County through the Los Angeles County Office of Emergency Services. The Santa Clarita Valley LASD Station’s Search and Rescue Team has resources at its disposal, both in terms of personnel and equipment, to carry out its operations. Increased encroachment into Special Management Areas as a result of the Project would not place undue requirements on the Santa Clarita Valley LASD Station’s Search and Rescue Team in the event of an emergency, and no significant impacts would occur.

The Project would provide for one permanent LASD station (MM 16-4). The timing for implementation of this station would be determined by the LASD in coordination with the Applicant, and would depend upon the development rate on the Project site and in its vicinity. In addition, prior to development of this permanent LASD station, the LASD would operate out of a “store front” station within the first development area. MM 16-4 would ensure that this “store front” sheriff’s facility would be developed pursuant to applicable occupancy requirements of the LASD for such facilities and that it is fully operational prior to the issuance of the first certificate of occupancy for the Project. With the “store front” and permanent on-site LASD Station, the LASD has indicated that optimal response times to the Project site can be met (LASD 2016).

Compliance with MM 16-4 would reduce the potential impacts on demand for law enforcement services to the Project site to less than significant levels. No additional impacts would occur related to the construction or expansion of LASD facilities.

#### California Highway Patrol

During development and upon Project buildout, demand for CHP services on the area's freeways and highways would increase due to vehicular traffic generated by the Project. This would result in potentially significant impacts on CHP services. While the Newhall Service Area station would be most impacted by Project-generated traffic because its service area includes the Project site and it handles I-5 traffic west and south of the Project site, there would also be increased traffic on the I-5 north of the SR-138 in the CHP's Fort Tejon Area and on SR-138 east of the Project site in the CHP's Antelope Valley Area. In addition, the CHP would be responsible for enforcing traffic regulations, responding to traffic accidents, and providing service and assistance for disabled vehicles in the Project area.

The Project will increase traffic volumes on SR-138 and I-5, affecting the CHP's Fort Tejon, Antelope Valley, and Newhall Areas. Refer to Section 5.10, Traffic, Access and Circulation, for more information regarding Project-related traffic generation. The CHP may need to increase staffing levels, adjust boundaries, and purchase new equipment in order to address increased demand for services. However, implementation of the Project would not require new or physically altered CHP facilities to maintain acceptable service ratios, response times, or other performance objectives (Miler 2016). The additional revenues from car registration fees generated by the Project would provide funding for additional staffing and equipment, which would partially offset any increased demand on CHP services associated with the Project.

As stated above, there are no long-range planning documents or uniform staffing requirements used by the CHP to project future needs in each service area. Rather, each station determines its own staffing allocation relative to the geographical needs within its boundaries based on the service area's unique requirements and budget constraints. Each CHP Station, under the direction of the Area Commander, drafts an annual report that includes demographic data, the number of calls received, and response times. In the report, a recommendation would be made to add additional staff, equipment, and/or facilities if needed. The decision to add additional stations is determined at the local level and largely depends on response times.

While the Project would increase demand for services from the CHP, this demand would not require the construction of new CHP facilities, nor would it require the expansion of existing facilities that would result in physical environmental impacts. Although implementation of the Project would require additional officers, this is not considered a significant environmental effect. As stated above, each CHP area station ultimately recommends the timing of hiring and number of new officers hired as part of its standard staffing practices. Therefore, impacts on the CHP would be less than significant.

### ***Off-Site Impacts***

The off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, would not, by themselves, generate population growth that would result in additional demand for law enforcement services. The presence of the off-site wells may result in occasional security-related calls for service. However, the level of this demand compared to the anticipated routine daily calls for service from development on the site would be negligible, particularly in light of the law enforcement facilities that would be constructed as part of the Project. There would be no impact on law enforcement services and no mitigation is required.

Where off-site features would necessitate construction activity within a roadway right-of-way, implementation of MM 10-8 from Section 5.10, Traffic, Access, and Circulation, would ensure that Traffic Management Plans would be prepared and submitted to the County of Los Angeles Department of Public Works' Traffic Division for review and approval. The Traffic Management Plans would describe traffic-control measures that would be implemented during construction to maintain traffic flow in all directions, including where utilities and other improvements are being implemented in existing roadways. Because impacts to circulation would be minor and temporary and because traffic-control measures would be detailed in the Traffic Management Plans, traffic movements would not be disrupted and emergency vehicles would be accommodated. Therefore, less than significant impacts would occur.

***Impact Summary:*** The Project would result in a maximum of 19,333 residential units, approximately 57,150 residents, and over 10.0 million square feet of non-residential development creating approximately 23,675 jobs; this would result in an increase in the demand for services from the LASD. This would also potentially result in significant impacts on the LASD's ability to provide law enforcement services. However, with the provision of a "store front" temporary sub-station and construction of a permanent LASD Station at the site (MM 16-4), response times to the site for emergency and non-emergency calls would be within the County guidelines. The additional tax-base generated revenues by Project development would also offset increased demands on the LASD. In addition, payment of LEFMF, as required by County Ordinance No. 2008-0033, would provide funding to mitigate impacts to the LASD for services needed by the Project (MM 16-4). Therefore, impacts would be reduced to levels that are less than significant.

As with the LASD, the CHP would have increased responsibilities with the implementation of the Project. The CHP is funded out of revenues from car registration fees. The increase in registrations from development at the site would partially offset the impact so that the increased demand for CHP services would not be significant.

## Mitigation Measures

**MM 16-4** The Project Applicant/Developer shall pay Law Enforcement Facilities Mitigation Fee (LEFMF) to the Los Angeles County Sheriff's Department (LASD) pursuant to the requirements established in County Ordinance No. 2008-0033. The amount of fees to be paid will be determined based on the established fee in Section 22.74.030 of the County Code. The Project incorporates a temporary "store front" sub-station, followed by construction of a permanent LASD Station included on the Project site, in lieu of a portion of the LEFMF, as allowed under Section 22.74.090 (Consideration in Lieu of Fee) of the County Code. Costs associated with the construction of the temporary "store front" sub-station and permanent LASD Station would be credited against the LEFMF.

Prior to completion of the permanent LASD Station, the "store front" sub-station may be located on site in Village 1 on the north side of the SR-138. This temporary sub-station shall be properly outfitted in accordance with applicable occupancy requirements of the LASD for such "store front" facilities and shall be operational prior to the issuance of the first certificate of occupancy for the first phase of Project development.

The Centennial Land Use Plan identifies a conceptual location for one LASD Station in the Business Park area on the Project site north of the SR-138. The permanent LASD Station shall be constructed immediately following completion of the first phase of development. The LASD shall have final approval over the temporary sub-station and permanent LASD Station site locations.

## Level of Significance after Mitigation

Implementation of MM 16-4 would reduce potentially significant impacts related to LASD protection and law enforcement services from the Project to levels that are less than significant.

### 5.16.4 REFERENCES

California Department of Forestry and Fire Protection (CAL FIRE). 2016a (Revised April). 2010 Strategic Fire Plan for California. Sacramento, CA: CDF.  
[http://bof.fire.ca.gov/hot\\_topics\\_resources/fireplanrevison\\_final\\_04\\_06\\_16.pdf](http://bof.fire.ca.gov/hot_topics_resources/fireplanrevison_final_04_06_16.pdf).

———. 2016b. FRAP Mapping. – GIS Data. Sacramento, CA: CDF.  
[http://frap.fire.ca.gov/data/frapgisdata-sw-fireperimeters\\_download.php](http://frap.fire.ca.gov/data/frapgisdata-sw-fireperimeters_download.php).

California Highway Patrol (CHP). 2015a (June 3, access date). California Highway Patrol Programs & Services. Sacramento, CA: CHP. <https://www.chp.ca.gov/programs-services>.



———. 2015b (May 26). Personal communication. Telephone conversation between Officer E. Figueroa (CHP) and J. Alido (BonTerra Psomas).

California, State of. 2011 (last amended). *California Government Code* (Sections 66000–66008, Fees for Development Projects). Sacramento, CA: the State of California. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=5.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=5.&article=).

Kern County Fire Department (KCFD). 2015a (May 18, access date). Department Profile. Bakersfield, CA: KCFD. <http://www.kerncountyfire.org/about-us.html>.

———. 2015b (May 18, access date). Fire Stations. Bakersfield, CA: KCFD. <http://www.kerncountyfire.org/operations/fire-stations.html>.

———. 2015c (August 10). Personal communication. Email from A. Duncan (Fire Battalion Chief at KCFD) to J. Alido (BonTerra Psomas).

Los Angeles, County of. 2015 (last accessed). *Los Angeles County, California – Code of Ordinances*. Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles. [https://www.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances](https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances).

———. 2012 (July 10). *Operational Area Emergency Response Plan*. Los Angeles, CA: the County. <http://lacoa.org/oaerp.htm>.

Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.

———. 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.

Los Angeles County Fire Department (LACFD). 2016a (Last updated June 1). *County of Los Angeles Fire Department 2016 Strategic Fire Plan*. Los Angeles, CA: LACFD. <http://cdfdata.fire.ca.gov/pub/fireplan/fpupload/fpppdf1571.pdf>.

———. 2016b (November 22). *Fiscal Year-End Report and Updated Developer Fee for the Benefit of the Consolidated Fire Protection District of Los Angeles County (3<sup>rd</sup> and 5<sup>th</sup> Districts) (3 Votes)*. Los Angeles, CA: LACFD.

———. 2015a (July 17). Personal communication. Email from L. Bagwell (LACFD) to J. Alido (BonTerra Psomas).

———. 2015b (May 26). Personal communication. Phone conversation between W. McCloud (LACFD) and J. Alido (BonTerra Psomas).

Los Angeles County Fire Department (LACFD) and Kern County Fire Department (KCFD). 2001 (December 6). Memorandum of Understanding for Exchange of Emergency

Services between the Consolidated Fire Protection District of Los Angeles County and the Kern County Fire Department. Los Angeles, CA: LACFD and KCFD.

Los Angeles County Sheriff's Department (LASD). 2016 (March 31). Letter from LASD (T. Jue, Director, Facilities Planning Bureau) to G. Medeiros (Tejon Ranch Company) regarding "Centennial Project Conceptual Locations of Law Enforcement Facilities".

Miler, R. 2016 (February 8). Personal communication. E-mail from Sgt. R. Miler, Officer (Newhall Area CHP) and J. Neary, Assistant Project Manager (BonTerra Psomas).

*This page is intentionally left blank.*

---

## 5.17 OTHER PUBLIC SERVICES

### 5.17.1 INTRODUCTION

#### **Purpose**

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that the physical impacts related to public services be evaluated as part of the environmental documentation process. The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criteria for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively.

#### **Summary**

The analysis in this section focuses on the Project's demand for public services and the facilities necessary to meet this demand that are not addressed in other sections. The physical environmental impacts related to the implementation of necessary library and solid waste services and facilities are addressed as part of the Project analysis provided throughout this Environmental Impact Report (EIR).

#### ***Library Services***

The Project would create less than significant impacts to the existing County of Los Angeles Public Library ("County Library") facilities with the implementation of the recommended mitigation measures (MMs 17-1 through 17-8). As described in the mitigation measures, the Project shall fulfill the obligations required by the County Library Facilities Mitigation Fee ordinance. Specifically, the Project Applicant/Developer will set aside land, and contribute the funds to build and equip a turnkey permanent library in the Town core area in Village 3, north of SR-138, which would meet or exceed County Library service guidelines for the Project's anticipated population. The sizing, design and programming of the Permanent Facility, including the influence of technology on library services, will be agreed upon by representatives from County Library and the Project Applicant/Developer. Also, as discussed in PDF 17-1, the Project would include internet and intranet infrastructure, to provide access to all readily available library resources.

#### ***Solid Waste Services***

Implementation of the Project would generate solid wastes (including hazardous wastes) during construction and operation. Adopted plans and regulations to manage solid waste disposal and recycling efforts generally mandate actions by the State, County, and/or local municipality rather than individual project applicants. For the Project, the County of Los Angeles is the agency responsible for providing solid waste disposal facilities. As such, the significance of the Project's solid waste generation would be determined by the degree to which the Project's solid waste generation and management features affect the County's

disposal facilities and programs designed to meet its goals and comply with waste management regulations.

The Project has committed to diverting 100 percent of soil during grading activities, and at least 70 percent of non-hazardous construction and demolition waste, which exceeds the 65 percent diversion requirement with the Tier I voluntary measure in Section A5.408.3.1 of the California Green Building Standards (CALGreen) Code (PDF 17-2, MM 17-9). This goal also exceeds the 50 percent reduction required by Section 20.87.040 of the County Code and Sections 4.408.5/5.408.1.4 of the CALGreen Code.

To achieve a goal of diverting at least 75 percent of operational solid waste requiring landfill disposal, the Project incorporates a Solid Waste Management Plan (PDF 17-3, MM 17-10), which includes numerous interrelated components such as implementation of a three-bin system for waste collection; a Green Waste Recycling Plan; required use of California Air Resources Board- approved or electric landscape equipment; seasonal (at least two times a year) pickup of household hazardous wastes and less common wastes (such as electronics and appliances); semi-annual exchange days; and an education and outreach program. In addition, the Project will set aside a minimum of 5 acres for a future Materials Recovery Facility/Transfer Station (MRF/TS) that includes a household hazardous waste permanent collection and reuse center and allows for mulching/composting operations. The Project Applicant/Developer will prepare and grade the site, and install basic mainline infrastructure fronting the property prior to the issuance of any occupancy permits associated with the first phase of project implementation. The Developer will continually encourage a waste management company to build these facilities on this build ready site, and the CC&R for the future MRF/TS site will require the land to be set aside for the MRF/TS in perpetuity. Through these features of the Solid Waste Management Plan, the Project would assist the County in meeting its solid waste diversion goals.

However, permitted Class III landfill capacity cannot be guaranteed at the time of Project buildout and through the life of the Project, which are beyond the Los Angeles County Department of Public Works' (LACDPW's) 15-year planning horizon for solid waste disposal. Therefore, while the County is committed to handling all solid wastes generated within the County now and in the future, to be conservative, this EIR concludes that the Project buildout would result in a significant impact on the County's anticipated Class III landfill capacity. PDFs 17-2 and 17-3, and MMs 17-9 and 17-10, reflect all feasible measures to reduce and divert the Project's municipal solid waste generation. Therefore, the Project would result in significant and unavoidable impact related to municipal solid wastes during long-term operation of the Project.

### ***Other Public Facilities***

Implementation of the Project would require County services for the maintenance of on-site public roadways, parks, and other public infrastructure. In order to facilitate the maintenance of County-owned facilities that would be developed as part of the Project, land would be provided to the County for the development of two on-site maintenance yards County of Los Angeles Departments of Public Works and Parks and Recreation. The County may also construct, equip, and operate a permanent new animal control facility adjacent to

the maintenance yards, if such a permanent facility is needed in the Project area. Impacts on other public facilities would be less than significant.

## Section Format

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce significant impacts; and level of significance after mitigation, if any. This information is presented in the following format (please refer to Section 2.0, Introduction, and Section 5.0, Environmental Setting, Impacts, and Mitigation, for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Library Services
  - Relevant Plans, Policies, and Regulations
  - Environmental Setting
  - Project Design Features
  - Threshold Criteria
  - Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
    - On-Site Impacts
    - Off-Site Impacts
  - Mitigation Measures
  - Level of Significance After Mitigation
- Solid Waste Services
  - Relevant Plans, Policies, and Regulations
  - Environmental Setting
  - Project Design Features
  - Threshold Criteria
  - Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
    - On-Site Impacts
    - Off-Site Impacts
  - Mitigation Measures
  - Level of Significance After Mitigation
- Other Public Services
  - Relevant Plans, Policies, and Regulations

- Environmental Setting
  - Project Design Features
  - Threshold Criteria
  - Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
    - On-Site Impacts
    - Off-Site Impacts
  - Mitigation Measures
  - Level of Significance After Mitigation
- References

## References

### *Library Services*

All references cited for preparation of this analysis are listed in Section 5.17.5. Information in this Section was derived from the Los Angeles County Library website and correspondence from the County Library.

### *Solid Waste*

Although all references cited for preparation of this analysis are listed in Section 5.17.5, the following are the primary technical references used in this section. Information in this Section was derived from the following two documents:

1. Los Angeles County Department of Public Works (LACDPW). 2016 (December). County of Los Angeles Countywide Integrated Waste Management Plan 2015 Annual Report. Los Angeles, CA: LACDPW.
2. ———. 2014 (September). 2014 Los Angeles County Countywide Integrated Waste Management Plan Five-Year Review Report. Los Angeles, CA: LACDPW.

Information was also derived from correspondence with the Sanitation Districts of Los Angeles County (LACSD) and Los Angeles County Public Works Department's (LACDPW's) Environmental Programs Division staff and these agency's websites. Diversion rate statistics and information for statewide solid waste disposal were gathered from the California Department of Resources Recycling and Recovery (CalRecycle) (formerly the California Integrated Waste Management Board's) website.

### *Other Public Services*

All references cited for preparation of this analysis are listed in Section 5.17.5. Information in this Section was derived from the following two documents:

1. Los Angeles County Department of Parks and Recreation (LACDPR). 2010 (September 15, access date). *Report to the Community July 2008-June 2010*. Los Angeles, CA: LACDPR. [http://file.lacounty.gov/dpr/cms1\\_164689.pdf](http://file.lacounty.gov/dpr/cms1_164689.pdf)

2. Los Angeles County Department of Public Works (LACDPW). 2011 (September 15, access date). County of Los Angeles Department of Public Works Biennial Report 2009-2011. Los Angeles, CA: LACDPW.

## 5.17.2 LIBRARY SERVICES

### Relevant Plans, Policies, and Regulations

#### *Federal*

No federal plans and policies have been identified related to Library Services.

#### *State*

No State plans and policies have been identified related to Library Services.

#### *County*

##### Los Angeles County Code, Chapter 22.72: Library Facilities Mitigation Fee

The County of Los Angeles has established a uniform fee (known as the Library Facilities Mitigation Fee) within each library planning area, which is based on the estimated cost of providing the projected library facility needs (i.e., land, building, equipment, furniture, books and other library materials) in each library planning area. The Mitigation Fee Program was established in 1998 to mitigate impacts from residential development in the unincorporated areas of Los Angeles County that would be served by the County Library. The Project Applicant/Developer or its successor in interest is required to pay the Mitigation Fee at the time a building permit is issued for each new residential unit.

The Mitigation Fee for Planning Area 2 (Antelope Valley), within which the Project site is located, is currently \$858.00 per dwelling unit (*Los Angeles County Code*, Chapter 22.72.030), based upon the County Library's mitigation fee per building permit amount established on October 27, 1998, and last updated on July 1, 2016. The fee does not vary based on dwelling type but is subject to an annual Consumer Price Index (CPI) adjustment on July 1 of each year. Library Facilities Mitigation Fees have increased from the amounts originally established in 1998 consistent with the original approval of the County Board of Supervisors. However, over time the annual increase authorized by the CPI adjustment has not kept pace fully with significant increases in cost of construction, changes in planning guidelines and increases in other project related costs. The Public Library is in the process of reviewing and potentially updating the Library Facilities Mitigation Fees to incorporate these changes and will seek the Board of Supervisors approval for implementation of these fees.

Pursuant to Chapter 22.72.090 of the *Los Angeles County Code*, the County Librarian is authorized to accept substitute consideration in lieu of the payment of the Library Facilities Mitigation Fees.



---

County of Los Angeles General Plan and Antelope Valley Area Plan

The *County of Los Angeles General Plan* and *Antelope Valley Area Plan* address issues related to library services and facilities in the County. Relevant goals and policies in the Antelope Valley Area Plan include:

*Public Safety, Services and Facilities Element*

**Goal PS 11:** Antelope Valley residents enjoy easy access to public library services.

**Policy PS 11.1:** Maintain existing public libraries and make improvements as necessary. Ensure adequate funding on an ongoing basis.

**Policy PS 11.2:** Expand public library collections and services to meet community needs.

**Policy PS 11.3:** Provide new public libraries as additional development occurs or as the population grows.

**Policy PS 11.4:** Encourage new public libraries to locate in rural town center areas, rural town areas, and economic opportunity areas, where they will be accessible by pedestrian walkways, trails, bikeways, and bicycle routes.

**Policy PS 11.5:** Provide bookmobile services in areas that are not served by permanent public libraries.

**Policy PS 11.6:** Encourage the use of technology in library operations to increase efficiency and accessibility.

A consistency analysis of the Project with the goals and policies in the County's relevant plans, policies and regulations is provided in the Land Use, Entitlements, and Planning section (Section 5.8) of this document.

## **Environmental Setting**

### ***County of Los Angeles Public Library***

The County Library operates facilities and services within a 3,032-square-mile area in both unincorporated and incorporated areas of Los Angeles County. The Project site is located in the northwestern corner of unincorporated Los Angeles County within the County Library's Antelope Valley Bookmobile Service Area.

The Antelope Valley Bookmobile, based at the Lancaster Library at 601 West Lancaster Boulevard in Lancaster, currently serves the Project area, including the communities of Lake Hughes, Leona Valley, Lake Elizabeth, Holiday Valley, Antelope Acres and Green Valley, with scheduled stops in Lancaster, Pearblossom, Llano, Three Points, Lake Hughes, and Leona Valley. The Antelope Valley Bookmobile's library collection includes books, videos, audio books, music CDs, and magazines (County Library 2015a).

Use of any County Library is free to all California residents. Thus, while there are other libraries in the County Library system that serve the Antelope Valley area east of the Project site and in the greater Lancaster and Palmdale area (Lancaster, Lake Los Angeles, Quartz Hill,

and Littlerock libraries), these libraries would not realistically serve the Project site due to their approximate 30-mile distance to the site. The Lake Los Angeles and Littlerock libraries are also small libraries.

A replacement Quartz Hill Library of 12,514 square feet was approved by the Board of Supervisors on August 19, 2014 and was open in November 2016. The new Quartz Hill Library is about 35 miles from the Project site. This facility contains a 100-seat meeting room with an audio-visual system, children's area, teen space and study rooms. The Lancaster Library is a regional facility that was constructed at its current location in 1994, and is located approximately 30 miles southeast of the Project site. This facility is 48,721 square feet in size and contains a meeting room for 200 persons, children's area, teen space, study room, computers, and book drop. Its collection includes books, magazines, newspapers, DVDs, large print collection, children's special collection, and online collections (County Library 2015b). Antelope Valley area libraries are listed below in Table 5.17-1.

**TABLE 5.17-1  
AREA LIBRARIES**

<b>Library</b>	<b>Address</b>	<b>Facility Size (sf)</b>
Lancaster	601 W Lancaster Blvd Lancaster, CA 93534	48,721
Lake Los Angeles	16921 E Ave O, Ste A Palmdale, CA 93591	4,250
Littlerock	35119 80 <sup>th</sup> St E Littlerock, CA 93543	3,680
Quartz Hill	5040 W Ave M-2 Quartz Hill, CA 93536	12,514
sf: square feet Source: County Library 2015b, 2015c, 2015d, 2015e		

In addition to physical library facilities, the County Library offers numerous online services for library card holders. These include, but are not limited to an online catalog; a compilation of online databases and resources (e.g., business and career resources, citizenship information, online learning, tax information, health information, newspaper and magazine indexes, and other reference materials); downloadable audiobooks, music, and eBooks; free WiFi; public access computers; streaming movies, audiobooks and music; email a librarian; and live homework help. The County Library's website also offers location and operation information for all facilities; a searchable events calendar; and access to a librarian by email, phone, chat, or text message.

#### Funding and General Level of Service

Primary funding sources for the County Library consist of, in descending proportions: property taxes; County General Fund allocation; a County Library Special Tax; and revenue from fines and fees. The County had operating expenditures of over \$145 million for the fiscal year 2015–2016 and a budget of nearly \$201 million for fiscal year 2016–2017.

In 1992, the State shifted property tax revenues from library operations to help finance education. In response to this lost revenue, the County Board of Supervisors adopted a Community Facilities District (CFD No. 8) in 1994. The revenue generated from the CFD augmented library services for 11 cities and the unincorporated areas of the County. The CFD was discontinued after June 30, 1997, as a result of the passage of Proposition 218. On June 3, 1997, Proposition L was passed by a  $2/3$  majority; this proposition approved a County Library Special Tax for library services. In 2005–2006, the Public Library received an allocation from the Utility Users Tax, through Proposition 62, for enhanced library services to residents of the unincorporated areas of Los Angeles County. The County Library Special Tax is levied within the cities of Cudahy, Culver City, Duarte, El Monte, La Cañada Flintridge, Lakewood, Lomita, Lynwood, Maywood, and West Hollywood, and within the unincorporated County excluding the unincorporated areas within the boundaries of the Altadena Library District and the Palos Verdes Library District. For fiscal year 2016–2017, the tax is \$30.36 per parcel. This special tax may be increased annually on July 1 based either on the Consumer Price Index (CPI) or a maximum of two percent, whichever is lower.

The Board of Supervisors has, for several years, made an allocation to library services from the County General Fund. However, there is no guarantee of ongoing funding from the County General Fund as a specific budget allocation. Funding decisions for the County Library are made on an annual basis by the Board of Supervisors based on total available funding for all County services.

The County Library's current service level planning guidelines are as follows: 2.75 items (including books, magazines, movies, etc.) per capita for the collection and 1.0 computer per 1,000 people served. The current planning guideline for library facility space is a minimum of 0.5 square foot per capita and 2.0 square feet of land per capita (County Public Library 2015g).

## Project Design Features

**PDF 17-1** The Green Development Program as included in the *Centennial Specific Plan* (Appendix 4.0-A of this EIR) requires that the Project provide internet infrastructure and a community intranet with access for homeowners associations; interest groups; local event scheduling; schools, library, carpool and transit services; and other on-site entertainment and amenities for residential land uses. The internet and intranet will guarantee that all future residents will have access to all readily available library resources and reduce the need for people to use automobile travel to obtain the information that is provided by both. Internet access will be provided to residents through the payment of their homeowner fees.

## Threshold Criteria

The following significance threshold criterion is derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact if the Project's demand for library services would:

**Threshold 17-1** Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: libraries.

## Environmental Impacts

**Threshold 17-1** **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: libraries?**

### *On-Site Impacts*

The Project residents would generate a demand for library services from the County Library. Payment of the County's Library Mitigation Fee would provide the County Library with funds to provide library services to the Project. These fees would be used to construct, equip, and operate an on-site library (MMs 17-1 through 17-5). Based on the County Library service level planning guideline of 0.5 square foot per capita and an anticipated Centennial population of approximately 57,150 people, the Project could generate a demand for up to a 28,575 gross square foot library. Based on the 2.0 square feet of land per capita standard, an 114,300-square-foot site (2.62 acres) would be needed to serve the Project.

To meet this projected library demand, the Project includes a conceptual location for a public library in the Town Core in Village 3, just north of SR-138 (refer to Exhibit 4-1, Centennial Project – Conceptual Land Use Plan), which would be part of the County of Los Angeles Public Library. While the location is conceptual and may change as determined in coordination with the County Library, the proposed inclusion of a library on the Project site is definitive. The Project proposes a public library that would be on an approximate 2.5-acre site at the Town Core. The Library would be completed and operational on a date mutually agreed to between the County Librarian and the Applicant, taking into account the demands on library services within and adjacent to the Project Site, as per MMs 17-1 through 17-8.

The size of the proposed permanent County library would meet the projected demand based on the County Library's planning guidelines. The net buildable library site conceptualized in the Centennial Conceptual Land Use Plan is of adequate size and in a central location that would meet the County's library siting requirements, including related parking areas.

Library and information services planned for the Project site would be supplemented by the community internet and intranet, which would provide online access and easy access to use of library resources for all residents (PDF 17-1). It is anticipated that residents would be able to order books and conduct other library-related transactions from the Los Angeles County Libraries website via the Centennial intranet, which would be part of Project-wide telecommunications system; this is discussed further in Section 5.20, Dry Utilities. In addition to the community intranet, as discussed above, the County Library provides several online services to library card holders via the internet (for those who have online access); these services supplement the services available at the physical library locations. Online services provide information and access to the public library services without affecting the physical facilities and staff to the degree that would occur if a person is utilizing these same services in person at the local library. The Project also anticipates utilizing a bookmobile for local residents until a permanent facility is built. Impacts would be less than significant with implementation of MMs 17-1 through 17-8.

### ***Off-Site Impacts***

The off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, would not, by themselves, generate population growth that would result in additional demand for library services. There would be no impact and no mitigation is required.

***Impact Summary:*** The Project would have less than significant impacts to the existing County Library facilities with implementation of MMs 17-1 through 17-8. The Project would provide library facilities and equipment on site, which meet or exceed County Library service guidelines for the Project's anticipated population. The Project includes a conceptual location for a public library at the Town Core in Village 3. The Applicant would also set aside land (or building space); construct the permanent library; and provide the furniture, fixtures, equipment, and materials according to the Development Agreement between the County and the Developer. The value of the Developer's funding of the permanent library's construction and materials (including any furnishings, fixtures, equipment and materials for the library) would be provided at a level that would meet the required library service standards of the anticipated population.

### **Mitigation Measures**

With implementation of the following mitigated measures, there would be less than significant impacts to library services.

**MM 17-1** The *Los Angeles County Code* (Chapter 22.72 of Title 22) ("Library Ordinance") imposes a Library Facilities Mitigation Fee on new residential development projects in the unincorporated areas of the County of Los Angeles served by the County Library (the "Library Facilities Mitigation Fee"). The Library Facilities Mitigation Fee that is in effect for the designated County Library planning area is charged upon issuance of each residential building permit and

is based on the estimated reasonable cost of providing the projected library facility needs in the applicable library planning area. The Project is located within Planning Area 2: Antelope Valley and, as of the date of this EIR, the Library Facilities Mitigation Fee is \$858.00 per residential building permit (based upon the County Library's mitigation fee per building permit amount established on October 27, 1998, and last updated on July 1, 2016). The Project provides for the development of a maximum of 19,333 residential dwelling units. Based on the current fee, the total Library Facilities Mitigation Fee that would be due from the Project Applicant/Developer (or its successors in interest) is \$16,587,714. Consistent with the Library Ordinance, the amount of the Library Facilities Mitigation Fee that shall apply to the Project shall be the fee payable on the date the County issues each building permit for a residential dwelling unit. The amount of the Library Facilities Mitigation Fee may be increased from time to time pursuant to Section 22.72.040 of the County Code and State law; provided, however, the Library Facilities Mitigation Fee applicable to residential dwellings within the Project shall be no more than the amount of the Library Facilities Mitigation Fee applicable to residential dwellings outside of the Project but within Planning Area 2. The aggregate Library Facilities Mitigation Fees payable for all of the residential dwelling units within the Project for which building permits have been issued shall be referred to herein as the "Project-Wide Fee Total." The ordinance allows that, in lieu of the payment of Library Facilities Mitigation Fees, Centennial shall fulfill the obligations required by the mitigation measures in this EIR to satisfy the requirements of the Library Ordinance.

- MM 17-2** Section 22.72.090 of the Library Ordinance permits the County Librarian to accept substitute consideration in lieu of the Library Facilities Mitigation Fee if the proposed substitute consideration (such as land, facility construction, and/or materials) (i) has a value that is equal to or greater than the applicable Library Facilities Mitigation Fee that is otherwise due; (ii) is in the form acceptable to the County Librarian; and (iii) is within the scope of the applicable library facilities project. Because the Library Facilities Mitigation Fee only allows for an incremental accumulation of funds for future library facilities as building permits are issued and fees are collected pursuant to Section 22.72.060 of the County of Los Angeles Code, the County Library will implement a strategy that will better serve the residents of Centennial by ensuring that the timing and scope of public library facilities will meet the demands of the community. Centennial desires to cooperate with the County Library in meeting its goals and also seeks certainty with respect to the amount and timing of the Project's financial commitment to the County Library. Therefore, the parties' objectives will be satisfied if, in lieu of the Project Applicant/Developer's payment of Library Facilities Mitigation Fees at the time residential building permits are pulled in accordance with Section 22.72.060 of the County Code, the Project Applicant/Developer will instead set aside the land and contribute the funds required to build and equip a turnkey Permanent Facility, all in accordance with the terms and conditions of the Development Agreement. As discussed in MM 17-1, the Project

Applicant/Developer's provision of such land and funding will, in accordance with the required mitigation measures, be credited against Library Facilities Mitigation Fees that would otherwise be due.

**MM17-3** The Project Applicant/Developer shall dedicate to the County Library up to 2.62 acres within Village 3 of the Project (the "Dedicated Land") for public library purposes or other location for the permanent facility mutually agreed upon by the County Librarian and the Project Applicant/Developer. The Project Applicant/Developer shall receive a credit against unpaid Library Facilities Mitigation Fees in an amount equal to the fair market value of all Dedicated Land as of the date of the dedication to the County of Los Angeles for County Library purposes. The Dedicated Land shall be conveyed to the County concurrently with the filing and recordation of the final map within which the Dedicated Land is located. If the County Library desires to increase the size of the Dedicated Land, it shall make such request of the Project Applicant/Developer no later than the date that the County approves the tentative map for the proposed subdivision in which the Dedicated Land is located. the Project Applicant/Developer agrees to increase the size of the Dedicated Land upon the County's request provided (i) the County cooperates with the Project Applicant/Developer in any related land use boundary changes, transfers or conversions necessary to accommodate the larger library site, subject to the requirements of CEQA and (ii) the County either pays the fair market value for such land with either (A) U.S. funds or (B) a dollar-for-dollar credit against unpaid Library Facilities Mitigation Fees, so long as the Project-Wide Fee Total has not already been offset pursuant to MM 17-4 through MM 17-7. "Fair market value" for the land described in this paragraph shall be determined based on the value of such land had it been entitled for institutional office purposes and the property had a maximum floor area ratio (FAR) of 0.25. If the County Library at any time changes the use of the Dedicated Land from that of a County-owned public library facility, then the Dedicated Land will revert back to Centennial.

**MM 17-4** The Project Applicant/Developer shall cause to be designed and constructed on the Dedicated Land a one or two-story, turn-key public library building (the "Permanent Facility"). The Permanent Facility may be constructed in phases. The size and scope of the Permanent Facility will be determined by the County Librarian in consultation with the Project Applicant/Developer provided, however, that the Project Applicant/Developer's maximum financial contribution shall not exceed the Project-Wide Fee Total, less any offsets pursuant to Mitigation Measures 17-4, 17-6, and 17-7 in this EIR. The sizing, design and programming of the Permanent Facility, including the influence of technology on library services, will be agreed upon by representatives from County Library and the Project Applicant/Developer A report shall be prepared by an independent library consultant selected by the County Library that will solicit input from the community with respect to the types of library services desired at the Permanent Library Facility. The consultant's report shall be paid for by the Project Applicant/Developer and the Project

Applicant/Developer shall receive a credit against the Project-Wide Fee Total for the Project Applicant/Developer's payment of such costs. The Permanent Facility and Permanent Library furniture, fixture, and equipment (FF&E, as defined below) will be substantially similar in quality and materials to the Quartz Hill branch of the County Library on November 2016. The design of the Permanent Library will be performed by an architect mutually selected by the Project Applicant/Developer and the County Librarian. The Permanent Facility must comply with all requirements of the County Library's Low Voltage Specifications in effect on the date the design contract for the Permanent Facility is fully executed. The County Library shall be responsible for all costs of design and construction of the Permanent Library in excess of the Project Applicant/Developer's Library Facilities Mitigation Fee obligations hereunder. If, after application of the fee credits against Library Facilities Mitigation Fees to which the Project Applicant/Developer is entitled, there is insufficient funds to construct the Permanent Facility and purchase the Permanent Library FF&E, the Project Applicant/Developer shall not be required to fund construction of the Permanent Facility until additional and sufficient funds are authorized by the County to construct the Permanent Facility and to procure the Permanent Library FF&E. The Permanent Facility will be completed and operational on a date agreed to between the County Librarian and the Project Applicant, subject to force majeure and events within the control of the County (such as, for example, the County's failure to pay any funding shortfalls if credits against the Project-Wide Fee Total are exhausted). The size of the Permanent Facility will be proportionately reduced in size and materials if the County approves less than the 19,333 residential units proposed for the Centennial Project.

**MM 17-5** The Project Applicant/Developer agrees to install furniture, fixtures and equipment ("Permanent Library FF&E") and purchase library materials in connection with the Permanent Facility, provided that the Project Applicant/Developer's financial contribution toward the cost of the Permanent Library FF&E and library materials shall not exceed the Project-Wide Fee Total when taken together with all other Project Applicant/Developer expenses then credited against the Project-Wide Fee Total. The County Library shall be responsible for all costs of Permanent Library FF&E and library materials in excess of the Project-Wide Fee Total. The Permanent Library FF&E specifications will be provided by the County Library. Any FF&E purchased shall remain the property of the County Library.

**MM 17-6** The Project Applicant/Developer shall provide on-site parking for library patrons at a ratio of 4 parking spaces per 1,000 gross square feet of library space. The parking lot shall also include two spaces adjacent to the staff entrance of the library for County library service vehicles. Parking may be shared with adjacent uses with the consent of the County Library.

**MM 17-7** If the Project Applicant/Developer has satisfied its obligations in Mitigation Measures 17-1 through 17-7, above, and the Project Applicant/Developer



continues to pull building permits within the Project, then the Project Applicant/Developer (or its successors in interest) shall pay any Library Facilities Mitigation Fees still owing as construction permits are issued, which shall be expended by the County Library for the benefit of the Permanent Facility on library materials, FF&E, facility enhancements or library programs as determined by the County Librarian.

- MM 17-8** No later than December 1 and July 1 of each calendar year, the Project Applicant/Developer shall deliver to the County Library a report in writing providing the number of residential building permits actually issued to date. Within 30 days from the date the report is received, the County Library will deliver, or cause to deliver, to the Project Applicant/Developer a report on the revised Project-Wide Fee Total.

### **Level of Significance after Mitigation**

There will be less than significant impacts identified for library services, with implementation of MM 17-1 through MM 17-8.

## **5.17.3 SOLID WASTE SERVICES**

### **Relevant Plans, Policies, and Regulations**

#### ***Federal***

No federal plans and policies have been identified related to Solid Waste.

#### ***State***

#### **California Integrated Waste Management Act/Assembly Bill 939**

In 1989, the California legislature passed a bill (Assembly Bill [AB] 939), which requires jurisdictions to reduce the amount of solid waste disposed of in landfills by 50 percent by the year 2000 and thereafter. The purpose of AB 939 is to “reduce, recycle, and reuse solid wastes generated in the State to the maximum extent feasible” (California 20013). As such, AB 939 (also known as the California Integrated Waste Management Act) mandates the preparation of a Source Reduction and Recycling Element (SRRE) as part of the City or County’s Solid Waste Management Plan. The SRRE should outline how such a diversion goal will be accomplished. AB 939 also requires jurisdictions to prepare a Household Hazardous Waste Element (HHWE), which needs to detail how the County would manage the use and disposal of household hazardous materials. Noncompliance with the goals and timelines set forth in the Act can be severe, as the bill imposes fines up to \$10,000 per day for jurisdictions (Cities and Counties) that are not meeting these recycling and planning goals.

The term “integrated waste management” refers to the use of a variety of waste management practices to safely and effectively handle the municipal solid waste stream with the lowest adverse impact on human health and the environment. AB 939 has established a waste management hierarchy as follows:

1. Source Reduction
2. Recycling
3. Composting
4. Transformation
5. Disposal

CalRecycle estimates that the statewide diversion rate for the year 2014 was 65 percent, with a per resident disposal rate of 4.5 pounds per resident per day. The per employee disposal rate was 10.6 pounds per employee per day, which is equivalent to a diversion rate of 66 percent (CalRecycle 2015a).

#### California Health and Safety Code, Section 25218

The Section 25218 of the *California Health and Safety Code* governs Cities' and Counties' disposal of household hazardous wastes. It identifies the State as the responsible governing entity "to provide for an expedited and streamlined permitting and regulatory structure for household hazardous wastes and conditionally exempt small quantity generator waste collection and handling". CalRecycle has instituted a Household Hazardous Waste Program to develop alternatives to the illegal disposal of household hazardous wastes, including universal wastes such as batteries, fluorescent lamps, and electronics. The goals of this program includes (1) providing the public with convenient collection locations; (2) encouraging efforts to use recyclable materials in products and design products to facilitate their recyclability; and (3) encouraging producers to assume responsibility for "cradle-to-cradle" stewardship of their products and materials.

CalRecycle also has a Used Oil Recycling Program that provides public information on the benefits of used oil recycling, oil filter recycling, and the use of re-refined oil; existing regulations on the recycling and disposal of used oil; and listings of certified collection centers. This program is intended to motivate the public to recycle their used oil and oil filters.

#### California Solid Waste Reuse and Recycling Access Act of 1991

Subsequent to AB 939, additional legislation was passed to assist local jurisdictions in accomplishing the required waste reduction goals. The California Solid Waste Reuse and Recycling Access Act of 1991 directs CalRecycle to draft a "model ordinance" relating to adequate areas for collecting and loading recyclable materials in development projects.

#### Solid Waste Disposal Measurement Act of 2008 (Senate Bill 1016)

The purpose of the Solid Waste Disposal Measurement Act of 2008 (Senate Bill [SB] 1016) is to make the process of goal measurement (as established by AB 939) simpler, more timely, and more accurate. SB 1016 builds on AB 939 compliance requirements by implementing a simplified measure of jurisdictions' performance. SB 1016 accomplishes this by changing to a disposal-based indicator—the per capita disposal rate—which uses only two factors: (1) a jurisdiction's population (or in some cases employment) and (2) its disposal as reported by disposal facilities (CalRecycle 2012).

Each year CalRecycle will calculate each jurisdiction's per capita (per resident or per employee) disposal rates; the per capita disposal rate will be used for most jurisdictions. If business is the dominant source of a jurisdiction's waste generation, CIWMB may use the per employee disposal rate. Each year's disposal rate will be compared that jurisdiction's 50 percent per capita disposal target. As such, jurisdictions will not be compared to other jurisdictions or the statewide average, but they will only be compared to their own 50 percent per capita disposal target. Among other benefits, per capita disposal is an indicator that allows for jurisdiction growth because as residents or employees increase, report-year disposal tons can increase and still be consistent with the 50 percent per capita disposal target. A comparison of the reported annual per capita disposal rate to the 50 percent per capita disposal target will be useful for indicating progress, or other changes, over time. The unincorporated County's per resident disposal rate target is 7.4 pounds per day (PPD) and the per employee disposal rate target is 41.5 PPD (CalRecycle 2016).

### 75 Percent Initiative

In 2011, Governor Brown signed AB 341, which sets a goal of 75 percent recycling, composting, or source reduction of solid wastes by 2020. It also mandates commercial recycling by 2012. The 75 percent goal will shift the focus from local diversion to a Statewide approach that would decrease reliance on landfills. CalRecycle has been holding workshops with stakeholders since May 2012 to identify existing programs and new ways to reduce the waste streams. Six focus areas have been identified:

- Moving Organics Out of the Landfill
- Continuing Reform of the Beverage Container Recycling Program
- Expanding the Recycling/Manufacturing Infrastructure: Permitting/Compliance Assistance and Financing
- Exploring New Models for State and Local Funding of Materials Management Programs
- Promoting State Procurement of Postconsumer Recycled Content Products
- Promoting Extended Producer Responsibility

A number of programs will be implemented under this initiative, including continued local jurisdiction diversion; commercial recycling; mattress recovery; greenhouse gas reduction grant and loan program; commercial organics recycling; potential packaging reduction activities; and other new programs that are under development.

### Mandatory Commercial Organics Recycling Bill (AB 1826)

In 2014, Governor Brown signed AB 1826, requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the State to implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units. Organic waste means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste. The minimum

threshold of organic waste generation by businesses decreases over time, which means an increasingly greater proportion of the commercial sector will be required to comply.

### **County**

#### Los Angeles County Roadmap for a Sustainable Waste Management Future

On April 22, 2014, the Board of Supervisors adopted a motion directing the development of a Roadmap to achieve a Sustainable Waste Management Future for the County unincorporated communities. Accordingly, the Sustainable Waste Management Future Working Group was formed to collectively develop the Roadmap. The intent of the Roadmap is to guide the County in implementing the four strategies identified by the Working Group, which are as follows: (1) Programs and Services, (2) Measuring Results, (3) Facilities and Infrastructure, and (4) Outreach and Education. By implementing these strategies the Roadmap sets to achieve 80 percent diversion from landfills by 2025; 90 percent diversion from landfills by 2035; and 95 percent (or higher) diversion from landfills by 2045. To accomplish these goals, the Working Group identified specific recommended initiatives, which will be expanded in detailed implementation plans. Although the Roadmap does not contain currently enforceable regulations, development under the *Centennial Specific Plan* will comply with any implementation plans once adopted.

#### Countywide Integrated Waste Management Plan (CIWMP)

In accordance with AB 939, the County adopted its Countywide Integrated Waste Management Plan (CIWMP) in 1996, which was approved in 1999 by CalRecycle. The CIWMP combines the Source Reduction and Recycling, Non-Disposal Facility, Household Hazardous Waste, and Countywide Siting Elements of the County and various cities in the County. The CIWMP must be reviewed every 5 years; the 2014 review indicated that measurable diversion has occurred in the County (from 6.6 pounds per person per day in 1999 to 4.8 pounds per person per day in 2013)(LACDPW 2014). Although the County does not have 15 years of remaining disposal capacity within its boundaries, it has strategies for obtaining 15 years of disposal capacity through diversion and export programs. Changes to the Siting Element are necessary to remove proposed landfill sites, expand existing landfills, promote alternative technologies and the waste-by-rail project, and update goals and policies to reflect current and upcoming solid waste management processes and technologies.

The County of Los Angeles Department of Public Works also publishes an annual report on the CIWMP's implementation status. The latest (2015) Annual Report states that the County would meet its disposal capacity requirements through the 15-year planning period with through County landfill expansions, use of out-of-County disposal facilities, infrastructure improvements to facilitate the export of wastes to out-of-County landfills, conversion and other alternative technologies, enhanced diversion programs, and increased diversion rates (LACDPW 2016b).

#### *County of Los Angeles Source Reduction and Recycling Element (SRRE)*

The County of Los Angeles Source Reduction and Recycling Element (SRRE) was prepared in response to AB 939. It describes policies and programs that the County must implement for its unincorporated areas to achieve the State's mandates of 25 and 50 percent waste disposal

reductions by the years 1995 and 2000, respectively (LACDPW 1993a). The SRRE provided estimates of solid waste generation and composition, as well as diversion quantities to meet State mandates. It includes source reduction, recycling, composting, special waste, and education and public information programs that would be implemented by the County, along with estimates of potential diversion in the short-term (by 1995) and medium-term (by 2000).

#### *County of Los Angeles Household Hazardous Waste Element (HHWE)*

In compliance with AB 939, the County adopted a Household Hazardous Waste Element (HHWE) for the unincorporated portions of Los Angeles County that outlines programs for the safe management of household hazardous waste generated by the residents within its jurisdiction (LACDPW 1993b). The HHWE seeks to reduce household hazardous waste generation and provide resident with a means to properly dispose of these wastes. County programs include household hazardous waste collection centers and events, public education/information fliers, and load-checking programs at landfills and transfer stations.

#### *County of Los Angeles Countywide Siting Element*

In June 1997, Los Angeles County prepared the Los Angeles County Countywide Siting Element to project waste generation and waste disposal capacity in the County (LACDPW 1997). The Siting Element addressed existing solid waste disposal facilities, disposal rates and disposal capacity needs, alternative disposal technologies, facility siting criteria, proposed facility locations, and out of county disposal facilities. The Siting Element established goals and policies for the siting of solid waste transformation and land disposal facilities to serve the solid waste generation and disposal needs of the County for the next 15 years. The County is in the process of updating the Countywide Siting Element, and anticipates releasing the draft document for review in mid-2016 (LACDPW 2015b).

#### *County of Los Angeles Non-Disposal Facility Element (NDFE)*

AB 939 requires every City and County in the state to prepare and adopt a Non-disposal Facility Element (NDFE) that identifies all existing, expansions of existing, and proposed new non-disposal facilities that will be needed to implement the local jurisdiction's SRRE (LACDPW 1994). The County's NDFE for the unincorporated portions of Los Angeles County identifies 20 existing materials recovery facilities/transfer stations, and 9 proposed material recovery facilities as non-disposal facilities that the County intends to utilize in order to implement its SRRE and meet the diversion requirements of AB 939. In addition, the County's NDFE also identifies the utilization of four landfill facilities (operated by the Sanitation Districts of Los Angeles County [LACSD]) for diversion of yard/green wastes that are used as alternative daily cover at the landfills.

#### County of Los Angeles Solid Waste Ordinance

Division 4, Solid Waste, of Title 20 of the County Code is the County's Solid Waste Ordinance. This ordinance contains the County standards for solid waste handling and disposal and creates a fee structure for solid-waste facilities, waste collectors, waste recovery operations and waste collection trucks. It requires permits for solid waste facilities, self-haulers and waste collectors so as to allow the County to set operating conditions that would prevent

environmental damage and promote the long-term protection of the environment. Property owners and occupants in the High Desert area are required to utilize private solid waste collection services and construction and demolition (C&D) debris are required to be recycled and/or reused.

#### Construction and Demolition Debris Recycling and Reuse Ordinance

On January 4, 2005, the County of Los Angeles adopted the Construction and Demolition Debris Recycling and Reuse Ordinance (Chapter 20.87 of the County Code), pursuant to the California Integrated Waste Management Act of 1989 (AB 939). This ordinance requires most development projects in unincorporated areas to recycle or reuse at least 50 percent (by weight) of all construction and demolition debris, soil, rock, and gravel removed from a project site. A Recycling and Reuse Plan (RRP) is required and must be submitted to the Department of Public Works, Environmental Programs Division after an application for a permit has been filed for a project. The RRP must contain a project description; the estimated total weight of C&D wastes; the total weight that would be recycled or reused; vendors for the recycled or reused C&D wastes; and the percentage to be recycled and reused. Upon County approval of the RRP, annual progress reports and a final compliance report showing documentation and receipts that the RRP was implemented must be submitted to the County.

#### County Green Building Standards Code

The County adopted by reference the 2016 California Green Building Standards Code (CALGreen Code) in 2010 and adopted the current (2016) CALGreen Code as Title 31, Green Building Standards Code, of the County Municipal Code. As part of this adoption, the County revised the construction waste management standard (Section 5408.1) to require that newly constructed projects and additions and alterations to existing buildings shall recycle and/or salvage for reuse a minimum of 65 percent of the non-hazardous construction and demolition debris or meet a local construction and demolition waste management ordinance, whichever is more stringent. The amount of materials diverted shall be calculated by weight or volume, but not by both.

#### County Roadmap to a Sustainable Waste Management Future

The County adopted the Roadmap to a Sustainable Waste Management Future (Roadmap) in 2014. The Roadmap lays out the general framework for the strategies and initiatives that the County can implement in County Unincorporated Communities, Regional/Countywide, and at County Operations to decrease reliance on landfills by maximizing the recovery of products, materials, and energy from waste that would otherwise be disposed at landfills, and provides direction to the Department of Public Works and other County departments to initiate the implementation of the Roadmap.

The intent of the Roadmap is to guide the County in implementing the four strategies and supporting initiatives to maximize the recovery of products, materials, and energy from waste that would otherwise be disposed of at landfills. In doing so, the County hopes to achieve the following intermediate and long-term disposal targets:

- 80 percent diversion from landfills by 2025

- 90 percent diversion from landfills by 2035
- 95 percent or more diversion from landfills by 2045

### County of Los Angeles General Plan and Antelope Valley Area Plan

The *County of Los Angeles General Plan* and *Antelope Valley Area Plan* (AVAP) address solid waste issues that affect the County. Relevant goals and policies in the AVAP include those listed below.

#### *Conservation and Open Space Element*

**Policy COS 9.4:** Promote recycling and composting throughout the Antelope Valley to reduce air quality impacts from waste disposal activities and landfill operations.

**Goal COS 10:** Diverse energy systems that utilize existing renewable or waste resources to meet future energy demands.

**Policy COS 10.6:** Encourage the development of Conversion Technologies such as anaerobic digestion and gasification for converting post recycled residual waste into renewable fuels and energy.

A consistency analysis of the Project with specific goals and policies in the County's relevant plans, policies, and regulations is provided in the Land Use, Entitlements, and Planning Section (Section 5.8) in this document.

## **Environmental Setting**

### ***Disposal Volumes***

#### Statewide

California's 2015 per resident disposal rate was 4.7 PPD and the employee disposal rate was 11.1 PPD. Total solid waste disposal in 2015, after diversion through a combination of source reduction, recycling, and reuse, was 33.2 million tons with a population of 38.9 million residents. This results in a diversion rate equivalent of 63 percent (CalRecycle 2017a).

#### Los Angeles County

The unincorporated area of Los Angeles County had a 2015 resident disposal rate of 3.8 PPD and an employee disposal rate of 19.7 PPD, which exceeds the resident and employees disposal targets of 7.4 PPD and 41.5 PPD, respectively (CalRecycle 2017b).

The volume of solid waste disposal by Los Angeles County has decreased through the years, despite increasing population and economic growth. The majority of these wastes are disposed in landfills in the County, supplemented with the use of out-of-County landfills. The distribution of solid waste disposal, after waste diversion, among various types of disposal facilities is shown below in Table 5.17-2, 2015 Los Angeles County Solid Waste Disposal.

**TABLE 5.17-2  
2015 LOS ANGELES COUNTY SOLID WASTE DISPOSAL**

<b>Disposal Facilities</b>	<b>Quantity Disposed (million tons)</b>
In-County Class III landfills	4.77
Transformation facilities	0.56
Exports to Out-of-County Class III landfills	4.13
<b>Solid Waste Disposed</b>	<b>9.46</b>
Permitted Inert Waste Landfills	0.26
<b>Total Disposed</b>	<b>9.72</b>
Source: LACDPW 2016b.	

### Project Site

The Project site currently supports ranching operations with limited agricultural activities. These operations contribute a nominal amount of solid wastes to the County's total waste stream.

### ***Solid Waste Collection***

For many years, <sup>2</sup>/<sub>3</sub> of the unincorporated areas' (primarily the San Gabriel and Antelope Valleys) residential and commercial solid waste collection services were provided through an open-market system whereby each resident/business directly arranged for trash collection services, with no County involvement. Due to changes in federal and State laws regarding waste reduction, changing public attitudes toward protecting the environment and increasing consumer demands for better service, the open-market system was unable to fully adapt to these conditions. In response, beginning in 2007, the County gradually implemented a residential trash collection franchise system to replace the open-market system. Under the franchise system, the County signs an agreement with waste haulers to authorize them to provide exclusive services for individual communities; under this system, the County establishes minimum service standards and institutes rate-control measures.

As a result, the franchise system has helped to improve customer service, increase accountability, develop cleaner neighborhoods, and increase diversion rates. As of early 2011, 14 residential franchises have been established throughout the San Gabriel and Santa Clarita Valleys. However, there is no exclusive residential franchise for the unincorporated areas in the Antelope Valley. Rather, it remains an open market system, as previous plans for an exclusive franchisee have been put on hold. Commercial waste collection services in this area are provided by 43 companies under a non-exclusive franchise system, where each company is required to provide services and rates in accordance with County standards. Waste Management (at 1200 West City Ranch Road in Palmdale) is the largest provider of commercial and residential waste hauling services in the Antelope Valley (LACIWMTF 2015).



### ***Solid Waste Disposal***

Approximately 65 percent of the solid waste generated in Los Angeles County in 2015 was diverted through recycling, source reduction, and other means, and approximately 35 percent (9.72 million tons) was disposed of in local landfills (LACDPW 2016b).

Currently, the County manages its solid waste stream with the following in-County facilities: 10 municipal solid waste landfills (6 major and 4 minor); 12 inert waste (i.e., asphalt, concrete, dirt and rock) landfills (11 of which operate as Inert Debris Engineered Fill Operations and do not require a Solid Waste Facility Permit); 2 waste-to-energy (transformation) facilities; 17 Composting/Chipping and Grinding Facilities permitted to receive 100 tons or more of waste per day; 2 Anaerobic Digestion Facilities; 55 permitted Large Volume Transfer/Processing and Direct Transfer facilities (including construction and demolition debris recyclers and Clean Material Recovery Facilities) (LACDPW 2016b).

As part of the LACDPW's annual solid waste reporting, a total of seven scenarios combining the various options for solid waste management were compared for the Annual Report's required 15-year planning horizon (2015 through 2030). All scenarios assume that no new in-County landfills will be permitted within the planning horizon, and two scenarios assume that landfill expansions would occur. Six of the seven scenarios would result in the maintenance of adequate solid waste disposal capacity through 2030, and require, at a minimum, use of existing permitted in-County disposal capacity, attainment of a 75 percent diversion rate by 2020, expansion of out-of-County disposal capacity. Additional scenarios that would also meet disposal needs include some combination of: proposed expansions of in-County landfills, additional alternative technology, and increased out-of-County exports (LACDPW 2016b). Therefore, the County is focusing on a strategy of using a diversified mix of solid waste disposal options, including in-county landfill expansions, continued out-of-county exports, waste-by-rail facilities, as well as continued development of transformation facilities and alternative solid waste disposal technologies to meet the solid waste disposal needs of the County for the next 15 years (LACDPW 2016b).

### ***Solid Waste Disposal Locations and Capacity***

As discussed above, most solid waste collected within Los Angeles County by private haulers is disposed of within the County. However, independent solid waste haulers are also able to take solid waste over the County line.

There are ten Class III (non-hazardous/municipal solid waste only) landfills operating within Los Angeles County. Of these, seven facilities could accept solid waste generated by the Project (four major landfills and three minor landfills). The remaining three landfills have statutory limits on the wastesheds from which they will accept solid wastes. Table 5.17-3, Major Landfills in Los Angeles County Serving the Project Area, summarizes the operations of the four major landfills that could accept waste from the Project site as of December 2014.

In addition to the major landfills above, San Clemente Landfill, Whittier (Savage Canyon) Landfill, and Pebbly Beach Disposal Site are small-volume facilities, defined as minor landfills by the County, which could technically accept wastes generated in the Project area. However,

because of distance and/or small daily capacity, these minor landfill facilities are not considered likely disposal locations for wastes generated on the Project site.

Solid waste generated in the Antelope Valley area primarily goes to the Antelope Valley Landfill in Palmdale and the Lancaster Landfill in Lancaster, as the nearest facilities. As with the solid waste haulers, these landfills operate in a free-enterprise system. Their operating expenses and profits are obtained by collecting disposal fees from the haulers on a per ton basis. The capacities of the landfills are regulated for the most part through the amount of solid wastes that each particular facility is permitted to collect per day and in their total capacity.

**TABLE 5.17-3  
MAJOR LANDFILLS IN LOS ANGELES COUNTY  
SERVING THE PROJECT AREA**

Facility Name and Location	Approximate Distance to Project Site (miles)	Permitted Daily Capacity (tons)	Remaining Permitted Capacity (mcy)	Estimated Closure Date
Antelope Valley Public Landfill 1200 W City Ranch Rd Palmdale, CA 93551	32	1,800	17.88	12/31/2038
Chiquita Canyon Sanitary Landfill 29201 Henry Mayo Dr Valencia, CA 91384	25	6,000	0.77	12/31/2016 <sup>a</sup>
Lancaster Landfill and Recycling Center 600 E Ave F Lancaster, CA 93535	30	5,100	14.10	12/31/2041
Sunshine Canyon City/County Landfill 14747 San Fernando Rd Sylmar, CA 91342	41	12,100	82.51	12/31/2037
<b>Total</b>		<b>25,000</b>	<b>133.14</b>	
<sup>a</sup> A proposed expansion for Chiquita Canyon is pending. Source: LACDPW 2016b				

### ***Hazardous Materials Collection and Disposal***

Certain uses and activities generate hazardous waste that must be disposed of at locations other than Class III or unclassified landfills. These hazardous materials need to be disposed of or transported to a licensed disposal or treatment facility. However, the disposal and transport of hazardous materials is more complicated than that of typical Class III solid waste because there are many forms of hazardous materials. Generators that use hazardous materials and/or generate hazardous wastes are responsible for the disposal of their wastes. There are many licensed private contractors that transport and dispose of hazardous wastes.

As discussed above, there are ten landfills within the County of Los Angeles, and all are Class III facilities. There are no Class I or Class II landfills, which are hazardous waste landfills, in

the County. (Class I landfills have stricter controls than Class II landfills and can accept wastes not permitted in Class II facilities.) However, there are two Class I and Class II landfills in Central and Southern California that can accept hazardous wastes generated within Los Angeles County:

- **Kettleman Hills Landfill, Kettleman City, Kings County, California.** This is a Class I permitted landfill that accepts both hazardous and non-hazardous waste with a daily permitted capacity of 8,000 tons per day and a remaining capacity of 6 million cubic yards (CalRecycle 2017c). It is located at 35251 Old Skyline Road, approximately 105 miles northwest of the Project site.
- **McKittrick Waste Treatment Site, McKittrick, Kern County, California.** This facility is a Class II permitted landfill that accepts both hazardous and non-hazardous waste with a daily permitted capacity of 3,500 tons per day and a remaining capacity of approximately 769,790 cubic yards (CalRecycle 2017d). It is located at 56533 Highway 58 in McKittrick, approximately 60 miles northwest of the Project site.

The LACSD and the LACDPW co-sponsor household hazardous waste and electronic waste collection events to provide Los Angeles County residents with “a legal and cost-free way to dispose of unwanted household chemicals and electronic wastes that cannot be disposed of in the regular trash”. In addition to collection events, there are several permanent collection centers including the Antelope Valley Environmental Collection Center (AVECC) located at the Antelope Valley Public Landfill in the City of Palmdale. Permitted household hazardous waste items include lawn and garden-care products, paint-related products, automotive fluids and batteries, household cleaners, swimming pool chemicals, fluorescent lights, mercury thermometers, batteries, and electronic equipment (LACDPW 2016a).

### ***County Smart Gardening Program Learning Center***

For compostable organic materials such as green waste and food waste, the development of compost facilities, anaerobic digesters, biomass conversion facilities, and/or engineered municipal solid waste conversion facilities is needed to manage the thousands of tons generated Countywide each day. Although State legislation (AB 1826) has addressed organics diversion from commercial properties, there are currently no laws addressing organics diversion from residential properties.

The County Smart Gardening Program operates 10 Learning Centers countywide. The Santa Clarita Learning Center location within the property of Castaic Lake Water Agency is the closest Program Learning Center, over 30 miles away from the Project area.

**TABLE 5.17-4  
AREA LEARNING CENTERS**

<b>Learning Center</b>	<b>Address</b>
Castaic Lake Water Agency	27234 Bouquet Canyon Road, Santa Clarita
Source: LACDPW 2017.	

Countywide programs are funded by the Solid Waste Management Fee (SWMF). This fee is charged on every ton of waste which is disposed of at an in-County or out-of-County facility such as a landfill, refuse to energy facility, or inert engineered landfill. As the County Roadmap to a Sustainable Waste Management Future aims to invert the Traditional Waste Hierarchy to place a greater emphasis on maximizing the benefits and use of materials over landfill disposal, this Project can initiate a shift to focus on building infrastructure and facilities to reduce, reuse, recycle, convert/compost, and transform solid waste over disposing into landfills. As this Project includes a Green Development Program (GDP) intended to meet or exceed state, regional, and local requirements for green building ordinances, residents who apply knowledge gained from workshops at the County Smart Gardening Learning Center can incorporate sustainable resource management of yard trimmings and food scraps.

Learning centers are equipped with educational and demonstration materials designed for County Smart Gardening workshops. Each has various backyard and worm composting bins, and drought-tolerant plants. Some include grasscycling demonstrations to show how easy and beneficial grasscycling can be.

Admission to Smart Gardening workshops is free. At some locations, there may be a parking or venue admission fee. Thus, while there is a Learning Center that is part of the County Smart Gardening Program in Santa Clarita, it would not realistically serve the Project site due to the approximate 30-mile distance to the site. As an alternative, smaller County Smart Gardening Information Centers may be built within public venues and facilities within the Project area. Information Centers typically only provide signage and demonstration compost bins on-site, and act as a passive educational center.

The current planning guideline for Learning Center space is a minimum of 4,000 square feet, and includes an ADA pathway, entry sign, benches made from recycled material, native and drought-tolerant landscaping, planter boxes, a drip-irrigation system, bioswales, a cistern, demonstration compost bins contained within an enclosure, shade structure, educational signage, a California Redemption Value (CRV) container recycling bin and a trash bin.

## **Project Design Features**

**PDF 17-2** The Project has committed to diverting from landfill disposal 100 percent of soil during grading activities, and at least 70 percent of nonhazardous construction and demolition waste, which exceeds the 65 percent diversion requirement with the Tier I voluntary measure in Section A5.408.3.1 of the California Green Building Standards (CALGreen) Code.. This goal also exceeds the 50 percent reduction required by Section 20.87.040 of the County Code and Sections 4.408.5/5.408.1.4 of the CALGreen Code. During all construction phases, wastes would be managed with the use of recycling bins for various debris materials that would be sent to existing recycling and/or processing facilities in accordance with all provisions of the County Construction and Demolition Debris Ordinance. This would include submitting and implementing a Recycling and Reuse Plan to Public Works in connection with obtaining a building or grading permit.

**PDF 17-3** The Project includes a Solid Waste Management Plan to achieve the goal of diverting 75 percent of operational solid waste generated from Project requiring landfill disposal. Property Owners shall process on-site, contract with a waste management company and/or recyclers, and/or self-haul to waste and recycling facilities to properly recycle, divert, and dispose of solid wastes generated on-site, such as metals, paper, household plastics, glass, cardboard, food waste, and green waste. Throughout the Project's operation, the waste hauler shall be required by contract to maintain records showing the diversion of not less than 75 percent of the operational waste generated by the Project. The Solid Waste Management Plan has many interrelated components, including, but not limited to:

- Implementation of a "three bin system" for waste collection and recycling for both residential (both single-family and multi-family uses) and commercial businesses. The three-bin system for residential areas will require separate receptacles for yard, such as leaves and tree trimmings (and possibly food waste, per property's hauler) into the green bin, recyclables into the blue bin, and permitted, nonrecyclable and non-compostable solid waste into the third bin..

The mandatory recycling for businesses will require that businesses divert from landfill disposal the recyclables that they generate, including food and green waste. Each non-residential building owner shall implement a recycling program including food and green waste recycling, where applicable. Businesses will provide appropriate number and placement of trash and recycling receptacles for visitor use in public areas and provide an easily accessible area that serves the entire building and is dedicated to the collection and storage of non-hazardous materials for recycling, including but not limited to: paper, food waste, green waste, corrugated cardboard, glass, plastic, and metals. Each owner of a commercial property, including multi-family residence, school, and place of worship, shall submit to the County a site plan of the property that depicts how solid wastes would be collected and stored for on-site processing, curbside collection, and/or self-hauling. Prior to sale, lease, or rental of commercial property, including portions of a multi-family residential structure, each owner shall provide to each prospective purchaser or tenant a notice explaining how that property collects and stores recyclables, compostables, universal waste, hazardous waste, and electronic waste for on-site processing, curbside collection, and/or self-hauling.

- The waste management contract will establish dedicated cans for green waste and a Green Waste Recycling Plan that must be adhered to by landscape maintenance companies as part of the Covenants, Conditions, and Restriction (CC&Rs). The CC&Rs will require the use of mulching mowers or mowers with mulching blades for common lawn areas and placing three to five inches of mulch in common areas'

planting beds each year as part of the Landscape Maintenance Plan for all non-residential and multi-family buildings.

- All landscaping companies shall utilize California Air Resources Board- (CARB) approved or electric mowing equipment (e.g., mowers, string trimmers, leaf blowers) and shall divert organic wastes to a mulching and composting facility or anaerobic digestion facility. The CC&Rs shall describe the residential recycling program to facilitate recycling and reuse and to educate residents and consecutive buyers (i.e., buyers after the initial home buyer) regarding the availability of and requirements for using the recycling program.
- Household hazardous wastes and less commonly disposed materials (such as electronics and appliances) would have seasonal pickup (at least two times a year) and residents would be notified of upcoming events.
- Semi-annual “exchange days” would be organized, publicized, and paid for by the Master Homeowners Association (HOA). Community members would be able to exchange with their neighbors items they no longer want. Homeowners would then be encouraged to do spring cleaning and major yard trimming and deliver usable items to a central location where they could be displayed for the weekend and picked up by others who are interested. As part of the event, large dumpsters, including green waste dumpsters, could also be brought for trash and green waste that cannot be reused. Neighborhood volunteers would monitor the dumpsters to make sure they are used efficiently and that only authorized waste is discarded in them.
- The Project Applicant/Master Developer shall set aside a minimum of 5 acres for a future Materials Recovery Facility/Transfer Station (MRF/TS) that includes a household hazardous waste permanent collection and reuse center and allows for mulching/composting operations. The site shall be located in a suitable location with the capacity to manage the nonhazardous solid waste and household hazardous waste generated by the Centennial Development Project at buildout. The Project Applicant/Master Developer shall prepare and grade the site, and install basic mainline infrastructure fronting the property prior to the issuance of any occupancy permits associated with the first phase of project implementation. The Master Developer shall continually encourage a waste management company to build these facilities on this build ready site. The CC&R for the future MRF/TS site shall require the land to be set aside for the MRF/TS in perpetuity.
- A seasonal collection and/or a mulching and composting facility could be included in the MRF/TS to allow for most green waste to be diverted from landfill disposal with the goal of a 100 percent green waste diversion from landfills. The landscape concept and turf limits are, in

part, designed to reduce the amount of green wastes generated by the Project and to reduce the demand for irrigation water.

- A MRF/TS can include organics processing equipment to allow for the recycling of food and green waste.

## Threshold Criteria

The thresholds of significance criteria listed below and used in the analysis is based on criteria derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant on solid waste impact if the Project would:

**Threshold 17-2** Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.

**Threshold 17-3** Not comply with federal, state, and local statutes and regulations related to solid waste.

## Environmental Impacts

**Threshold 17-2** **Would the project be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?**

**Threshold 17-3** **Would the project comply with federal, state, and local statutes and regulations related to solid waste?**

Adopted plans and regulations to manage solid waste disposal and recycling efforts generally mandate action by the State, County, and/or local municipality rather than individual project applicants. For the Project, the County of Los Angeles is the responsible party for ensuring that waste reduction goals are met and that federal, State, and County regulations are enforced on private projects. Therefore, the following analysis focuses on the Project's anticipated solid waste generation during construction and operation, as well as the Project's Solid Waste Management Plan that would assist in meeting the County's goals. The Project's net solid waste generation assumes that the County of Los Angeles will continue its compliance with these requirements and would meet or exceed its resident disposal target of 7.4 PPD and employee disposal target of 41.5 PPD.

### *On-Site Impacts*

Implementation of the Project would generate solid wastes (including hazardous wastes) during construction and operation. Where solid wastes are disposed of and how they are recycled is driven by economics and adopted State and County of Los Angeles regulations. As previously discussed, solid waste disposal in Southern California is based on the free-enterprise system. Theoretically, waste can be disposed of at almost any landfill depending upon the preference of individual solid waste haulers and other factors such as proximity to the collection area, tipping fees, and daily capacities at the landfill sites.

Additionally, the amount of solid waste entering landfills versus the amount generated would be based upon a number of variables, including regulations such as AB 939; market demand for recyclables (fluctuations in prices for recyclables will affect willingness to recycle certain materials); product packaging; purchase of reusable products (e.g., cloth diapers); and disposal alternatives (incineration within cogeneration plants).

### Construction

It is estimated that site-preparation (vegetation removal and grading activities) and construction activities would generate approximately 602,910 tons total (or approximately 30,146 tons per year [tpy] over 20 years or 115.94 tons per day [tpd] over 260 days per year) of construction wastes over the 20-year buildout of the Project without the implementation of recycling or other diversion of construction waste.<sup>1,2</sup> The waste materials generated during site preparation and grading are expected to include typical construction debris including packaging, building material wastes (e.g., excess wood, tile, steel), organic materials, and green wastes. As described in PDF 17-2 and ensured by MM 17-9, the Project has committed to diverting from landfill disposal 100 percent of soil during grading activities, and at least 70 percent of nonhazardous construction and demolition waste, which exceeds the 65 percent diversion requirement with the Tier I voluntary measure in Section A5.408.3.1 of the California Green Building Standards (CALGreen) Code. This goal also exceeds the 50 percent reduction required by Section 20.87.040 of the County Code and Sections 4.408.5/5.408.1.4 of the CALGreen Code. This would result in less than approximately 180,873 tons of construction wastes requiring disposal over the 20-year Project buildout period, or approximately 9,044 tpy or 34.8 tpd (based on a 260-day per year construction schedule). As noted above, the nearest and most likely landfills to receive construction and demolition debris from the Project site are the Lancaster and Antelope Valley Landfills, approximately 30 miles and 32 miles from the Project site, respectively. However, Project-related construction waste may ultimately be disposed of at any of the available facilities described above.

The combined daily permitted capacity of the 4 major in-County landfills serving the Project area is 25,000 tpd. The estimated 34.8 tpd of construction wastes from the Project represents approximately 0.14 percent of this capacity. It is noted that the 34.8 tpd figure is an aggregate of construction wastes, including soils, which would not be disposed of in landfills. This provides a conservative analysis. This also does not consider the potential use of minor landfills, remote landfills, and out-of-County landfills. Of the 4 major landfills currently serving the Project area, 2 landfills (Chiquita Canyon and Sunshine Canyon Landfills) are anticipated to potentially close at some time prior to the Project's 20-year buildout horizon.

The combined remaining capacity of the Antelope Valley and Lancaster Landfills (which are likely to be used by the Project) is approximately 32.0 million cubic yards (23.08 million tons), and the permitted daily capacity is 6,900 tpd (LACDPW 2016b). If only these two landfills were utilized to dispose of the entirety of construction waste from implementation

- 
- 1 Assumes a generation rate of 90 tons per acre of construction waste. Project gross developable acreage is 6,699 acres (12,323 acres minus 5,624 acres of Open Space [OS]). Refer to Section 4.0, Project Description.
  - 2 The average tpd estimate is based on a 5-day work week at 52 weeks totaling 260 days a year of construction.



of the Project (180,873 tons), it would represent approximately 0.78 percent of the total remaining capacity and 0.50 percent of the permitted daily capacity (assuming 34.8 tpd requiring landfill disposal). While the combined daily rate of disposal of operating landfills would be different in the future, this analysis illustrates that the Project's incremental contribution to the County's solid waste stream during construction, which is a finite waste stream, would be nominal in comparison (i.e., less than one percent) and would be considered a less than significant impact. Construction activities may generate hazardous waste products during the construction phases of the Project. Hazardous waste disposal would be handled and disposed of in accordance with all appropriate State and federal laws. Because of the numerous laws and regulations associated with the disposal of hazardous wastes, it would be determined at the time of disposal where particular hazardous wastes would be taken based on the type and amount that must be disposed. However, hazardous wastes would be only a small proportion (less than 1 percent by weight) of the total solid wastes generated on the Project site during construction. This minimal contribution of solid waste at the Kettleman Hills Landfill or McKittrick Waste Treatment Site would not be significant.

### Operation

It is estimated that buildout of the Project would take approximately 20 years. As shown in Table 5.17-5, Annual Solid Waste Generation, on the following page, the Project would generate approximately 55,394 tons of solid wastes per year at buildout. This estimate uses the disposal rates in 2000 and 2008 and would not represent increased diversion of solid wastes based on current and future regulations and the Project's Solid Waste Management Plan. As described in PDF 17-3 and ensured by MM 17-10, the Project includes a goal to divert at least 75 percent of the operation waste generated by the Project. This would result in approximately 13,849 tons per year of solid waste requiring landfill disposal.

As noted above, the responsibility for meeting waste reduction/diversion goals and other regulations lies with the County. However, the Project incorporates a Solid Waste Management Plan, described above, which includes several components aimed at facilitating recycling and otherwise reducing solid waste generation at the source (the Project site). As discussed in PDF 17-3, the Project would set aside a minimum of five acres for an MRF/TS that includes a household hazardous waste permanent collection and reuse center and allows for mulching/composting operations, in the Utility land use designation, which could be constructed and operated by a private or public entity. The MRF/TS would represent the only such facility in northern Los Angeles County. Through this and other proposed features (PDF 17-3), the Solid Waste Management Plan supports the County in meeting its statutory waste management goals to the maximum extent feasible. The Project would also include a County Smart Gardening Program Learning Center, and the specifications for this facility would be provided by the County of Los Angeles Department of Public Works (MM 17-10).

**TABLE 5.17-5  
ANNUAL SOLID WASTE GENERATION**

<b>Land Use</b>	<b>Quantity<sup>a</sup></b>	<b>Units</b>	<b>Disposal Rate (per year)<sup>b</sup></b>	<b>Total Waste Generation (tons/year)</b>
Residential	55,701	residents	0.32 tons/capita <sup>c</sup>	17,824.3
Commercial	2,913	employees	2.5 tons/employee	7,282.5
Business Park	14,813	employees	1.61 tons/employee	23,848.9
Hotels	300	employees	1.17 tons/employee	351.0
Institutional/Civic				
Sheriff's Station	147	employees	0.52 tons/employee	76.4
Fire Stations	44	employees	0.39 tons/employee	17.2
Library	10	employees	0.82 tons/employee	8.2
Schools <sup>d</sup>	11,863	students	0.12 tons/student	1,423.6
Medical Facilities	2,907	employees	0.54 tons/employee	1,569.8
	1,500	employees	0.62 tons/employee	930.0
Park and Recreation/Entertainment	841	employees	2.4 tons/employee	2,018.4
Utility	200	employees	0.22 tons/employee	44.0
<b>Total Generation Prior to Waste Diversion</b>				<b>55,394.3</b>
<sup>a</sup> Placeworks 2017. <sup>b</sup> CalRecycle 2000. <sup>c</sup> CalRecycle 2009. <sup>d</sup> Assumes highest student generation estimate				

As with the construction debris, the Project's operational solid waste stream after diversion may ultimately be disposed of at any in-County facility. A portion may also be disposed of at remote out-of-County facilities. As discussed above, the combined permitted capacity of the 4 major in-County landfills serving the Project area is 25,000 tpd. The Project's estimated annual solid waste volume requiring landfill disposal of 13,849 tons per year (approximately 44.4 tpd based on 312 days per year, which is 6 days a week that most solid waste facilities operate) would represent approximately 0.18 percent of the landfills' permitted daily capacity. Even if the entirety of the Project's estimated solid waste generation was assumed to require landfill disposal, meaning that no diversion had occurred, this volume (51,582 tons per year, 177.5 tpd) would require approximately 0.7 percent of these landfills' daily permitted capacity. Also, this does not consider the use of minor landfills, remote landfills, and out-of-County landfills. Therefore, the nominal increase in waste disposal from the Project would not be expected to result in the exceedance of any landfill's daily permitted capacity.

However, permitted Class III landfill capacity cannot be guaranteed at the time of Project buildout and through the life of the Project, which are beyond the required 15-year LACDPW planning horizon for solid waste disposal (currently from 2015 to 2030). Therefore, while the County is committed to handling all solid wastes generated within the County now and in the future, to be conservative, this EIR concludes that the Project would result in a significant impact on the County's anticipated Class III landfill capacity. PDFs 17-2 and 17-3 and MMs 17-9 and 17-10, which discuss the management of construction and operational

solid waste, respectively, reflect all feasible measures to reduce and divert the municipal solid waste generation of the Project. Additionally, as discussed further in Section 5.5, Land Resources, the Project would accommodate a total of 50 acres of small-scale agriculture and agriculture-related uses, including, but not limited to community gardens, farmers markets/fresh fruit and vegetable stands, growing and sales of nursery stock, and commercial greenhouses. These types of uses that support fresh food contribute to less packaged food, and therefore reduced solid waste. Finally, the goals of 75 percent operational non-hazardous solid waste diversion and 100 percent green waste diversion are consistent with the goals of the State's 75 Percent Initiative; and including organics processing equipment as a permissible feature of the MRF/TS and the mandatory diversion of recyclables, including food and green waste as applicable, generated by businesses is consistent with both the 75 Percent Initiative and the Mandatory Commercial Organics Recycling Bill (AB 1826). Regardless, there are no additional, feasible mitigation measures to further reduce the Project's solid waste stream that would require disposal in County facilities. Therefore, the Project would result in a significant and unavoidable impact related to municipal solid waste during operation of the Project.

Hazardous wastes generated by the residential land uses on the Project site may include such materials as household cleaners, paints and thinners, batteries, electronic equipment, and motor oil, among others. The Project's Solid Waste Management Plan (PDF 17-3 and MM 17-10) also includes features to facilitate appropriate disposal of hazardous materials by the community, such as semi-annual "exchange days" and seasonal (at least two times a year) pickup of household hazardous wastes and less commonly disposed materials (e.g., electronics and appliances). These household hazardous wastes may also be brought into the County's collection centers and collection events. Proposed commercial and business park land uses that would involve generating, treating, or disposing of hazardous wastes would be required to comply with applicable State and County hazardous waste regulations. It is anticipated that the volume of hazardous materials generated by the Project could be accommodated by the permitted Class I and Class II landfills currently in operation within California, and there would be a less than significant impact to hazardous waste disposal facilities.

### ***Off-Site Impacts***

The off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, would not generate solid waste once developed. However, construction of these features would generate a minimal and finite volume of solid wastes, including removed vegetation, spoils (displaced soils), and construction material remnants and packaging. The planned 70 percent diversion for non-hazardous construction and demolition waste (PDF 17-2, MM 17-9) would apply to the off-site Project features. The volume of waste from the construction of these features would be far smaller than the total construction waste for the Project as a whole, which, in turn, would represent less than one percent of the total for the daily landfill capacity currently available for the Project area and, thus, is considered less than significant. Disposal of the comparatively nominal construction waste from off-site Project features would also be less than significant.

**Impact Summary:** As described in PDF 17-2 and ensured by MM 17-9, the Project has committed to diverting 100 percent of soil during grading activities, and at least 70 percent of nonhazardous construction and demolition waste, which exceeds the 65 percent diversion requirement with the Tier I voluntary measure in Section A5.408.3.1 of the California Green Building Standards (CALGreen) Code. This goal also exceeds the 50 percent reduction required by Section 20.87.040 of the County Code and Sections 4.408.5/5.408.1.4 of the CALGreen Code. . The Project's incremental contribution to the County's solid waste stream during construction, which is a finite waste stream, would be nominal in comparison to available capacity (i.e., less than one percent) and would be considered a less than significant impact.

The Project incorporates a Solid Waste Management Plan (PDF 17-3 and MM 17-10) with numerous interrelated components that would facilitate on-site recycling and other solid waste diversion, supports the County in meeting its statutory waste management goals to the maximum extent feasible, and is consistent with the State's most recent, aggressive solid waste management goals. However, the permitted Class III landfill capacity in the County cannot be guaranteed at the time of Project buildout and through the life of the Project, which are beyond the LACDPW's 15-year planning horizon (currently through 2030) for solid waste disposal. Therefore, while the County is committed to handling all solid wastes generated within the County now and in the future, to be conservative, this EIR concludes that the Project buildout would result in a significant impact on the County's anticipated Class III landfill capacity. PDF 17-17-3 and MM 17-10 reflect all feasible measures to reduce and divert the municipal solid waste generation of the Project. Therefore, the Project would result in significant and unavoidable impact related to municipal solid waste during operation of the Project.

Hazardous wastes generated by the residential land uses on the Project site would be limited compared to the total municipal waste stream is expected to be accommodated by the permitted Class I and Class II landfills currently in operation within California and there would be a less than significant impact.

## **Mitigation Measures**

**MM 17-9** The Project Applicant/Developer shall be responsible for implementing the following construction waste reduction requirements to ensure that 100 percent of soil is diverted during grading activities, and that at least 70 percent of nonhazardous construction and demolition waste is diverted from landfill disposal. During all construction phases, wastes would be managed with the use of recycling bins for various debris materials which would be sent to existing recycling and/or processing facilities in accordance with all

provisions of the County Construction and Demolition Debris Ordinance. This would include submitting and implementing a Recycling and Reuse Plan to Public Works in connection with obtaining a building or grading permit.

**MM 17-10** The Project shall incorporate the Solid Waste Management Plan (Section 7.3 of the *Centennial Specific Plan*) and the Property Owner/Developer shall be responsible for implementation of the following operational waste reduction requirements to ensure that at least 75 percent of operational waste is diverted from landfill disposal:

- The Property Owners shall process an on-site contract with a waste management company and/or recyclers, and/or self-haul to waste and recycling facilities to properly recycle, divert, and/or dispose of solid waste generated on-site. Throughout the Project's operation, the waste hauler shall be required by contract to maintain records showing the diversion of not less than 75 percent of the operational waste generated by the Project.
- The waste management contract will establish dedicated cans for green waste and a Green Waste Recycling Plan that must be adhered to by landscape maintenance companies as part of the CC&Rs. The CC&Rs will require the use of mulching mowers or mowers with mulching blades for common lawn areas; use of California Air Resources Board-(CARB) approved or electric maintenance equipment; placing three to five inches of mulch in common areas' planting beds each year as part of the Landscape Maintenance Plan for all non-residential and multi-family buildings; and diverting organic wastes to a mulching and composting facility or anaerobic digestion facility.
- The CC&Rs will require the Property Owner to recycle and divert from the waste bin, solids such as metal, glass, paper, plastic, cardboard, food and yard waste; and divert from the waste bin hazardous waste, electronic waste, and universal waste. Information on items prohibited from landfill disposal and on recycling and composting will be provided to Property Owners.
- Household hazardous wastes and less commonly disposed materials (such as electronics and appliances) shall have seasonal pickup (at least two times a year) and residents would be notified of upcoming events.
- Semi-annual "exchange days" shall be organized, publicized, and paid for by the Master Homeowners Association (HOA).
- The Project Applicant/Master Developer shall set aside a minimum of 5 acres for a future Materials Recovery Facility/Transfer Station (MRF/TS) that includes a household hazardous waste permanent collection and reuse center and allows for mulching/composting operations. The site shall be located in a suitable location with the

capacity to manage the nonhazardous solid waste and household hazardous waste generated by the Centennial Development Project at buildout. The Project Applicant/Master Developer shall prepare and grade the site, and install basic mainline infrastructure fronting the property prior to the issuance of any occupancy permits associated with the first phase of project implementation. The Master Developer shall continually encourage a waste management company to build these facilities on this build ready site. The CC&R for the future MRF/TS site shall require the land to be set aside for the MRF/TS in perpetuity.

- The Smart Gardening Learning Center specifications will be provided by County of Los Angeles Department of Public Works.
- Parking for the Learning Center and the MRF/TS may be shared with adjacent uses with the consent of the property owners and County Public Works.

### **Level of Significance After Mitigation**

Permitted Class III landfill capacity cannot be guaranteed at the time of Project buildout and through the life of the Project. Therefore, to be conservative, this EIR concludes that operation of the Project would result in a significant impact on the County's anticipated Class III landfill capacity. The Project includes a proposed Solid Waste Management Plan that would reduce and divert the solid waste generation. There are no feasible mitigation measures remaining to further reduce the Project's solid waste stream requiring disposal in County facilities. Therefore, the Project would result in a significant and unavoidable impact related to municipal solid waste during operation of the Project.

### **5.17.4 OTHER PUBLIC FACILITIES**

#### **Relevant Plans, Policies, and Regulations**

##### ***County Revenue and Finance***

Title 4 of the Los Angeles County Code establishes the fees, taxes and funds that are imposed by the County for various services and uses and that are used for County operations. Other fees and charges are also imposed by the County to pay the cost of services and to implement County regulations and monitor compliance with the County Code. The County of Los Angeles Department of Public Works (LACDPW) annual operating budget is funded by restricted revenues, such as gas excise and sales tax, benefit assessment, water and sewer sales, user fees, and contract cities revenues (LACDPW 2011). The County of Los Angeles Department of Parks and Recreation (LACDPR) annual operating budget is funded by the County general fund, park in-lieu fees funds (including Quimby funds), and special revenue funds.

#### **Environmental Setting**

There are no County facilities on the Project site. Headquartered in Alhambra, the LACDPW has 77 field facilities throughout the unincorporated Los Angeles County area as well as

contract cities. The LACDPW is responsible for the design, construction, operation, maintenance, and repair of roads, traffic signals, bridges, airports, sewers, water supply, flood control, water quality, and water conservation facilities, and for the design and construction of capital projects. Headquartered in Los Angeles, the LACDPR is responsible for maintaining approximately 66,528 acres of recreational and open space acreage throughout Los Angeles County, which includes local, community, and regional parks; botanical gardens; nature centers; and golf courses (LACDPR 2010).

Information about County-owned facilities that may be impacted by Project implementation are discussed throughout this EIR in Section 5.2, Hydrology and Flood; Section 5.10, Traffic, Access, and Circulation; and Section 5.14, Parks and Recreation.

## Project Design Features

**PDF 17-4** The Project includes land allocated for two maintenance yards for the Los Angeles County Department of Public Works and the Department of Parks and Recreation, located adjacent to the permanent wastewater reclamation facility site along the northeastern boundary of the Project site. The maintenance yards will operate as a joint use service yard and will include both a road maintenance yard and a maintenance yard for parks.

## Threshold Criteria

The threshold of significance criteria listed below and used in the analysis is based on criteria derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant on other public facilities if the Project would:

**Threshold 17-4** Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: other public facilities.

## Environmental Impacts

**Threshold 17-4** **Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services: other public facilities?**

---

***On-Site Impacts***

The Project will rely upon the provision of County services for various amenities, including public park and facility maintenance, County-owned roadway maintenance, public right-of-way maintenance, flood-control infrastructure maintenance, and maintenance of other facilities. The Applicant/Developer and/or Project resident, business, or other individual that will benefit from these services will pay via taxes and fees.

There are no County maintenance yards on the Project site and there are no yards located in the region that have adequate capacity to provide County services to the Project. Project demand for the maintenance of future County-owned facilities and infrastructure would be met by the provision of land for two on-site maintenance yards (PDF 17-4) and the payment of fees and taxes that fund these services. The maintenance yards will operate as a joint use service yard and will include both a road maintenance yard and a maintenance yard for parks. The County may also construct, equip, and operate a permanent new animal control facility adjacent to the maintenance yards, if such a permanent facility is needed in the Project area. Provision of land for these County services, as set forth in PDF 17-4 would ensure that impacts to other public facilities would be less than significant.

The Project may require the creation of an entity to operate and maintain the water supply, water treatment, and wastewater reclamation facilities, as well as the storm water facilities if annexation of the Project site into the Golden Valley Municipal Water District (GVMWD) does not occur. Should a private entity be created or a public utility district (PUD) be required to handle the operation and maintenance of these systems and facilities, then service fees that would be generated by development on the site would fund the operations of the private entity. Alternatively, a public entity (e.g., Community Facilities District, Community Services District, California Water District, or other agency approved by Los Angeles County) may operate the on-site water supply, water treatment, and wastewater reclamation facilities, as well as the storm water facilities. This public entity would also operate through fees and taxes that would be paid by development on the site. This would avoid impacts on existing County services and facilities.

***Off-Site Impacts***

The off-site water Tejon Water Bank infrastructure would be part of the on-site water system that would be maintained and operated by the GVMWD or a PUD or other agency approved by Los Angeles County. Since an independent utility will operate the water system, no impacts to County facilities would occur. Roadway maintenance would be provided by the County for County-owned roads, and Caltrans would maintain Caltrans-owned properties. Impacts would be less than significant.

***Impact Summary:*** The Project's demand for other public services and facilities of the County will be subject to the payment of fees established by the County. The Project will also provide two maintenance yards on the site, which will be used by the employees of the County Department of Public Works and Department of Parks and Recreation for equipment storage and offices associated with the maintenance activities for roads, parks and other on-site public facilities (see PDF 17-4). The County may also



construct, equip, and operate a permanent new animal control facility adjacent to the maintenance yards, if such a permanent facility is needed in the Project area. This will reduce demand at existing County facilities, and impacts would be less than significant.

## Mitigation Measures

No significant adverse impacts on other public facilities will occur with the Project. Thus, no mitigation is required.

## Level of Significance after Mitigation

Impacts on other public facilities will be less than significant and no mitigation is required.

### 5.17.5 REFERENCES

- California Building Standards Commission (CBSC). 2014. California Green Building Standards Code (Part 11 of Title 24, California Code of Regulations). Sacramento, CA: CBSC. <http://www.bsc.ca.gov/Home/CALGreen.aspx>.
- California Department of Resources Recycling and Recovery (CalRecycle). 2017a (January 25, access date). California's 2015 Per Capita Disposal Rate. Sacramento, CA: CalRecycle. <http://www.calrecycle.ca.gov/LGCentral/GoalMeasure/DisposalRate/MostRecent/default.htm>.
- . 2017b (January 25, access date). Jurisdiction Diversion/Disposal Rate Summary (2007-Current): Los Angeles-Unincorporated. Sacramento, CA: CalRecycle. <http://www.calrecycle.ca.gov/LGCentral/reports/diversionprogram/JurisdictionDiversionPost2006.aspx>.
- . 2017c (January 25, access date). Facility/Site Summary Details: Kettleman Hills B18 Nonhaz Codisposal (16-AA-0023). Sacramento, CA: CalRecycle. <http://www.calrecycle.ca.gov/SWFacilities/Directory/16-AA-0023/Detail/>.
- . 2017d (January 25, access date). Facility/Site Summary Details: McKittrick Waste Treatment Site (15-AA-0105). Sacramento, CA: CalRecycle. <http://www.calrecycle.ca.gov/SWFacilities/Directory/15-AA-0105/Detail/>.
- . 2012 (October 12, last updated). Per Capita Disposal and Goal Measurement (2007 and Later). Sacramento, CA: CalRecycle. <http://www.calrecycle.ca.gov/lgcentral/Basics/PerCapitaDsp.htm>
- . 2009 (August). California 2008 Statewide Waste Characterization Study. Sacramento, CA: CalRecycle.
- . 2000 (March). Solid Waste Generation, Disposal, and Diversion Measurement Guide for State Agencies and Large State Facilities. Sacramento, CA: CalRecycle.

- California, State of. 2013 (as amended). *California Public Resources Code* (Division 30, Waste Management; Part 1, Integrated Waste Management; Chapter 1, General Provisions; Article 2, General Provisions, Sections 40050–40063, California Integrated Waste Management Act of 1989 [Assembly Bill 939]). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=30.&title=&part=1.&chapter=1.&article=2](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=30.&title=&part=1.&chapter=1.&article=2).
- . 2012 (last amended). *California Health and Safety Code* (Division 20, Miscellaneous Health and Safety Provisions; Chapter 6.5, Hazardous Waste Control; Article 10.8, Household Hazardous Waste and Small Quantity Generator Waste, Sections 25218–25218.13). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=HSC&division=20.&title=&part=&chapter=6.5.&article=10.8](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=HSC&division=20.&title=&part=&chapter=6.5.&article=10.8).
- Los Angeles, County of. 2016 (last accessed). *Los Angeles County, California – Code of Ordinances*. Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles. [https://www.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances](https://www.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances).
- Los Angeles County Department of Parks and Recreation (LACDPR). 2010 (September 15, access date). *Report to the Community July 2008–June 2010*. Los Angeles, CA: LACDPR. [http://file.lacounty.gov/dpr/cms1\\_164689.pdf](http://file.lacounty.gov/dpr/cms1_164689.pdf).
- Los Angeles County Department of Public Works (LACDPW). 2017 (March 27, access date). Smart Gardening Learning Centers. Los Angeles, CA: LACDPW. <https://dpw.lacounty.gov/epd/sg/map.cfm>.
- . 2016a (March 4, access date). What is Household Hazardous Waste? Los Angeles, CA: LACDPW. <http://ladpw.org/epd/hhw/>.
- . 2016b (December). *County of Los Angeles Countywide Integrated Waste Management Plan 2015 Annual Report*. Los Angeles, CA: LACDPW. <https://dpw.lacounty.gov/epd/swims/ShowDoc.aspx?id=6530&hp=yes&type=PDF>.
- . 2015b (May 27). Personal communication. Telephone conversation between Carlos Ruiz (Los Angeles County Integrated Waste Management Task Force) and Josephine Alido (BonTerra Psomas).
- . 2014 (September). *2014 Los Angeles County Countywide Integrated Waste Management Plan Five-Year Review Report*. Los Angeles, CA: LACDPW.
- . 2011 (September 15, access date). *County of Los Angeles Department of Public Works Biennial Report 2009–2011*. Los Angeles, CA: LACDPW.
- . 1997 (June). *Los Angeles County Countywide Siting Element*. Los Angeles, CA: LACDPW.

———. 1994 (March). *Los Angeles County Nondisposal Facility Element*. Los Angeles, CA: LACDPW.

———. 1993a (August). *Los Angeles County Household Hazardous Waste Element*. Los Angeles, CA: LACDPW.

———. 1993b (August). *Los Angeles County Source Reduction and Recycling Element*. Los Angeles, CA: LACDPW.

Los Angeles County Department of Regional Planning (DRP). 2015a (March). General Plan 2035. Los Angeles, CA: LACDRP. <http://planning.lacounty.gov/generalplan/draft>.

———. 2015b (May 28). Town and Country – Draft Antelope Valley Area Plan. Los Angeles, CA: LACDRP. <http://planning.lacounty.gov/tnc/documents/>.

Los Angeles County Integrated Waste Management Task Force (LACIWMTF). 2015 (May 26). Personal communication. Telephone conversation between Carlos Ruiz (LACIWMTF) and Josephine Alido (BonTerra Psomas).

Los Angeles, County of, Public Library (County Library). 2015a (June 3, access date). Antelope Valley Bookmobile. Los Angeles, CA: the County. <http://www.colapublib.org/lib/antelopevalley/bookmobile.php>.

———. 2015b (June 3, access date). Lancaster Library. Los Angeles, CA: County Library. <http://www.colapublib.org/lib/lancaster/index.php>.

———. 2015c (June 3, access date). Lake Los Angeles Library. Los Angeles, CA: County Library. <http://www.colapublib.org/lib/lakelosesangeles/index.php>.

———. 2015d (June 3, access date). Littlerock Library. Los Angeles, CA: County Library. <http://www.colapublib.org/lib/littlerock/index.php>.

———. 2015e (June 3, access date). Quartz Hill Library. Los Angeles, CA: County Library. <http://www.colapublib.org/lib/quartzhill/index.php>.

———. 2015f (May 12). Request to Approve Tax Rate Resolution For Fiscal Year 2015-16 Voter-Approved Library Special Tax for Library Services (All Supervisorial Districts) (3 Votes). Los Angeles, CA: County Library.

———. 2015g (June 24). Personal communication. Email from E. Munoz, Head of Support Services (County Library) to J. Alido (BonTerra Psomas).

Placeworks. 2017. *Centennial Specific Plan*. Santa Ana, CA: Placeworks (Appendix 4.0-A).

## 5.18 WATER RESOURCES

### 5.18.1 INTRODUCTION

#### Purpose

The County of Los Angeles Department of Regional Planning (DRP) Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that water resources issues be evaluated as part of the environmental documentation process. The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0, respectively.

This section analyzes the water resources available to support the Project and the impacts associated with providing adequate water supplies for the proposed development. The analysis in this section complies with the provisions of Sections 10910 et seq. of the *California Water Code* (Senate Bill [SB] 610) for assessing water supplies for CEQA purposes. The analysis is presented for Years 1 through 20 of the Project from first occupancy in Year 1 through buildout in Year 20. The analysis also extends to Year 25 (i.e., 5 years after buildout) when return flow water supplies from use within the Antelope Valley groundwater basin will mature for Project use.

#### Summary

Implementation of the Project would result in a maximum of 19,333 housing units, the creation of an estimated 23,675 permanent jobs, and a maximum resident population of approximately 57,150 persons at buildout. As discussed in detail below, at buildout the Project is estimated to require 11,365 acre-feet per year (afy) of water for residential, commercial, landscaping and other purposes, of which 6,788 afy would be treated for potable use, and 4,577 afy would consist of recycled water treated in on-site wastewater treatment facilities to State standards under Title 22 of the *California Code of Regulation* (CCR) for unrestricted reuse.

The Project's potable and recycled water infrastructure, including potable and recycled water treatment, delivery, metering and monitoring, will be managed by a water district or public utility district (PUD) that will serve the Project (the "Project Water Purveyor"). The on-site water system shall comply with the federal and California Safe Drinking Water Acts and related regulations and recycled water will be treated to *California Code of Regulations* Title 22 unrestricted reuse standards. To ensure that projected demand levels are achieved, water demand will be minimized through the use of low-flow indoor fixtures; irrigation equipment with electronic sensors; water-wise landscaping; water budget based water rates consistent with well-established rate structures used by water districts in California; full metering of all water use; and monitoring, enforcement, and response measures as required. The Project will also maximize opportunities for groundwater recharge and groundwater banking. Wastewater generated by indoor use will be treated to State unrestricted reuse standards and recycled for non-potable outdoor irrigation uses and for wastewater and

cooling purposes in the proposed Business Park. The Project's per capita water demand will be lower than comparable water use rates in existing Antelope Valley developed areas that were not built to current water-conservation standards; have not implemented water budget based rates; and that do not incorporate newer water-efficient fixture and irrigation technologies.

The Project will utilize several water supplies and on- and off-site water banking facilities to meet potable demand. Available supplies include groundwater and imported water return flows in accordance with the approved Antelope Valley adjudication Judgment and Physical Solution; State Water Project (SWP) supplies secured for Project use and imported to the site under an agreement with the Antelope Valley – East Kern Water Agency (AVEK); and AVEK service area deliveries. Indoor wastewater will be conveyed to one of two Project on-site treatment facilities; will be treated to State unrestricted reuse standards; and will be distributed to meet approximately 40 percent of buildout water demand. The Project's water supplies will sustainably meet buildout potable and recycled water demands and will maintain an average annual reserve supply of more than 79,000 acre-feet, or more than 11 years of full-buildout potable water demand, after buildout has been achieved.

All potable and recycled water use will be metered throughout the Project. The metering data will be compiled by the Project Water Purveyor into two water use reports and submitted to the Los Angeles County DRP at the end of the fifth year following first occupancy or the occupancy of the 4,000<sup>th</sup> dwelling unit, and at the end of the 10<sup>th</sup> year or the occupancy of the 10,000<sup>th</sup> unit, whichever occurs later. The reports will utilize the metering data to verify that the projected water use efficiencies are being achieved and that available supplies are sufficient to meet demand as development occurs. In the event that future water demands are determined to exceed available supplies, the Project Water Purveyor must implement measures to ensure that supplies will be adequate to meet future demand, including such measures as enhanced water budget based rates consistent with applicable legal requirements, increased enforcement, faculty repairs or upgrades, or obtaining supplemental water supplies. No additional development will occur until water use report response measures have been implemented and water supplies are determined sufficient to meet demand to the satisfaction of the DRP.

A Water Supply Assessment (WSA) for the Project was approved in accordance with Sections 10910 et seq. of the *California Water Code* by the Golden Valley Municipal Water District (GVMWD) in May 2011. In January 2017, the Potable Water, Wastewater, and Recycled Water Demands and System Plan (see Appendix 5.19-A of this EIR) for the Project was peer reviewed by Kennedy/Jenks in a report submitted to the County.

In 2014 and 2015, the County of Los Angeles Board of Supervisors published a draft and certified Final Environmental Impact Reports (EIRs) for updates to the *Antelope Valley Area Plan (AVAP)* and to the County General Plan (General Plan Update) and approved the updated AVAP and County General Plan. The approved General Plan update incorporated the previously approved AVAP update, which reduced the level of future growth in unincorporated portions of the Antelope Valley from levels that would have occurred under prior General Plan designations. Antelope Valley regional water supplies and demands were considered in the EIRs prepared for the AVAP and the General Plan Updates.

In 2013, a regional water users group in the Antelope Valley prepared an update to the Antelope Valley Integrated Regional Water Management Plan (AVIRWMP) in accordance with State law. In December 2015, the Superior Court of California approved an adjudication Judgment and Physical Solution that regulates the Antelope Valley groundwater basin. In June 2016, AVEK adopted an update to the Agency's Urban Water Management Plan (UWMP), which incorporates SWP supplies that would be used by the Project and demand and supply projections through 2035. In June 2015, the California Department of Water Resources (DWR) published the State Water Project Final Delivery Capability Report 2015 (DCR), which includes the most recent analysis of SWP current and future reliability. From 2014 to 2016, the Governor of California, other State agencies, and the California legislature implemented several water conservation and management measures in response to a historic drought. A public review draft of proposed permanent state water conservation measures was published by five state agencies in November 2016.

This section updates the information in the 2011 WSA to implement the recommendations in the peer review of the Project's water supply and demand assessment and to include the AVAP and General Plan updates and related CEQA water supply analyses; the AVIRWMP; the approved Judgment and Physical Solution for the Antelope Valley groundwater basin; the AVEK 2015 UWMP; the DCR; and State drought emergency and proposed permanent water conservation measures.

The Project's water facilities will be owned and operated by a Public Water Purveyor or organized as a Community Services District, a statutory water district or PUD with the appropriate capacity to own, operate, and maintain the Project's water system. The Project Water Purveyor will be funded through a rate-payer system and fees. Until the Project Water Purveyor is established, the Project Applicant/Developer will be responsible for all Project-related water services. All of the Project's water supplies and the design, permitting, financing and construction of all treatment, collection and distribution infrastructure will be provided by the Project Applicant/Developer.

## **Section Format**

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with Article 9 of the State CEQA Guidelines (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce significant impacts; and level of significance after mitigation, if any. This information is presented in the following format (please refer to Section 2.0, Introduction, and Section 5.0, Environmental Setting, Impacts, and Mitigation, for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Relevant Plans, Policies, and Regulations

- Environmental Setting
- Project Design Features
- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- References

## References

All references cited for the preparation of this analysis are listed in Section 5.18.9. The primary technical references utilized for this section include the following:

1. Golden Valley Municipal Water District (GVMWD). 2011 (May). *Centennial Specific Plan Water Supply Assessment* (Appendix 5.18-A).
2. Psomas. 2017b. *Centennial Specific Plan Development Impacts on Infiltration and Groundwater Recharge*. Santa Ana, CA: PSOMAS (Appendix 5.18-B).
3. California Natural Resources Agency (CNRA). 2015 (July 1). State Water Project Delivery Capability Report 2015 (a Memorandum from E. Reyes (Chief, Central Valley Modeling Section), F. Chung (Chief, Modeling Support Branch), and P.A. Marshall (Chief, Bay-Delta Office) to S. Darabzand, Central Valley Modeling Section, Department of Water Resources) (Appendix 5.18-C).
4. California Superior Court. 2015 (December). *Antelope Valley Groundwater Cases [Proposed] Judgement and Physical Solution* (Santa Clara Case No. 1-05-CV-049053). (Appendix 5.18-D).
5. Antelope Valley – East Kern Water Agency (AVEK). 2012 (October 25). Agreement between Antelope Valley – East Kern Water Agency and Tejon RanchCorp Providing for Importation of Additional SWP Table A Amounts (Appendix 5.18-E).
6. Antelope Valley – East Kern Water Agency (AVEK). 2016 (June). *2015 Urban Water Management Plan* (Appendix 5.18-F). Palmdale, CA: AVEK.
7. Kennedy/Jenks Consultants. 2017 (January). *Peer Review of the Water Supply and Demand Assessment for the Proposed Centennial Specific Plan Development* (Appendix 5.18-G).
8. Psomas. 2017c (February). *Potable Water, Wastewater, and Recycled Water Demands System Plan* (Appendix 5.19-A).

## 5.18.2 RELEVANT PLANS, POLICIES, AND REGULATIONS

### Federal

#### *Drinking Water Quality Standards*

##### Safe Drinking Water Act

The federal Safe Drinking Water Act (SDWA, 42 *United States Code*, Sections 300f et seq. [1974]) is intended to protect public health by regulating the nation's public drinking water supply. The Act authorizes the United States Environmental Protection Agency (USEPA) to set national standards for drinking water supplied by public water systems (generally, water systems that serve at least 25 people or 15 service connections for at least 60 days per year) to protect against both naturally occurring and man-made contaminants. These National Primary Drinking Water Regulations set enforceable maximum contaminant levels for particular contaminants in drinking water or required ways to treat water to remove contaminants. Each standard also includes requirements for water systems to test for contaminants in the water to make sure standards are achieved. The most direct oversight of water systems is conducted by State drinking water programs. States can apply to USEPA for "primacy", which is the authority to implement the SDWA within their jurisdictions, if they can demonstrate that they will adopt and enforce standards at least as stringent as the federal requirements. All states and territories, except Wyoming and the District of Columbia, have received primacy. The Drinking Water Division of the State Water Resources Control Board (SWRCB) has the primary responsibility for implementing the SDWA and related California drinking water laws and regulations in the state.

##### National Primary Drinking Water Regulations

The National Primary Drinking Water Regulations (NPDWRs or primary standards), also known as maximum contaminant levels (MCLs), are legally enforceable standards set and enforced by the USEPA that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water.

##### National Secondary Drinking Water Regulations

The National Secondary Drinking Water Regulations (NSDWRs) are non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. The USEPA recommends secondary standards to water systems, but does not require that systems comply with them. However, States may choose to adopt secondary MCLs as enforceable standards. Title 22 of the *California Code of Regulations* (CCR, specifically, Division 4, Chapter 15, Domestic Water Quality and Monitoring Regulations) provides the regulatory requirements for potable water quality in California.



---

## State

### ***California Safe Drinking Water Act***

The California Safe Drinking Water Act (Chapter 4, Part 12 of the California Health and Safety Code) improves upon the minimum requirements of the federal Safe Drinking Water Act and outlines the regulations and standards for ensuring that water delivered by public water systems is pure, wholesome, and potable at all times. This Act assigns the responsibilities of the State Water Resources Control Board and other State agencies for implementing the Act, including the establishment of primary drinking water standards and system and operational requirements on affected public water systems and water districts. Regulations related to drinking water are also contained in Titles 17 and 22 of the California Code of Regulations for water operator certifications, water system permits, water quality standards, treatment, and sampling/monitoring, and public notification.

### ***California Energy Commission Appliance Efficiency Standards***

The California Energy Commission has been delegated the authority to enact Appliance Efficiency Regulations that include standards for appliances that are and are not federally regulated. The most recent version of the Appliance Efficiency Regulations is codified at in the *California Code of Regulations* (specifically, Title 20, Sections 1601 through 1609, dated July 2015) and contain amendments that were incorporated due to changes in state standards (CEC 2015). The regulations are updated on a regular basis and currently provide efficiency standards for 23 categories of appliances that are sold or offered for sale in California, except appliances sold wholesale in California for final retail sale outside the state or those designed and sold exclusively for use in recreational vehicles or other mobile equipment. The Appliance Efficiency Regulations specify efficiency requirements for several appliances related to residential or other water uses, including plumbing fixtures, faucets, toilets and urinals, clothes washers, water heaters, refrigerators and icemakers, and cooling equipment. Section 1609 of the Appliance Efficiency Regulations establishes a process for imposing administrative civil penalties for violations of the Appliance Efficiency Regulations and became effective on July 1, 2015. The Project will meet or exceed all applicable State appliance efficiency regulatory requirements.

### ***California Green Building Standards Code***

The California Green Building Standards Code (CALGreen) was first authorized as a voluntary code by the Department of Housing and Community Development (HCD) and was approved by the California Building Standards Commission (CBSC) in January 2008, with an effective date of August 2009. In a September 2015 report to the state legislature, the HCD stated that the code continues to be improved by considering technologies being developed to complement current practices that help reduce the overall impact on the earth and to preserve current resources; to implement environmentally responsible and resource efficient processes; to reduce negative environmental impacts; and to enhance positive environmental impacts by encouraging more sustainable construction. The CALGreen Code has been amended several times since 2008. In 2011, the code became mandatory throughout the state and, for the first time, established mandatory minimum requirements.

The mandatory provisions of the code were also incorporated into the scoping plan developed by the California Air Resources Board to implement the California Global Warming Solutions Act. In 2013, the Code was amended to include all residential buildings in addition to low-rise buildings (i.e., up to two stories). The HCD has indicated that the 2013 amendments expanded the scope of the regulations to include additions and alterations to conditioned areas, volumes, or sizes and to include additions and alterations to existing buildings that increase the effectiveness of enforceable, sustainable building standards that have a positive impact on the environment (HCD 2016a).

In response to Executive Order B-29-15 (see below), the HCD, in coordination with other State agencies, adopted emergency building standards that require a landscaping water budget that conforms with the more stringent of either a local water efficient landscape ordinance, or the state Model Water Efficient Landscape Ordinance (MWELO), as amended by the DWR. The HCD's emergency CALGreen provisions also modified the formula for calculating allowable water use for residential landscaped areas to reduce potable water landscape use below MWELO requirements. The emergency regulations became effective on June 1, 2015. In 2016, the HCD adopted new residential mandatory requirements in the CALGreen Code that regulate water fixture efficiency and which became effective on January 1, 2017 (HCD 2016b). The Project will meet or exceed all applicable State CALGreen code requirements.

### ***Urban Water Management Planning Act***

The Urban Water Management Planning Act (*California Water Code*, Division 6, Part 2.6, Sections 10610–10656) requires water suppliers serving more than 3,000 customers or water suppliers providing more than 3,000 acre-feet (af) of water annually to prepare an urban water management plan (UWMP) to promote water demand management and efficient water use. A UWMP provides a succinct summary of an agency's water supplies, demands, and plans to ensure future reliability, including a discussion of potential water transfers and exchanges, desalination, and recycled water opportunities over a 20-year planning horizon. In 2010, the California legislature amended the *California Water Code* to require that UWMPs include, for the first time, per capita water use reductions of 20 percent by 2020 (*California Water Code*, Section 10608.16). Most of the current UWMPs in California, including the AVEK 2015 UWMP, were most recently updated in 2016.

### ***Integrated Regional Water Management Planning Act***

In 2002, the California Legislature enacted the Integrated Regional Water Management (IRWM) Act (*California Water Code*, Sections 10530 et seq.). The purpose of the Act is to encourage local agencies to work cooperatively to manage local and imported water supplies to improve water supply quality, quantity, and reliability. The legislation provides that an IRWM plan may be prepared and adopted by a "regional water management group" (RWMG) consisting of three or more local public agencies, at least two of which have statutory authority over water supply, that participate in the planning process by means of a joint powers agreement, a memorandum of understanding, or other written agreement.

Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (*California Water Code*, Sections 79560–79565), provided \$500,000,000 to fund competitive grants for projects consistent with an adopted IRWM plan. In 2006, Proposition 84, the Safe Drinking Water, Water Quality, and Supply, Flood Control, River and Coastal Protection Bond Act (*California Public Resources Code*, Sections 75001–75130), provided \$1,000,000,000 for IRWM planning and implementation. In the same year, California Proposition 1E, the Disaster Preparedness and Flood Prevention Bond Act (*California Public Resources Code*, Sections 5096.800–5096.967), provided \$300,000,000 for IRWM storm water flood management planning and implementation.

### ***Sustainable Groundwater Management Act***

In 2014, California enacted the Sustainable Groundwater Management Act (*California Water Code*, Sections 10720 et seq.). The Act, and related amendments to California law, require that all groundwater basins designated as high- or medium-priority in the DWR California Statewide Groundwater Elevation Monitoring program and that are subject to critical overdraft conditions must be managed under a new Groundwater Sustainability Plan (GSP) or a coordinated set of GSPs by January 31, 2020. High- and medium-priority basins that are not subject to critical overdraft conditions must be managed under a GSP by January 31, 2022. Where GSPs are required, one or more local groundwater sustainability agencies must be formed to cover the basin and prepare and implement a GSP. The Act is inapplicable to basins that are subject to a Court-approved groundwater adjudication. Section 10720.8(b) of the *California Water Code* provides that the Sustainable Groundwater Management Act is inapplicable to any portions of the Antelope Valley Basin subject to a final adjudication judgment, order, or decree in the Antelope Valley Groundwater Cases proceeding. As discussed below, in December 2015 the Superior Court of California approved a Judgment and Physical Solution that regulates groundwater use in the Antelope Valley Basin and surrounding watershed, including most of the Project site (see Appendix 5.18-D).

### ***State Drought Executive Orders and Emergency Water Conservation Regulations***

On January 17, 2014, California Governor Jerry Brown proclaimed a drought state of emergency and directed state officials to take all necessary actions to prepare for drought conditions (State of California 2014). On April 1, 2015, Governor Brown issued an executive order directing the SWRCB to implement mandatory water reductions in urban areas and to reduce California potable urban water use by 25 percent. The order imposed varying degrees of cutbacks on water use affecting homeowners, farms, and other businesses, as well as the maintenance of cemeteries and golf courses. The order included additional water conservation and planning measures, and the potential installation of salinity barriers in the Sacramento Delta (State of California 2015a). Executive Order B-29-15 also requires that groundwater elevation monitoring be implemented throughout the state by the end of 2015.

In May 2015, the SWRCB adopted emergency regulations requiring an immediate statewide 25 percent reduction in potable urban water use measured in terms of residential gallons per capita per day (R-gpcd). The regulation includes variable cutback requirements intended to reduce compliance burdens for water districts and communities that previously reduced water consumption relative to other locations. Certain communities, for example, had

achieved significant indoor water use reductions, while others used significantly more water. The regulations and conservation requirements were designed to result in greater per capita cutbacks in locations that used relatively more water compared with more efficient communities. On November 13, 2015, the Governor directed the SWRCB to extend, and potentially modify, the drought emergency water conservation regulation if drought conditions persist through October 2016.

The emergency drought regulations require that each local water provider with more than 3,000 service connections submit monthly residential potable water usage figures to the SWRCB. The SWRCB uses the monthly R-gpcd rates for each provider compared with the provider's 2013 usage for that same month to verify that the mandated reduction level is being achieved. Smaller suppliers were required to report residential water for June through November 2013 and June through November 2015 in December 2015. The regulations allow local water agencies to determine and implement the most cost-effective and locally appropriate methods for reducing water use. The SWRCB publishes the monthly R-gpcd figures for over 400 larger California water suppliers and each supplier's compliance status with applicable conservation requirements online (SWRCB 2015b). In May 2016, the SWRCB modified the emergency regulations and replaced the percentage reduction-based water conservation standard with a localized "stress test" approach that mandates urban water suppliers ensure at least a three year supply of water (SWRCB 2016a).

Executive Order B-37-16 was issued in May 2016 to establish long-term water conservation measures and improve planning for more frequent and severe droughts based on the State's emergency drought conservation success (State of California 2016). The order also requires that the State's urban water suppliers meet new water use targets. In November 2016, the DWR, the SWRCB, the CPUC, the California Department of Food and Agriculture, and the California Energy Commission issued a report on framework for implementing the order. This Framework Report includes an extension of certain emergency regulations and proposed permanent regulations to establish new water use targets, permanent monthly water use reporting, and standards and enforcement to eliminate water waste; improve drought resilience; and improve agricultural water use efficiency and drought planning. The Framework Report also proposes to establish residential, commercial, industrial, and institutional water use performance measures and standards, including a per capita daily water budget for residential indoor and outdoor use, plus losses. The Framework Report states that, until a final standard is established, the State residential indoor water use standard is 55 gallons per capita per day (DWR et al. 2016a).

### ***Senate Bill 610***

Section 21151.9 of the *California Public Resources Code* and Sections 10631, 10657, 10910, 10911, 10912, and 10915 of the *California Water Code* (frequently referred to as "Senate Bill [SB] 610") require the County to obtain, utilize in a project's CEQA review process, and provide to the public certain information concerning water supply for residential developments of more than 500 dwelling units and other comparable projects. The amendments enacted by SB 610 require that a CEQA lead agency (in this case, the County of Los Angeles) request a water supply assessment (WSA) from a water supply entity that could provide water for an applicable project. The WSA must analyze the sufficiency of the water

supplies available to the potential water supplier to meet existing and anticipated future demands, including the demand associated with the proposed Project, over a 20-year horizon that includes normal (average), single-dry, and multiple-dry years. If required, the WSA must be included and considered by a lead agency in a project's CEQA review documentation, including an EIR. A WSA for the Project was prepared and approved by the GVMWD and is attached as Appendix 5.18-A. The approval of a WSA by a potential water supplier in accordance with SB 610 does not create a right or entitlement to water service or impose, expand, or limit any duty concerning the obligation of a public water system to provide certain service. The County has a separate and independent obligation to assess the sufficiency of water supplies for the Project.

The California Supreme Court has provided additional guidance regarding a lead agency's consideration of water supplies for CEQA purposes (*Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* [2007] 40 Cal.4th 412,) (*Vineyard*). *Vineyard* states that CEQA does not require assurances of certainty regarding long-term future water supplies at an early phase of planning for large land development projects, such as the approval of a specific plan prior to subsequent construction permits, subdivision map, or similar development entitlement approvals. Requiring water supply certainty at an initial approval stage of a long-term, large-scale development project would likely be unworkable because water planning would far outpace land use planning. Consequently, the certainty required for potential water sources for a project varies with the stage of project approval and is much lower when a conceptual plan is approved than at the time of building permit issuance (*Vineyard*, 40 Cal.4th at 434).

Consistent with these holdings, the Supreme Court identified four principles for conducting a water supply analysis in an EIR (*Vineyard*, 40 Cal.4th at 431–434):

1. An EIR cannot ignore or assume a solution to water supply.
2. An EIR cannot limit the water supply analysis to the first stage of a project.
3. Future water supplies identified and analyzed must bear a likelihood of actually being available.
4. If the uncertainties inherent in long-term land use and water planning make it impossible to confidently identify future water supply sources, the EIR should discuss the uncertainty of the future water supply sources, reasonably foreseeable alternatives (including alternative water sources and the option of restricting future phases of development if sufficient water is not available for future phases), and the significant foreseeable environmental impacts of each alternative water supply source and related mitigation measures to reduce each impact, if any.

This EIR incorporates and considers the *Vineyard* case principles in the analysis of the Project's water supplies.

---

**Senate Bill 221**

Section 11010 of the *California Business and Professions Code* and Sections 65867.5, 66455.3, and 66473.7 of the *California Government Code* (frequently referred to as “SB 221”) require land use planning agencies, such as the County, to include, as a condition in any tentative map that includes a subdivision involving more than 500 dwelling units, a requirement that a sufficient water supply shall be available. SB 221 provides that proof of the availability of a sufficient water supply to meet the tentative map condition may be requested by the subdivision applicant or local agency, at the discretion of the local agency, and shall be based on written verification from an applicable public water system within 90 days of a request. The statute defines a sufficient water supply as the total water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection that will meet the subdivision’s projected demand in addition to existing and planned future uses, including agricultural and industrial uses.

A subdivision map verification issued in accordance with SB 221 must consider (1) the availability of water supplies over a historical record of at least 20 years; (2) the applicability of an urban water shortage contingency analysis prepared pursuant to Section 10632 of the *California Water Code* that includes actions to be undertaken by the public water system in response to water supply shortages; (3) the reduction in water supply allocated to a specific water use sector pursuant to a resolution or ordinance adopted, or a contract entered into, by the public water system, as long as that resolution, ordinance, or contract does not conflict with Section 354 of the *California Water Code*; and (4) the amount of water that the water supplier can reasonably rely on receiving from other water supply projects, such as conjunctive use, reclaimed water, water conservation, and water transfers. A verification completed in compliance with SB 221 must be supported by substantial evidence. As discussed in Section 4.0, Project Description, the Project does not include proposed subdivision maps, and a water supply verification is not required for Project approval.

**Recycled Water Regulations**

The State of California has implemented laws that provide for and encourage the use of recycled water. Section 461 of the *California Water Code* states, “It is hereby declared that the primary interest of the people of the state in the conservation of all available water resources requires the maximum reuse of recycled water in the satisfaction of requirements for beneficial uses of water”. The State also encourages Californians to develop water recycling projects to help meet potable water demands and to augment surface and groundwater supplies through the provisions of Sections 13500–13556 of the *California Water Code*.

In 2014, regulatory authority over engineering reports for recycled water projects and for regulations applicable to the design of recycled water systems was transferred from the California Department of Public Health to the SWRCB Drinking Water Program. Sections 13500–13557 of the *California Water Code* regulate the protection of the potable water supply through the control of cross-connections with potential contaminants, including recycled water. Water quality standards and treatment reliability criteria for recycled water are codified in Title 22 of the *California Code of Regulations* (Title 22). Title 22 establishes

quality and/or treatment processes required to use recycled water for non-potable applications. Title 22 also addresses sampling and analysis requirements at a treatment plant; preparation of an engineering report prior to production or use of recycled water; and general treatment design requirements, reliability requirements, and alternative methods of treatment. Permits are issued to each water recycling project by one of the nine Regional Water Quality Control Boards (RWQCBs). These permits include water quality and public health protections, as detailed in Title 22.

On February 3, 2009, in Resolution No. 2009-0011, the SWRCB adopted a Recycled Water Policy (Policy) (SWRCB 2009). The Policy states, “In the face of an unprecedented water crisis due to the collapse of the Bay-Delta ecosystem, climate change, continuing population growth combined with a severe drought on the Colorado River and failing levees in the Delta, the SWRCB has adopted a Recycled Water Policy in an effort to move aggressively towards a sustainable water future”. The SWRCB Policy also states “we declare our independence from relying on the vagaries of annual precipitation and move towards sustainable management of surface waters and groundwater, together with enhanced water conservation, water reuse and the use of stormwater”. The following goals were included in the Policy:

- Increase use of recycled water over 2002 levels by at least 1 million afy by 2020 and at least 2 million afy by 2030.
- Increase the use of storm water over use in 2007 by at least 500,000 afy by 2020 and at least 1 million afy by 2030.
- Increase the amount of water conserved in urban and industrial areas by comparison to 2007 by at least 20 percent by 2020.
- Substitute as much recycled water for potable water as possible by 2030.

The SWRCB Policy provides direction to the RWQCBs regarding appropriate criteria to be used in issuing permits for recycled water projects and is intended to streamline recycled water project permitting, while providing the RWQCBs with sufficient authority and flexibility to address site-specific conditions. The Policy encourages other public agencies to consider the benefits of using recycled water in evaluating the impacts of recycled water projects on the environment as required by CEQA. The Policy also acknowledges that the SWRCB shares jurisdiction over the use of recycled water with the RWQCBs and recognizes that the DWR and California Public Utilities Commission (CPUC) have important roles in encouraging the use of recycled water. The Policy provides guidance concerning these roles. The Policy also includes incentives for using recycled water.

The Policy notes that (1) some groundwater basins contain salts and nutrients that exceed or threaten to exceed water quality objectives established in Basin Plans; (2) all salts and nutrients should be managed on a basin-wide or watershed-wide basis through development of regional or sub-regional management plans; (3) every groundwater basin/sub-basin in California is to have a consistent, locally driven salt/nutrient management plan developed by water and wastewater entities, together with contributing stakeholders in collaborative processes, including compliance with CEQA and participation by RWQCB staff. The Policy describes the components of these salt and nutrient management plans. Finally, the Policy addresses the control of incidental runoff from landscape irrigation

projects, recycled water, groundwater recharge projects, antidegradation factors, control of emerging constituents, and chemicals of emerging concern.

In 2009, the SWRCB adopted a General Permit for landscape irrigation uses of recycled water to facilitate the California Legislature's intent to promote the use of recycled water (SWRCB Order No. 2009-0006-DWQ). The General Permit streamlines the regulatory process for the irrigation use of disinfected tertiary recycled water produced by a public entity at a municipal wastewater treatment facility. Such uses include parks, greenbelts, and playgrounds; school yards; athletic fields; golf courses; cemeteries; residential landscaping in common areas; commercial and industrial landscaping, except eating areas; and freeway, highway, and street landscaping. In June 2016, the SWRCB adopted General Order No. 2016-0068-DDW. The order provides a streamlined Notice of Intent process for the beneficial, non-potable use of recycled water consistent with the California Uniform Statewide Recycling Criteria, except recycled water use to replenish groundwater resources, the disposal of treated wastewater in percolation ponds, and excessive hydraulic loading of recycled water in use areas where the primary purpose of the activity is disposal of treated wastewater and direct potable reuse (SWRCB 2016b).

## **Regional**

### ***Basin Plans***

The *California Water Code* requires that each RWQCB regulate water quality in accordance with adopted basin plans. The applicable basin plans adopted by the RWQCBs with jurisdiction in the Antelope Valley are described in Section 5.2.2 of Section 5.2, Hydrology and Flood, of this EIR.

### ***Water Management Plans***

Current water management plans that analyze demand and supply in the Antelope Valley on a regional basis include the *2015 Urban Water Management Plan* adopted by AVEK and the 2013 AVIRWMP prepared under a memorandum of understanding (MOU) by an 11-member Regional Water Management Group consisting of the AVEK, the Antelope Valley State Water Contractors Association, the City of Lancaster, the City of Palmdale, the Littlerock Creek Irrigation District, Los Angeles County Sanitation District Nos. 14 and 20, Los Angeles County Waterworks District 40 (LACWWD40), the Palmdale Water District (PWD), the Quartz Hill Water District (QHWD), and the Rosamond Community Services District (RCSD).

An IRWM plan for the Antelope Valley was first prepared and adopted in 2007. The 2007 AVIRWMP was subsequently updated in 2013 to include new information required by the 2012 Integrated Regional Water Management Proposition 84 Guidelines adopted by DWR and more current water demand and supply information. The 2013 AVIRWMP analyzes water supplies and demands in the Antelope Valley region, including imported water, groundwater, local supplies, and urban and agricultural demand, for average, single-dry, and multiple-dry years through 2035.



AVEK is the largest SWP contractor in the Antelope Valley region and provides imported water on a wholesale basis to local and retail purveyors in incorporated and unincorporated areas of Antelope Valley. As discussed below, AVEK has also executed an agreement with the Tejon Ranch Company (TRC) to import water purchased by TRC for Project use. The Project site is located within the existing AVEK service and assessment area. The 2015 UWMP adopted by AVEK in 2016 analyzes anticipated SWP imported supplies (including potential banked and stored imports) and demand through 2035.

LACWWD40 provides water for urban use throughout the Antelope Valley and is governed by the Los Angeles County Board of Supervisors. In January 2017, the LACWWD40 published an approved final draft of the 2015 UWMP. The Project is not located within the LACWWD40 service area and will not be served by the District. The District's 2015 UWMP includes a discussion of several of the regional water supplies that will be used to meet Project demand, such as SWP imports through AVEK and groundwater in accordance with the adopted Judgement and Physical Solution for the Antelope Valley Groundwater Basin.

### ***Antelope Valley Groundwater Adjudication Judgment and Physical Solution***

The Antelope Valley Groundwater Basin is regulated in accordance with a Court-approved adjudication Judgment and Physical Solution entered in December 2015 in the consolidated complex proceedings commonly known as the "Antelope Valley Groundwater Cases". The procedural history of the litigation dates from a 1999 lawsuit filed by a farming company and a general groundwater adjudication for the Antelope Valley Groundwater Basin that was initiated by LACWWD40 in 2004. In 2005, the Judicial Council of California consolidated several related lawsuits (Judicial Council Coordination Proceeding No. 4408), which were assigned to the Hon. Jack Komar in the Santa Clara County Superior Court (Case No. 1-05-CV-049053). Four trial phases were completed in the proceeding, including the determination of the adjudication basin boundaries (Phase 1); the determination that all of the basin is hydrologically connected for adjudication purposes (Phase 2); the determination that the basin is overdrafted and that the total sustainable yield, including native groundwater and return flows, is approximately 110,000 afy (Phase 3); and the determination of groundwater production amounts for parties to the proceedings during 2011 and 2012 (Phase 4).

A "physical solution" refers to an agreed upon or judicially imposed resolution of conflicting groundwater claims in a manner that advances the California constitutional rule of reasonable and beneficial use of the state's water supply (*City of Santa Maria v. Adam* [2012] 211 Cal. App. 4th 266, 288). To achieve these objectives, a physical solution establishes an equitable remedy designed to alleviate overdrafts and the consequential depletion of water resources in a particular area, consistent with the constitutional mandate to prevent waste and unreasonable water use and to maximize the beneficial use of limited resources (*California American Water v. City of Seaside* [2010] 183 Cal. App. 4th 471, 480).

The Judgment and Physical Solution adopted for the Antelope Valley establishes a regional watermaster to regulate groundwater use consistent with applicable law and the total sustainable yield of the basin under the auspices of the court. As of January 2016, all groundwater users in the basin are required to begin a 7-year "rampdown" period during which groundwater production will be reduced to levels consistent with the total sustainable

yield of approximately 110,000 afy. Among other provisions, the Judgment and Physical Solution allows for interbasin groundwater transfers subject to watermaster approval; water banking in accordance with storage agreements with the watermaster; the production of return flows from imported water use in the Antelope Valley; the production of return flows from imported water use in the watershed surrounding the basin subject to watermaster approval; and the carryover and storage of unused groundwater allocations (see “Antelope Valley Groundwater Basin” in Section 5.18.3). The Judgment and Physical Solution approved by the court is attached as Appendix 5.18-D.

### ***Los Angeles County General Plan and Antelope Valley Area Plan***

The Los Angeles County General Plan and the Antelope Valley Area Plan (AVAP), a component of the General Plan, include goals and policies that address water supply issues in the unincorporated County. The Los Angeles County Board of Supervisors approved updates to the General Plan and the AVAP and certified the CEQA environmental impact reports for these updates in 2014 and 2015. The General Plan provides goals and policies to achieve countywide planning objectives and serves as the foundation for all community-based plans (including the AVAP), which focus on land use and policy issues that are specific to a planning area. The AVAP update was approved prior to the approval of the General Plan update and effectively implements the Antelope Valley Reduced Intensity Alternative analyzed in the General Plan Update Draft EIR. The Public Services and Facilities Element of the General Plan includes general policies related to water supply. The Conservation and Open Space (COS) section of the AVAP sets forth substantially similar water supply and related goals and policies, including the following:

**Goal COS 1:** Growth and development are guided by water supply constraints.

**Policy COS 1.1:** Require that all new development proposals demonstrate a sufficient and sustainable water supply prior to approval.

**Policy COS 1.2:** Limit the amount of potential development in areas that are not or not expected to be served by existing and/or planned public water infrastructure through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

**Policy COS 1.3:** Limit the amount of potential development in groundwater recharge areas through appropriate land use designations with very low residential densities, as indicated in the Land Use Policy Map (Map 2.1) of this Area Plan.

**Policy COS 1.4:** Promote the use of recycled water, where available, for agricultural and industrial uses and support efforts to expand recycled water infrastructure.

**Goal COS 2:** Effective conservation measures provide an adequate supply of clean water to meet the present and future needs of humans and natural ecosystems.

**Policy COS 2.1:** Require new landscaping to comply with applicable water efficiency requirements in the County Code.

**Policy COS 2.2:** Require low-flow plumbing fixtures in all new developments.

**Policy COS 2.3:** Require onsite stormwater infiltration in all new developments through the use of appropriate measures, such as permeable surface coverage,

permeable paving of parking and pedestrian areas, catch basins, and other low impact development strategies.

**Policy COS 2.4:** Discourage water intensive recreational uses, such as golf courses, unless recycled water is used to sustain these uses.

**Policy COS 2.5:** Discourage the use of potable water for washing outdoor surfaces.

**Policy COS 2.6:** Support experiments in alternate forms of water provision and re-use, such as “air to water technology” and gray water systems.

**Policy COS 2.7:** Limit use of groundwater sources to their safe yield limits.

**Policy COS 2.8:** Coordinate with federal, state, regional and local agencies to develop and implement new technologies in water management.

**Goal COS 3:** A clean water supply untainted by natural and man-made pollutants and contaminants.

**Policy COS 3.1:** Discourage the use of chemical fertilizers, herbicides and pesticides in landscaping to reduce water pollution.

**Policy COS 3.2:** Restrict the use of septic systems in areas adjacent to aqueducts and waterways to prevent wastewater intrusion into the water supply.

**Policy COS 3.3:** Require a public or private sewerage system for land use densities that would threaten nitrate pollution of groundwater if unsewered, or when otherwise required by County regulations.

**Policy COS 3.4:** Support preservation, restoration and strategic acquisition of open space to preserve natural streams, drainage channels, wetlands, and rivers, which are necessary for the healthy functioning of ecosystems.

**Policy COS 3.5:** Protect underground water supplies by enforcing controls on sources of pollutants.

**Policy COS 3.6:** Support and encourage water banking facilities throughout the Antelope Valley, including within Significant Ecological Areas.

The Project will comply with the water-related goals and policies in the AVAP. Section 5.8, Land Use, Entitlements, and Planning, presents an in-depth analysis of the Project’s consistency with relevant plans, policies, and regulations. Section 5.2, Hydrology and Flood, and Section 5.4, Water Quality, discuss the Project’s potential impacts to groundwater, surface flows, and related AVAP goals and policies.

### ***Los Angeles County Green Building and Low Impact Development Standards***

In 2008, the County adopted the Green Building Program, which included the Drought-Tolerant Landscaping, Green Building, and Low Impact Development Ordinances (the Ordinances), and created an Implementation Task Force and Technical Manual. In November 2013, in response to the mandates set forth in the 2010 California Green Building Standards (CALGreen) Code, the Board of Supervisors adopted the Los Angeles County Green Building Standards Code (Title 31). The CALGreen Code and the Ordinances adopted in 2008 comprise the County’s primary green building and low impact development (LID) standards.

### 5.18.3 ENVIRONMENTAL SETTING

This section discusses the water supply and demand in the Antelope Valley region. Water in the Antelope Valley is supplied from three primary sources: (1) naturally occurring water accumulated as surface water or groundwater from rain and snow; (2) imported surface water collected in Northern California and conveyed through the SWP to the region; and (3) a smaller quantity of surface water stored in the Littlerock reservoir located to the south of Palmdale on the north side of the San Gabriel Mountains (DRP 2014). The first section below discusses groundwater in the Antelope Valley and the effects of the Antelope Valley Groundwater Basin adjudication Judgment and Physical Solution on regional groundwater supplies. The second section below discusses the reliability of the SWP system with reference to the DCR published by the DWR in June 2015 and the 2015 AVEK UWMP. The third section summarizes the regional water supply and demand projections in the AVIRWMP, the most recent regional analysis, and the AVEK 2015 UWMP (AVEK 2016). The fourth section discusses regional water quality.

#### Antelope Valley Groundwater Basin

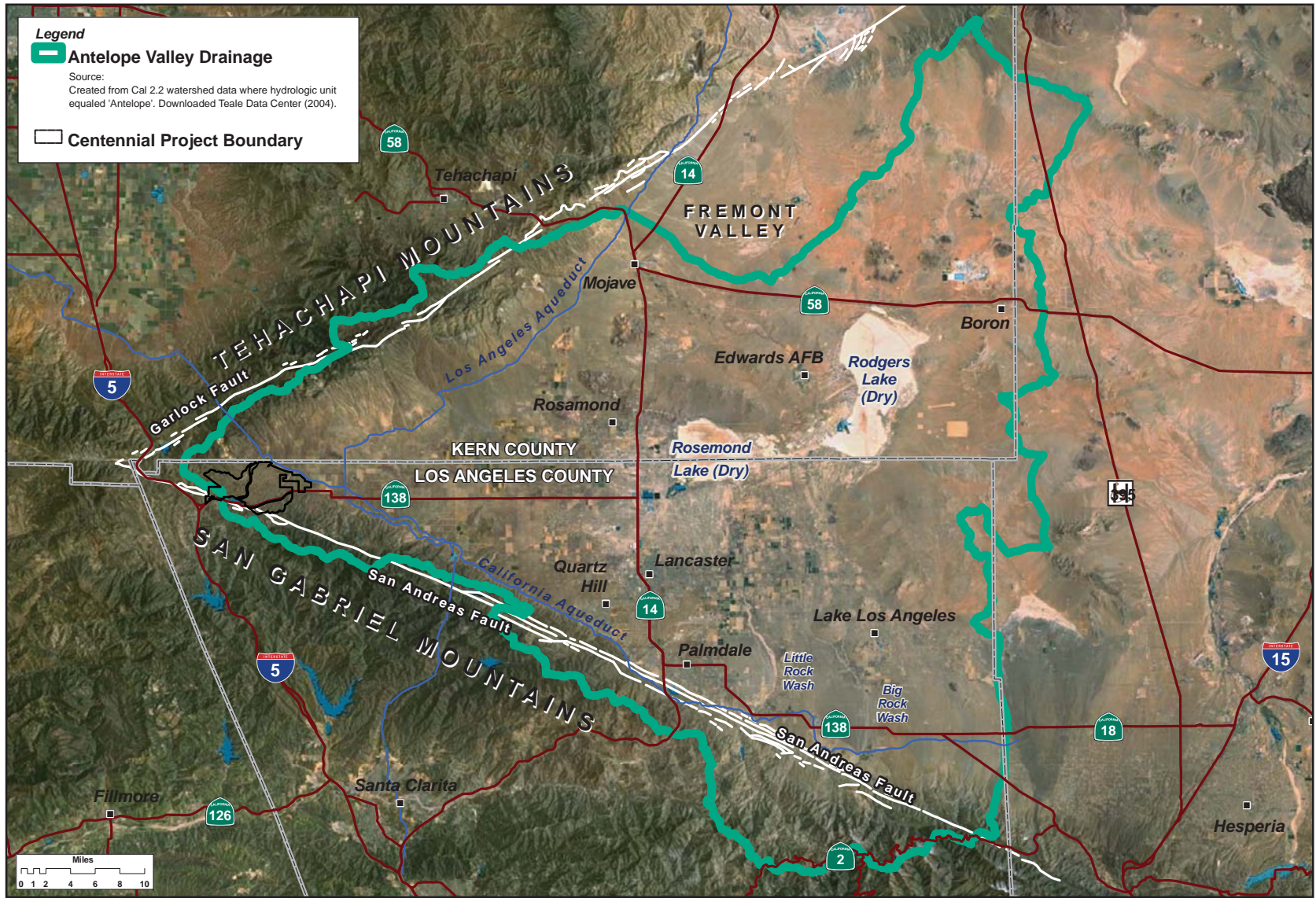
The Antelope Valley is located in the southwestern portion of the Mojave Desert in Southern California, about 40 miles north of the city of Los Angeles. Approximately  $\frac{2}{3}$  of the Valley is located in northern Los Angeles County, and the remainder is located in southeastern Kern County. The Valley is bound on the south and west by the San Gabriel and Tehachapi Mountains; on the north by the Rosamond and Bissell Hills; and on the east by the Hi Vista area buttes and alluvial fan. The Fremont Valley is located to the north and the Victor Valley to the east of the Antelope Valley Basin (DRP 2014).

The Antelope Valley is considered to be a closed hydrologic basin because water drains into, but not out of, the Valley. It extends over approximately 1,390 square miles. The Antelope Valley is comprised of relatively flat valley land and dry lake beds, with coalescing alluvial fans and scattered buttes around the periphery. The basin is topographically closed on the north and northwest by the Garlock Fault at the base of the Tehachapi Mountains, and on the south and southwest by the San Andreas Fault at the base of the Transverse Ranges, which include the San Gabriel Mountains. Surface elevations in the Valley range from about 2,300 feet to nearly 3,500 feet above mean sea level. Several creeks, including the perennial Big Rock and Little Rock Creeks, drain the surrounding mountains, cross the alluvial fans, and become dry washes in the Valley. The Los Angeles Aqueduct traverses the western end of the Valley, and the California Aqueduct runs along the Valley's southern edge, flanking the San Gabriel Mountains (DRP 2014).

Urban centers in the Antelope Valley include the cities of Lancaster, Palmdale, and Rosamond along State Route (SR) 14, as well as a large portion of Edwards Air Force Base (AFB) in the Valley's northeast corner. The Palmdale and Lancaster urbanized area has grown rapidly since the 1980s and has a current population of approximately 280,000 residents. Agricultural lands occupy various areas near the cities and Edwards AFB, and comprise approximately 25,000 acres (DRP 2014). Exhibit 5.18-1, Primary Features in the Antelope Valley Groundwater Basin, provides an aerial photograph that depicts the Project site in relation to the primary topographic features of the Antelope Valley Groundwater Basin.



D:\Projects\CEN\Centennial\GRAPHICS\EIR\Ex\_AV\_Groundwater\_20150929.ai



Source: GVMWD 2011; BonTerra Psomas 2015

# Primary Features in the Antelope Valley Groundwater Basin

# Exhibit 5.18-1

Centennial Project



The Antelope Valley Groundwater Basin's storage capacity has been reported to range from 68 million af to 70 million af (DWR 2004). Agricultural and urban uses have been the primary sources of extraction from the groundwater system. The Project site overlays the far western portion of the basin, and is located approximately 20 miles to the east of these subsidence areas.

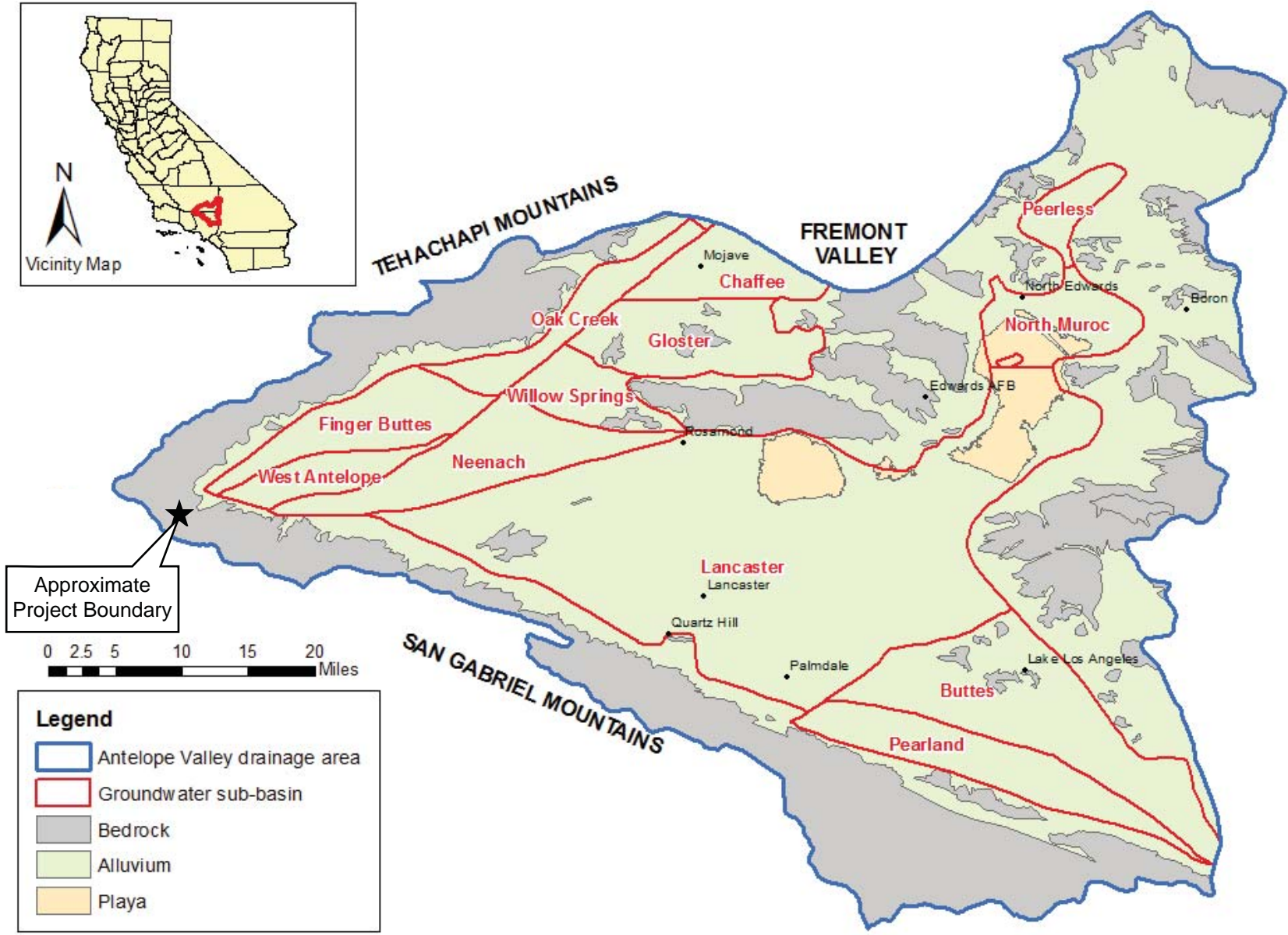
The basin includes two primary aquifers: (1) the principal aquifer and (2) the deep aquifer. The principal aquifer is an unconfined aquifer. The basin is principally recharged by deep percolation of precipitation and runoff from the surrounding mountains and hills. Separated from the principal aquifer by clay layers, the deep aquifer is generally considered to be confined. The principal aquifer is typically thickest in the southern portion of the Valley near the San Gabriel Mountains, while the deep aquifer is thickest in the vicinity of the dry lakes on Edwards AFB. The basin is divided into 12 subunits: Finger Buttes, West Antelope, Neenach, Willow Springs, Gloster, Chaffee, Oak Creek, Pearland, Buttes, Lancaster, North Muroc, and Peerless (LACWWD40 2017). The Project site is located in the extreme western portion of the Antelope Valley groundwater basin, and overlies the Finger Buttes and West Antelope subunits (see Exhibit 5.18-2, Groundwater Sub-basins in the Antelope Valley Groundwater Basin, and Exhibit 5.18-5, Location of Study Area, Tejon Ranch Company Land, and the Project Site). The locations of the 12 subunits in the Antelope Valley Groundwater Basin are shown in Exhibit 5.18-2.

Substantial groundwater pumping in the Antelope Valley began in the early 1900s and peaked in the 1950s. In some localized areas, the rate of decline has slowed. Groundwater levels have increased slightly in the rural western and far northeastern areas of the region (DRP 2014).

In approximately 1999, agricultural interests in the Antelope Valley initiated litigation seeking to determine certain rights to groundwater. In 2004–2005, the litigation was consolidated and certain public water suppliers, including Los Angeles County Waterworks District 40, sought an adjudication of groundwater rights in the basin. Four trial phases were subsequently completed and, in December 2015, a Judgment and Statement of Decision adopting a Judgment and Physical Solution for the basin were entered by the Court (CSC 2015; see Appendix 5.18-D). The adjudication determined that the Antelope Valley Basin was in a state of overdraft for over 50 years and that the total sustainable yield of the basin, including both native groundwater safe yield and return flows from imported water use, is approximately 110,000 afy. Pursuant to the Judgment and Physical Solution, a watermaster appointed under the auspices of the court will monitor and regulate groundwater use in the basin. The Judgment and Physical Solution also includes the following provisions (CSC 2015):

- (1) An allocation of overlying rights to the basin's adjusted native safe yield to specific parties in Exhibit 4 of the Judgment and Physical Solution that will be implemented over a seven-year rampdown period starting in January 2016. The Tejon Ranch Company and Tejon RanchCorp are allocated a post-rampdown right to 1,634 afy in Exhibit 4 of the Judgment and Physical Solution.
- (2) Parties that import water through AVEK and that are identified on Exhibit 8 of the Judgment and Physical Solution may produce return





Source: Draft Salt and Nutrient Management Plan for the Antelope Valley June 2013

Groundwater Sub-basins in the Antelope Valley Groundwater Basin

Exhibit 5.18-2

Centennial Project



D:\Projects\CEN\Centennial\Graphics\EIR\Ex\_Water\_Basins\_20150929.ai

flows from imported water used for municipal and industrial purposes within the Antelope Valley Basin equal to 39 percent of the average amount of imported water used in the preceding five years. Parties that use imported water on lands outside the basin but within the basin watershed are entitled to produce return flows to the extent they can establish, to the satisfaction of the watermaster, that such return flows augment the basin groundwater supply. The Tejon Ranch Company and Tejon RanchCorp are included in Exhibit 8 of the Judgment and Physical Solution.

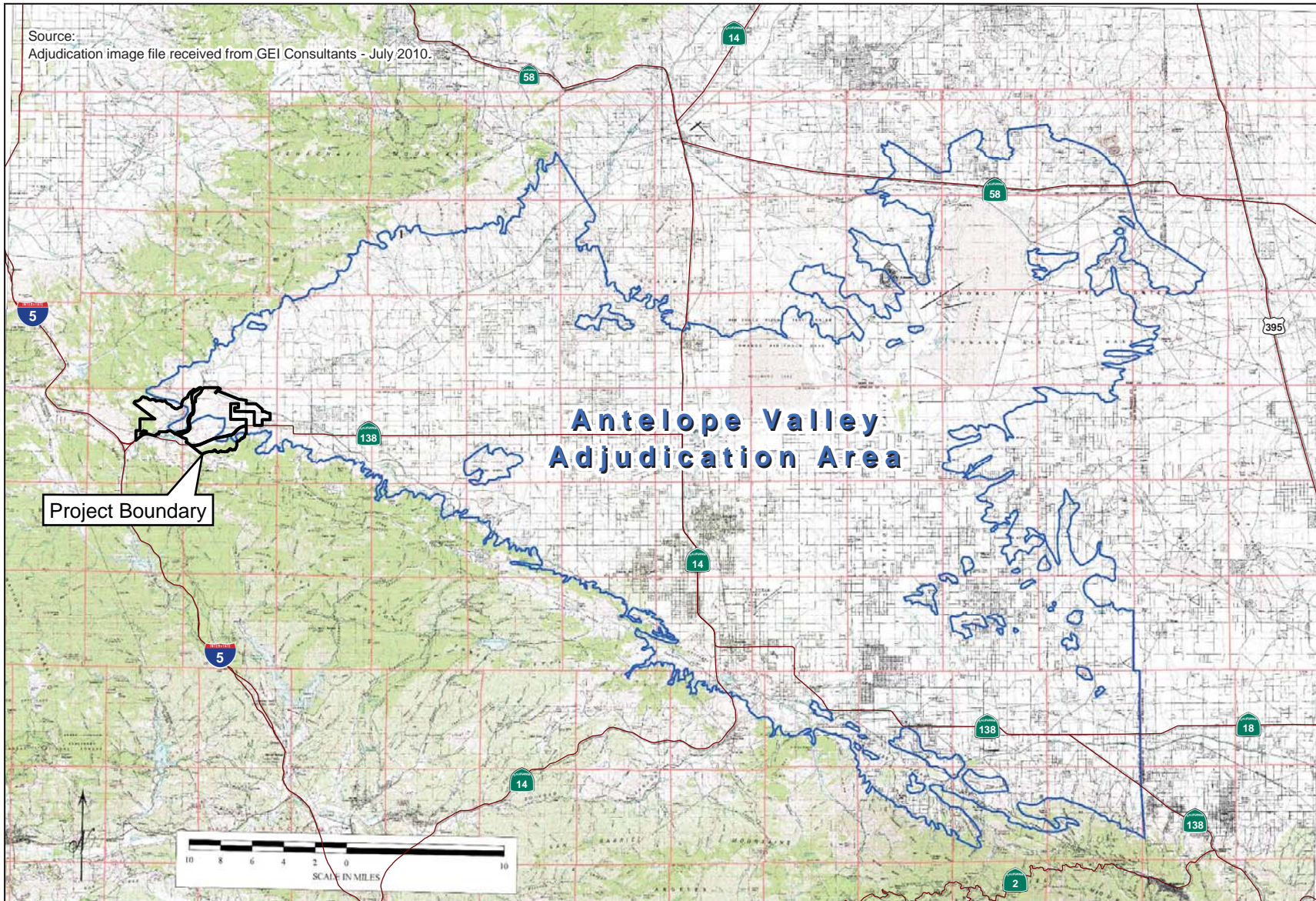
- (4) All parties have the right to store water in the basin pursuant to a storage agreement with the watermaster. The Judgment and Physical Solution does not limit or modify the operation of preexisting banking projects or the performance of preexisting exchange agreements, including existing water banks operated by the Tejon Ranch Company and Tejon RanchCorp.
- (5) Unproduced portions of a groundwater allocation may be carried over for 10 years and stored after the carry-over period subject to the terms and conditions of a storage agreement approved by the watermaster.
- (6) Pursuant to terms and conditions established by the watermaster and subject to hydrologic review by an engineer retained by the watermaster, a party may transfer all or any portion of its applicable groundwater production rights to another party so long as the transfer does not cause a “material injury”, as defined in the Judgment and Physical Solution.
- (7) The Tejon Ranch Company and Tejon RanchCorp are included in the list of parties that conduct business and that may produce and transport groundwater for use on lands outside the basin and within the watershed of the basin, as shown in Exhibit 9 of the Judgment and Physical Solution.

Exhibit 5.18-3, Antelope Valley Adjudication Area, depicts the boundaries of the adjudication area in relation to the Project site boundaries. Exhibit 5.18-4, Project Site and Tejon Ranch Company Land Ownership within the Antelope Valley Adjudication Area, shows a more detailed depiction of the Project site and Tejon Ranch Company (TRC) land ownership in the Antelope Valley Adjudication Area. Exhibit 5.18-5, Location of Study Area, Tejon Ranch Company Land, and the Project Site, shows the Project site in relation to the extreme western portion of the Antelope Valley Groundwater Basin, overlying the Finger Buttes and West Antelope subunits.

The purpose of the Antelope Valley Adjudication Judgment and Physical Solution is to allow for groundwater use in a manner that avoids overdraft and fosters sustainable beneficial uses by limiting production to the basin’s total sustainable yield of approximately 110,000 afy. As a result, groundwater production in accordance with the Judgment and Physical Solution is considered a very reliable supply for the Antelope Valley region even in short-term and during multiple-year droughts (RWMG 2013).



Source:  
Adjudication image file received from GEI Consultants - July 2010.



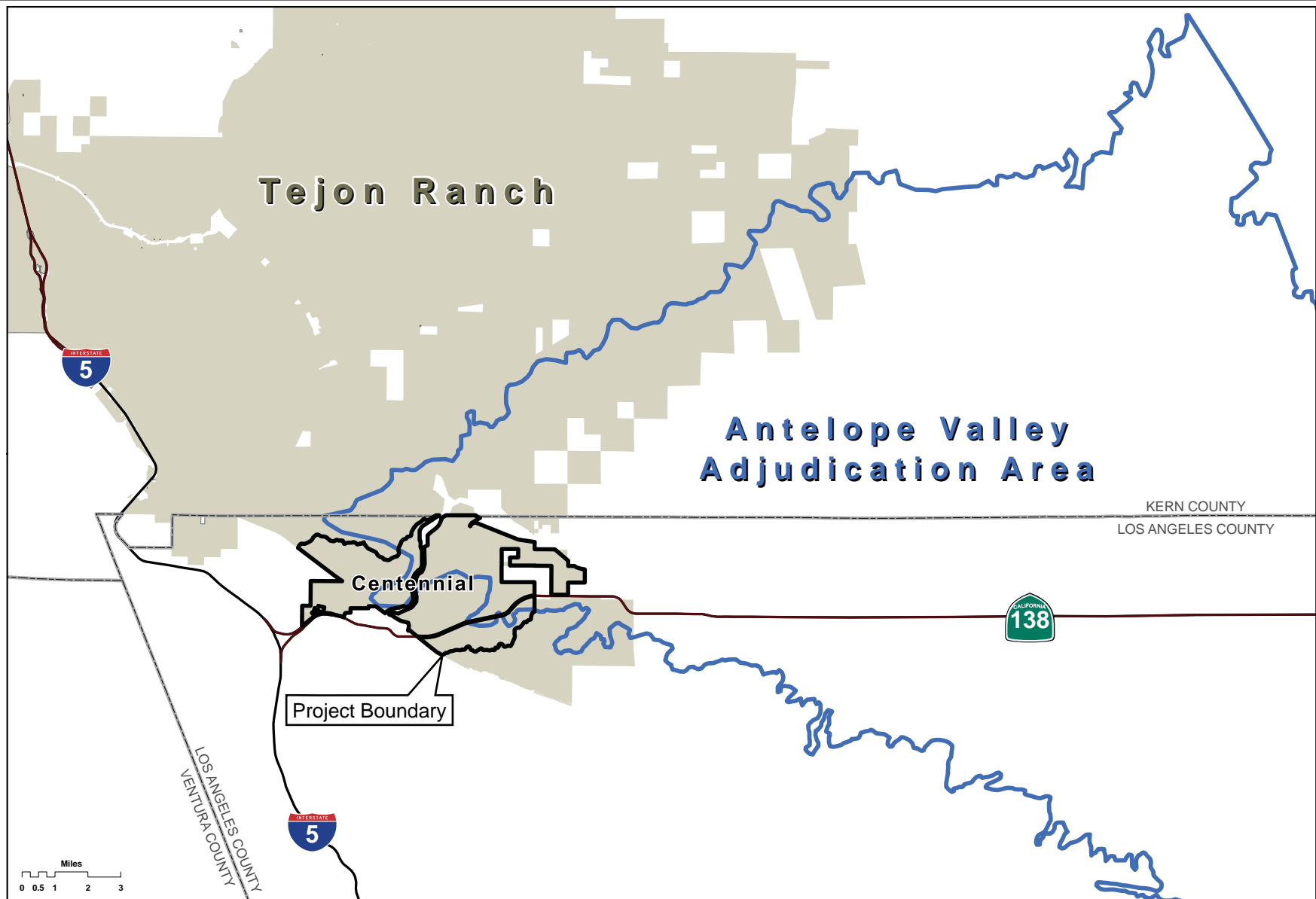
Source: GVMWD 2011; BonTerra Psomas 2015

## Antelope Valley Adjudication Area

Exhibit 5.18-3

Centennial Project





Source: GVMWD 2011; BonTerra Psomas 2015

### Project Site and Tejon Ranch Company Land Ownership within the Antelope Valley Adjudication Area

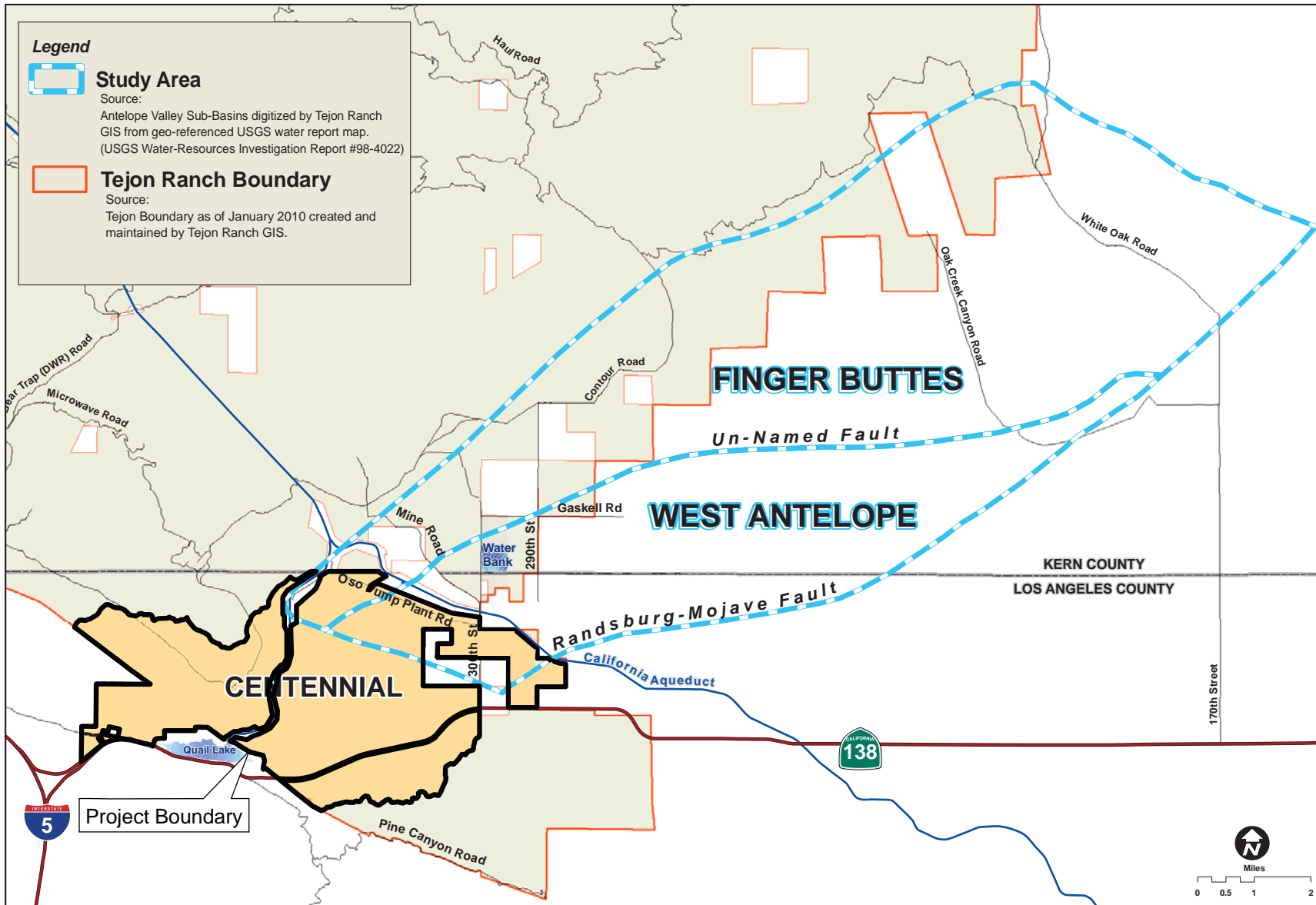
Exhibit 5.18-4

Centennial Project





D:\Projects\CEN\Centennial\Graphics\EIR\Ex\_5.18-5\_Water\_Study\_Area\_20150929.ai



Source: GVMWD 2011; BonTerra Psomas 2015

### Location of Study Area, Tejon Ranch Company Land, and the Project Site

### Exhibit 5.18-5

Centennial Project



## Imported State Water Project (SWP) Water Supplies

### *State Water Project Overview*

In 1959, California approved a \$1.75 billion general obligation bond that enabled the Department of Water Resources (DWR) to commence construction of the State Water Resources System, commonly known as the SWP. The SWP is the nation's largest State-built water and power development and conveyance system; it includes 660 miles of aqueduct and conveyance facilities extending from Lake Oroville in the north to Lake Perris in the south. In addition to these facilities, the system includes pumping and power plants, reservoirs, lakes, storage tanks, canals, tunnels, and pipelines that capture, store, and convey water throughout the state. The DWR operates and manages the SWP facilities. The SWP was designed and built to (1) deliver water; (2) control floods; (3) generate power; (4) provide recreational opportunities; and (5) enhance fish and wildlife habitats (DWR 2010).

SWP water originates in various streams that are tributary to the Sacramento – San Joaquin River Delta (Delta). A portion of water derived from the Feather River is stored in Lake Oroville, which releases previously stored water back into the Feather River and then to the Sacramento River. These flows and other natural, unstored Sacramento River flows reach the Delta, where water is pumped into the California Aqueduct from SWP facilities located on the southern edge of the Delta. The pumping plant also diverts natural flows from the San Joaquin River and various east-side streams. The SWP aqueduct system, which includes several south-of-the-Delta reservoirs, delivers water to the base of the Tehachapi Mountains, where a pumping system lifts the water through a series of pipelines to the south. Just north of the Project site, the Aqueduct branches into the West Branch, which conveys water south through the greater Los Angeles area, and the East Branch, which traverses the northern side of the San Gabriel Mountains.

At the inception of the SWP, the DWR entered into individual water supply contracts with agricultural and urban water agencies (SWP contractors) throughout California. The contracts were the method used to repay the costs of construction and operation of the SWP facilities for the delivery of water to the SWP contractors. Each such contract sets forth a maximum annual allocation of SWP water to that contractor, which is stated in Table A in the contract. As a result, each contractor's allocation of SWP water is referred to as a "Table A Amount".

Article 21 of the SWP contracts allows a contractor to receive surplus SWP water that may exist in the Delta on an unscheduled and interruptible basis ("Article 21 water"). This water supply has historically been available only in average to wet years, and generally only for a limited time in the late winter. As discussed below, species and water quality regulatory constraints have increasingly affected the reliability of Delta water supplies, including the potential availability of Article 21 water. According to the AVIRWMP, Article 21 water is generally delivered most readily to agricultural contractors and to San Joaquin Valley banking programs and is not considered a long-term reliable supply for the Antelope Valley region (RWMG 2013). Although the DWR continues to project that Article 21 water will be available in the future, the analysis of Project water supplies in Section 5.18.6 conservatively assumes that no such water will be used to meet demand.

There are 29 SWP contractors, including three in the Antelope Valley region: the AVEK, the Palmdale Water District (PWD), and the Littlerock Creek Irrigation District (LCID). The SWP delivers water to each contractor in accordance with the system's supply availability and contractor demands. By October 1 of every year, each contractor provides the DWR with a request for water delivery that cannot exceed its full Table A Amount. Actual deliveries may be less than a contractor's request due to hydrology, stored water availability, and regulatory or operating constraints. When available SWP water is less than what a contractor requests, each contractor receives a percentage of its Table A Amount based on SWP supplies (RWMG 2013).

The SWP is contracted to deliver up to 4.17 million afy of Table A water. AVEK is the state's third largest water contractor and has a Table A Amount of approximately 144,844 afy. The AVIRWMP estimates that approximately three percent of AVEK's Table A deliveries have historically been supplied to customers outside the Antelope Valley. As a result, the AVIRWMP estimates that a maximum of 137,150 afy of the total AVEK Table A Amount is available for delivery in the Antelope Valley. As discussed below, certain Table A Amounts have been secured for Project use from two Central Valley water districts and were assigned to AVEK in accordance with SWP rules and regulations. The AVEK wholesale demands for TRC in Table 4-2 of the 2015 UWMP (AVEK 2016) and in the AVIRWMP do not include these Project-specific amounts. The PWD has a Table A Amount of 21,300 afy, and the LCID has a Table A Amount of 2,300 afy (RWMG 2013). The Project is not located within the service area of, and would not be served by, the PWD or the LCID.

Due to several factors, the total volume of SWP Table A Amounts delivered each year is subject to annual variation. The DWR publishes an assessment of the SWP system's existing and future reliability on a biannual basis. The most recent assessment by the DWR is the DCR published in June 2015. The following sections discuss the primary regulatory and other factors affecting SWP reliability identified in the DCR.

#### Endangered Species Protection Measures Affecting Delta Water Exports

Several species protected under the Federal Endangered Species Act (FESA) are located in the south Delta and are potentially affected by the SWP and nearby federal water project extraction pumps. As a result, the operation of the SWP and federal pumps requires FESA incidental take permits pursuant to biological opinions (BiOps) issued by the U.S. Fish and Wildlife Service (USFWS) for freshwater fish and the National Marine Fisheries Service (NMFS) for anadromous fish (ocean-dwelling fish that spawn in fresh water, such as salmonids) and marine mammals. Certain of these species are also protected under the California Endangered Species Act (CESA) and require state incidental take authorizations from the California Department of Fish and Wildlife (CDFW). CESA allows the CDFW to authorize State incidental take for species also protected under the FESA by making a determination that a federal incidental take permit is consistent with CESA requirements (this is known as a CESA "consistency determination").

Since 1993, several BiOps have been issued for SWP Delta operations that restrict SWP exports from the Delta to specific amounts at certain times and conditions to protect listed species. In February 1993, the NMFS issued a BiOp for winter-run Chinook salmon, and the

USFWS issued a BiOp in March 1995 for the delta smelt and splittail. These BiOps imposed Delta inflow, Delta outflow, and export pumping restrictions, many of which were incorporated by State water quality regulators in the 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento – San Joaquin Delta (see the discussion of water quality regulations below).

In 2005, the USFWS issued a BiOp concluding that certain proposed coordinated SWP and federal water project operations in the Delta would not jeopardize the continued existence of the delta smelt or result in the destruction or adverse modification of smelt critical habitat. In response to lawsuits, the 2005 BiOp was vacated and the USFWS was ordered to prepare a new opinion. The USFWS issued a revised BiOp in 2008, which determined that the proposed water project operations in the Delta would jeopardize the delta smelt.

Similarly, in 2004, the NMFS issued a BiOp concluding that the proposed coordinated SWP and federal Delta water project operations would not jeopardize protected salmonids, green sturgeon, or “southern resident” killer whales. The 2004 BiOp was also vacated after legal challenge and, in June 2009, the NMFS issued a revised BiOp concluding that the operations would jeopardize the species.

In accordance with the FESA, the BiOps identified “reasonable and prudent alternatives” that would avoid jeopardy to the species, including several Delta operational limitations that further reduce the potential amount of SWP supplies that can be delivered to system contractors. The USFWS BiOp limits SWP exports in 10 of 12 months of each year, including Delta flow restrictions that are adaptively managed as determined by USFWS staff on the basis of flow and fish population monitoring data. Delta target flows are primarily accomplished by reducing SWP and federal water exports. The USFWS BiOp also includes additional salinity requirements in September and October for wet and above-normal water years that require increased releases from SWP and federal reservoirs upstream of the Delta. The NMFS BiOp limits exports during April and May in all but extremely wet years.

The 2008 USFWS and 2009 NMFS BiOps were invalidated in federal court on various grounds, including the failure to use the best available science in the development of the opinions. Both decisions were appealed to the Ninth Circuit Court of Appeals and subsequently reversed in 2014 (March 2014 for the USFWS BiOp and December 2014 for the NMFS BiOp). The CDFW issued consistency determinations for both federal BiOps under Section 2080.1 of the *California Fish and Game Code* to provide for state incidental take coverage under the CESA. The SWP system is currently subject to the 2008 USFWS and 2009 NMFS BiOps that were upheld by the Ninth Circuit in 2014 and the CESA consistency determinations issued by the CDFW.

### Delta Inflows

SWP deliveries are affected by the volume of Delta inflows, which vary considerably from season to season and from year to year. In an above-normal year, nearly 85 percent of the total Delta inflow comes from the Sacramento River; more than 10 percent comes from the San Joaquin River; and the rest comes from the 3 eastside streams (i.e., the Mokelumne, the Cosumnes, and the Calaveras Rivers). Water years are designated by DWR as “wet” (W),

“above normal” (AN), “below normal” (BN), “dry” (D), or “critical” (C). In general, much less water will flow into the Delta during a dry or critical water year than during a wet or above-normal water year. Fluctuations in inflows affect Delta water quality and fish habitat which, in turn, trigger regulatory requirements that constrain SWP Delta pumping.

About 80 percent of annual precipitation occurs between November and March, and very little rain typically falls from June through September. Upstream reservoirs regulate inflow variability by reducing flood flows during the rainy season and by storing water to be released later in the year to meet water demands and flow and water quality requirements.

### Water Quality Objectives

In its 1995 Water Quality Control Plan for the San Francisco Bay/Sacramento – San Joaquin Delta (WQCP), the SWRCB set water quality objectives to protect beneficial uses of water in the Delta and Suisun Bays. The objectives include minimum Delta outflows, limits on SWP and federal Delta exports, and maximum allowable salinity levels and are enforced through the provisions of Water Right Decision 1641 (D-1641), issued in December 1999 and updated in March 2000 by the SWRCB.

The WQCP and D-1641 include certain “X2” objectives, which establish allowable salinity levels in the Delta expressed as the distance in kilometers from the Golden Gate Bridge where the salinity concentration reaches two parts per thousand. The purpose of the X2 objective is to regulate the salinity gradient in the Delta between February and June by ensuring that freshwater from the east is sufficient to prevent saltwater intrusion from the west beyond certain locations to protect Delta water quality and beneficial uses. The objective requires that the X2 line must remain downstream of Collinsville in the Delta, and downstream of other locations on a certain number of days each month from February through June. Depending on annual hydrological conditions, SWP operations, including exports, may be limited or curtailed to retain freshwater in the Delta and to meet applicable X2 objectives.

The WQCP and D-1641 also establish an export/inflow (E/I) ratio that affects SWP reliability to provide protection for fish and wildlife beneficial uses in the Delta. The E/I ratio limits the fraction of Delta inflows that may be exported when other WQCP and D-1641 restrictions are not in effect. In general, the E/I ratio limits Delta exports to 35 percent of total Delta inflow from February through June and 65 percent of inflow from July through January.

Several Delta planning and improvement efforts have been initiated to facilitate the protection of Delta habitats and the reliability of SWP and other water supplies, including the Delta Plan, the Bay Delta Conservation Plan, and the Delta Risk Management Strategy, as discussed further below.

### *Delta Plan*

In 2009, California enacted the Delta Reform Act of 2009, which created the Delta Stewardship Council. The purpose of the Act is to achieve the “coequal goals” of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem (*California Water Code*, Section 85054). A final Delta Plan was adopted by the Council on May 16, 2013, which includes 14 regulatory policies and 73 recommendations.

The State Office of Administrative Law approved regulations to implement the Delta Plan regulatory policies on September 1, 2013. The Plan's policies and recommendations include the following:

- Requiring Delta water users to certify in water management plans that all feasible efforts to use water efficiently and that efforts to develop additional local and regional water supplies are being implemented.
- Reserving six high-priority areas for habitat restoration.
- Protecting agricultural land by requiring developers to locate new residential, commercial, or industrial development in areas planned for urban use.
- Requiring State and local agencies to locate, when feasible, water management facilities, ecosystem projects, and flood-management infrastructure in ways that would reduce or avoid conflicts with agriculture and other existing planned uses and requiring those agencies to consider locating the facilities on public land before using private land.
- Prohibiting encroachment on floodways and floodplains.
- Requiring developers of new residential subdivisions to include a level of flood protection that anticipates sea levels rising due to climate change.
- Setting priorities for State investment in Delta flood levees.
- Updating statewide water-use efficiency goals and groundwater management plans for areas using Delta water; streamlining water transfer procedures; and developing a statewide system for reporting how much water is used.
- Having the SWRCB update water quality objectives for the Sacramento and San Joaquin Rivers; controlling or reducing other Delta stressors such as contaminants and invasive species; expanding floodplains and riparian habitats; and locating habitat restoration to accommodate sea-level rise.
- Encouraging agritourism, wildlife-friendly farming practices, and recreational opportunities in the Delta.
- Creating a Delta Flood Risk Management District to provide adequate funding for flood control and emergency preparedness.

In 2014, the Delta Stewardship Council launched a Delta Levees Investment Strategy to identify funding priorities and assemble a comprehensive investment strategy for maintaining Delta levees that protect water quality from seawater intrusion and to provide flood control. The investment strategy will be developed in collaboration with State agencies, local reclamation districts, Delta landowners and businesses, and other important stakeholders.



---

*Bay Delta Conservation Plan (BDCP) and Cal WaterFix*

The Bay Delta Conservation Plan (BDCP) is a comprehensive plan prepared by local water agencies, environmental and conservation organizations, State and federal agencies, and other stakeholders to implement a suite of habitat restoration measures, other Delta water quality and habitat stressor reduction activities, and water operations criteria that will facilitate the issuance of long-term permits to operate the SWP and other projects and water operations in the Delta. As defined in Section 85053 of the *California Water Code*, the BDCP is a multispecies conservation plan that is being developed to allow for the issuance of a habitat conservation plan (HCP) under the FESA and a Natural Communities Conservation Plan (NCCP) that will provide CESA incidental take coverage.

The BDCP has been in development since 2006. A draft BDCP and a joint environmental impact report and environmental impact statement (EIR/EIS) in accordance with CEQA and the National Environmental Policy Act (NEPA) were released for public review in late 2013. The lead agencies for the project are the DWR and the U.S. Bureau of Reclamation (Reclamation). Public comments were received through mid-2014. A Partially Recirculated Draft EIR/EIS (RDEIR/SDEIS) was made available for public review and comment from July 10, 2015, to October 30, 2015. The RDEIR/SDEIS was prepared to review engineering refinements made to the proposed water conveyance facilities; to consider additional subalternatives; and to update the environmental analysis in response to issues raised in more than 12,000 comments received on the 2013 EIR/EIS. The RDEIR/SDEIS includes a new Alternative 4A, which the lead agencies have identified as the CEQA and NEPA preferred alternative. Alternative 4A includes three new intakes along the Sacramento River and dual-bore tunnels to convey water to existing state and federal pumping facilities; it also includes habitat restoration measures and other environmental commitments necessary to comply with state and federal environmental law such as the FESA and CESA.

In December 2016 the lead agencies released a Final EIR/EIS for the project, which was renamed the “BDCP/California WaterFix”, in part to reflect the decision to obtain FESA coverage under Section 7 rather than Section 10 of the Act. Certain delta restoration projects were also separated from the proposed conveyance system improvements. The preferred project alternative (the “California WaterFix”) in the Final EIR/EIS is Alternative 4A, which retains the three new intakes along the Sacramento River and dual-bore tunnels extending south to the delta export pumping facilities. The Final EIR/EIS describes project alternatives; discusses potential environmental impacts; and identifies mitigation measures that would help avoid or minimize impacts. It also provides responses to all substantive comments received on the 2013 EIR/EIS and 2015 RDEIR/SDEIS. As of January 2017, a Record of Decision under NEPA by Reclamation and certification of the EIR and final decision-making under the CEQA by DWR remained pending. No final decision will be made to implement the Cal WaterFix until the CEQA and NEPA review process is complete.

---

*Delta Risk Management Strategy*

The Delta includes over 1,100 miles of levees that surround approximately 700,000 acres of lowlands (many of which are constructed) and artificial islands located throughout the estuary. Levee construction began approximately 150 years ago to prevent flooding on farmland in the region. In the 1860s, gold miners upstream from the Delta used high-pressure water jets to wash significant volumes of soil and rock into local streams and rivers. The resulting silt and debris accumulated in the Delta, raised riverbed elevations, and stimulated levee construction along the affected river channels to keep water velocity high and scour away mining-related sediment. The levee system, however, continually erodes the levee faces exposed to the constrained rivers while the accumulated peat soils protected behind levees contract over time as they dry. Many of the Delta islands and other lowlands behind levees are now 20 feet below sea level. Due to these factors, the Delta levee system is increasingly vulnerable to failure caused by storms; earthquakes; and water, wind, and animal-generated erosion. Levee failures allow seawater to intrude east into the Delta and put at risk major highways, railroad lines, water supply and energy pipelines and other infrastructure in the Delta, including the SWP facilities (DWR 2008)

In 2005, the *California Water Code* was amended to require the DWR to evaluate the potential impacts on Delta water supplies associated with continued land subsidence, earthquakes, floods, and climate change over 50-, 100-, and 200-year projection periods and to identify measures to reduce identified risks. In response, the DWR initiated a two-phase Delta Risk Management Strategy (DRMS). DRMS Phase 1 evaluated the risks associated with levee failures and was completed in a 2008 report to the legislature. The Phase 2 report for the DRMS, issued in June 2011, evaluated alternatives to reduce the risk to the Delta and adverse consequences from levee failure. The Phase 2 report identified several potential levee improvements and evaluated the extent to which these improvements would reduce the consequences of potential levee failures in four scenarios.

The Metropolitan Water District of Southern California, the largest SWP contractor, also conducted levee risk analyses indicating that water exports could be resumed after a major levee failure in the Delta by placing structural barriers at certain channel locations to create an emergency freshwater conveyance “pathway” to SWP and other water project pumping facilities. After the Phase 2 report was issued, a Delta Knowledge Improvement Program (DKIP) was implemented to further refine the DRMS studies, including complete bathymetry surveys of the Delta. Other DKIP projects include an economic study to assist the Delta Stewardship Council in developing a comprehensive investment strategy for the Delta levees; a feasibility study for the implementation of a potential delta flood risk management assessment district; and peat soil seismic loading and setback levee design studies to enhance stability and improve habitats.

## Climate Change and Sea Level Rise

According to the most recent California Water Plan Update 2013, climate change may increase water supply uncertainties, including the reliability of SWP deliveries, by affecting the frequency, magnitude, and duration of extreme storm events and by reducing annual snowpack storage (DWR 2014). Rising sea levels would also increase the risk of coastal flooding, Delta levee integrity, and water quality. Adverse changes in Delta water quality due to sea level rise, levee failures, more frequent and intense rainfall patterns and droughts could further constrain SWP exports. Potential climate change impacts to SWP delivery reliability were evaluated in the DCR and are discussed in more detail in the following section.

### ***State Water Project Delivery Capability and Reliability***

The DWR estimates the average or normal year, single-dry year and multiple-dry year SWP delivery reliability under current and projected future conditions every two years. The most recent estimates are provided in the 2015 DCR. To evaluate SWP delivery volumes under future conditions, the DCR uses a computer model that incorporates the historic range of hydrologic conditions, including precipitation and runoff that occurred during the 82-year period from 1922 through 2003. The model allows for the adjustment of historic hydrologic condition to account for land-use changes, export limitations required to meet regulatory objectives, potential climate change effects and other factors over a range of relatively wet to critically dry years. The volume of water that the SWP is projected to deliver each year is compared with the maximum delivery capacity of the system from the Delta, which the DWR estimates to be approximately 4.132 million afy (CNRA 2015). The results of the 82-year analysis are used to derive the percentage of maximum SWP capacity that would be delivered for the following scenarios: (1) on average, over the 82-year analysis period; (2) during a single-dry year; and (3) during multiple-dry years (droughts). The DCR also calculates the annual percentage and volume of each contractor's Table A Amount that would be delivered over the 82-year analysis period.

The DCR includes five scenarios for future water delivery up to 2035. The "base scenario" analyzes the percentage of total demand that the SWP could deliver in average, single-dry, and multiple-dry years under 2015 regulatory, climate change, and SWP conveyance and other facility conditions. The base scenario is the only scenario used by the DWR to discuss future SWP reliability in the main body of the DCR.

Four alternative scenarios were included in the DCR appendices:

- An "early long-term" (ELT) scenario with generally similar operational assumptions as the DCR base scenario, but with additional and more aggressive climate change impacts, including 2025 emission levels and an assumed sea level rise of 6 inches (15 centimeters).
- An "existing conveyance high outflow" (ECHO) scenario that includes the climate change assumptions in the ELT scenario and also focuses on the potential impacts of additional water quality regulatory requirements that would further limit SWP

exports to maintain Delta flows, including certain south Delta operating restrictions and fall X2 and enhanced spring outflow requirements.

- An “existing conveyance low outflow” (ECHO) scenario that is based on the ECHO scenario, but without the implementation of fall X2 and enhanced spring outflow requirements.
- A “BDCP” scenario that analyzes the potential future delivery reliability of the SWP system assuming the climate change conditions in the ELT scenario plus the construction of an isolated facility with a 9,000 cubic feet per second (cfs) diversion capacity near Hood; the adoption of certain north and south Delta intake operation criteria; new Fremont Weir, control gates, and Yolo Bypass inundation criteria; additional Rio Vista minimum flow criteria; certain south Delta operating restrictions; up to 10,300 cfs capacity at the SWP south Delta pumping facilities; and the implementation of fall X2, but not enhanced spring outflow requirements.

DCR Appendices C through F provide 82-year model results for the ELT, ECHO, and BDCP scenarios for each of the SWP contractors, including AVEK. The ELT scenario incorporates more significant assumptions regarding potential climate change impacts than used in the base scenario, including 2025 emission levels and a 15-centimeter sea level rise. These assumptions could increase the Delta’s salinity levels and constrain future SWP exports to a greater extent than the climate change factors assumed in the DCR base scenario. The average year SWP delivery rate in the ELT scenario is also lower than the base scenario rate and represents a reasonable middle range between the BDCP and base scenario average year delivery percentages, which are higher than, and the ECHO and ECHO scenarios, which are lower than, in the ELT scenario.

As discussed in Section 5.18.6, the Project supplies include SWP water imported by AVEK and delivered within the Agency’s service area and SWP supplies purchased by TRC, transferred to AVEK and imported by AVEK for Project use under an agreement with TRC. The AVEK 2015 UWMP utilizes the ELT scenario developed for the Agency by the DWR to provide a more conservative assessment of SWP delivery reliability than the DCR base scenario. AVEK also reduced the ELT scenario single-dry year reliability rate to 5 percent, the 2014 delivery level that was the lowest in the Agency’s history to date. The analysis in Section 5.18.6 uses the same reliability factors developed from the ELT scenario in the AVEK 2015 UWMP, including the delivery of 59 percent of Table A amounts in a normal or average year; 5 percent of Table A amounts in a single-dry year; and 12 percent, 16 percent, and 24 percent of Table A amounts in a multiple-dry year period (AVEK 2016).

## **Antelope Valley Regional Supply and Demand Projections**

The AVEK 2015 UWMP (AVEK 2016) and the AVIRWMP (RWMG 2013) are discussed in this section to provide regional background information based on the most recently available water planning documents that consider existing and future regional water demands and supplies. The AVIRWMP was also utilized in the 2014 and 2015 AVAP and General Plan update CEQA analyses prepared by the County to analyze Antelope Valley regional water demand and supplies.

---

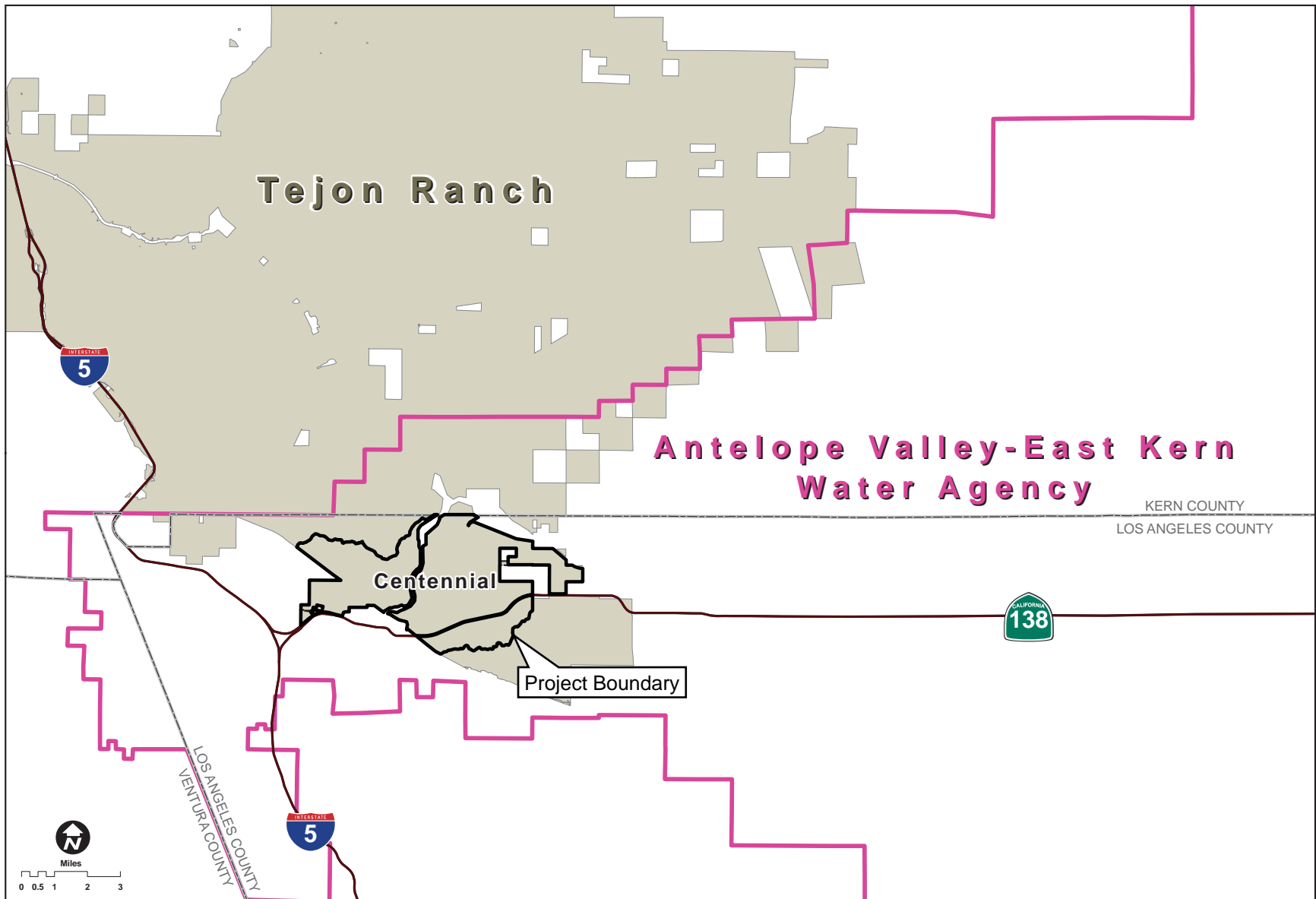
**State Water Project Deliveries to the Antelope Valley – East Kern County Water Agency (AVEK)**

The Project is located within the existing AVEK service area, and AVEK is the only SWP contractor in the Antelope Valley that would provide imported water for Project use. Exhibit 5.18-6, Project Site and Tejon Ranch Company Land Ownership within the AVEK Service Area, depicts the Project site and TRC lands in the context of the AVEK service area. AVEK is a wholesale supplier of SWP water to the Antelope Valley region; they have a service area of nearly 2,400 square miles in northern Los Angeles and eastern Kern Counties and a small portion of Ventura County. AVEK has a contract with the DWR to receive up to 144,844 acre-feet per year of SWP water. Based on the ELT delivery reliability scenario in the DCR, the Agency's average year supply would be 85,460 acre-feet (59 percent) of the SWP contract amount. In 2015, the AVEK service area had a population of 359,500 Antelope Valley residents (AVEK 2016).

Under the Antelope Valley Adjudication Judgment and Physical Solution, AVEK has an overlying pre-rampdown production right of 4,000 acre-feet per year (afy) and an overlying production right of 3,550 afy at the end of the 7-year production rampdown period. The Judgment and Physical Solution also provides AVEK with the right to produce an amount of imported water return flows in any year equal to 34 percent of agricultural imported water use and 39 percent of municipal and industrial imported water use multiplied by the average amount of imported water used by AVEK in the preceding 5-year period. The 2015 UWMP conservatively assumes that AVEK's annual supply of groundwater is 3,550 afy and does not include return flows that also may be available to the Agency (AVEK 2016).

AVEK has developed groundwater banking programs to increase the reliability of the Antelope Valley region's water supplies by storing excess water available from the SWP during wet periods and recovering these supplies for delivery to customers during dry and high demand periods or in the event the SWP system is disrupted. AVEK's Water Supply Stabilization Project No. 2 (Westside Water Bank) started operations in 2010, and currently includes approximately 400 acres of groundwater recharge basins and 9 groundwater recovery wells. Up to 20 new wells may be constructed as a part of the Westside Water Bank project. Five irrigation wells existing on the property at the time of development may also be used in the program. AVEK meters the water delivery and recovery amounts for the banking program and will not recover more than 90 percent of the amount recharged to account for evapotranspiration, other losses during recharge and conveyance, and metering accuracy. The Eastside Water Banking and Blending Project started operations in 2016 and includes three 2-acre recharge basins and three groundwater wells. The project allows for recharge of raw water that is later recovered and blended for delivery to the Eastside Water Treatment Plant (AVEK 2015).

The maximum recharge and recovery volumes for the Westside Water Bank are estimated to be approximately 36,000 afy. AVEK can also recover groundwater from the Eastside Water Bank (5,700 afy total estimated capacity) and from 3 potable groundwater wells in the Bench Ranch Well Field (total capacity of about 3,700 afy). The 2015 UWMP projects that AVEK will recover up to 36,000 afy from groundwater banking facilities during single-dry and multiple-dry years (AVEK 2016).



Source: GVMWD 2011; Bonterra Psomas 2015

### Project Site and Tejon Ranch Company Land Ownership within the AVEK Service Area

### Exhibit 5.18-6

Centennial Project



AVEK operates four water treatment plants (WTPs). The Quartz Hill WTP is capable of producing 90 million gallons per day (mgd) or 270 acre-feet per day (afd) of treated Aqueduct water. The Eastside WTP is capable of producing 10 mgd (30 afd). The Rosamond WTP can produce 14 mgd (42 afd), and the Acton WTP can produce 4 mgd (12 afd) of treated water. AVEK does not provide supplemental treatment for recycled water and does not distribute recycled water. The bulk of AVEK's imported water is treated and distributed by water purveyors to customers throughout the Agency's service area. AVEK also provides untreated SWP water to local farmers and ranchers. All of the Project land, and more than 38,000 acres of land owned by TRC, are located within AVEK's jurisdictional boundaries and have been subject to AVEK assessments for several decades.

Consistent with *California Water Code* requirements, the 2015 UWMP provides population growth, water supply, and water demand projections through 2035 for AVEK. The analysis anticipates that the Agency's service area population will be 460,700, an increase of approximately 101,200 from 2015 (AVEK 2016). The 2015 UWMP estimates that AVEK's 2035 average year water supplies will be 89,010 afy, including 85,460 afy of SWP deliveries and 3,550 afy of groundwater produced in accordance with the Judgment and Physical Solution. AVEK's 2035 average year demand is estimated to be 86,250 afy, resulting in an average year surplus supply of approximately 2,760 acre-feet by 2035. The 2015 UWMP anticipates that AVEK's SWP deliveries, groundwater, and recovered banked water supplies will be less than demand during dry and multiple-dry years. The single-dry year shortfall in 2035 is estimated to be 39,500 acre-feet, and the maximum multiple-dry year period shortfall is estimated to be 29,300 acre-feet (AVEK 2016). Since AVEK provides a supplemental water supply to retail agencies, the UWMP anticipates that the supply difference in single-dry and multiple-dry years will be met by increased groundwater pumping (recovery of banked supplies or return flows), use of recycled water, and/or reductions in demand by the retail agencies and other Agency customers, such as the Project. As discussed below, the Project will be served by two water banks and will generate and use recycled water in a manner that will ensure single-dry and multiple-dry year water supply reliability in the Project area consistent with the Agency's UWMP.

### ***2013 Antelope Valley Integrated Regional Water Management Plan***

An integrated regional water management planning process has been conducted for several years in the Antelope Valley, and an integrated plan was first published in 2007 by an 11-member regional water management group. The AVIRWMP was most recently updated in 2013 and provides an analysis of average year, single-dry year, and multiple-dry year regional supply and demand conditions through 2035 (RWMG 2013). The AVIRWMP projections assume that the region's population will increase by about 157,000 residents from 2010 to 2035. Table 5.18-1 summarizes the population growth estimates used in the AVIRWMP projections.

**TABLE 5.18-1  
ANTELOPE VALLEY INTEGRATED REGIONAL WATER  
MANAGEMENT PLAN POPULATION PROJECTIONS**

	1970 <sup>a</sup>	1980 <sup>a</sup>	1990 <sup>b</sup>	2000 <sup>c</sup>	2010 <sup>d</sup>	2020 <sup>e</sup>	2035 <sup>e</sup>
Boron	3,000	3,000	3,000	2,000	2,000	2,000	3,000
California City <sup>f</sup>	0	0	0	0	0	0	0
Edwards AFB	10,000	9,000	7,000	7,000	4,000	5,000	5,000
Mojave	4,000	5,000	4,000	4,000	4,000	5,000	5,000
North Edwards	N/A	N/A	N/A	1,000	1,000	1,000	1,000
Rosamond	4,000	5,000	7,000	14,000	17,000	20,000	23,000
Unincorporated Kern County	1,000	2,000	6,000	2,000	3,000	3,000	4,000
Lake Los Angeles	N/A	N/A	8,000	12,000	12,000	14,000	16,000
Lancaster	41,000	51,000	97,000	119,000	150,000	175,000	201,000
Littlerock	N/A	N/A	N/A	1,000	1,000	1,000	1,000
Palmdale	17,000	22,000	68,000	117,000	146,000	179,000	206,000
Quartz Hill	5,000	7,000	10,000	10,000	11,000	13,000	15,000
Sun Village	N/A	N/A	N/A	N/A	12,000	14,000	16,000
Unincorporated Los Angeles County	15,000	22,000	46,000	33,000 <sup>g</sup>	25,000	29,000	34,000
<b>Antelope Valley Region</b>	<b>103,000</b>	<b>128,000</b>	<b>275,000</b>	<b>346,000</b>	<b>390,000</b>	<b>465,000</b>	<b>547,000</b>

AFB: Air Force Base; N/A: not applicable; SCAG: Southern California Association of Governments; RTP: Regional Transportation Plan

Note: Projections Rounded to the nearest 1,000 people.

<sup>a</sup> Based on Geolytics Normalization of Past U.S. Census Tract Data to 2000 Census Tract Boundaries.

<sup>b</sup> Based on 1990 Census data, and normalized by percentage of area of Census Block Group or Census Place in the Region.

<sup>c</sup> Based on 2000 Census data, and normalized by percentage of area of Census Block Group or Census Place in the Region.

<sup>d</sup> Based on 2010 Census data, and normalized by percentage of area of Census Block Group or Census Place in the Region.

<sup>e</sup> Projections for Palmdale and Lancaster from the SCAG Adopted 2012 RTP Growth Forecast. For remaining areas, it is assumed the Antelope Valley Region would have a similar annual growth rate as the City of Lancaster, estimated as approximately 1.7 percent per year up to 2020, then 1.0% per year up to 2035.

<sup>f</sup> The portion of California City in the Antelope Valley Region has a population of less than 500 people, and therefore is rounded down to 0.

<sup>g</sup> The decrease in population in unincorporated Los Angeles County is likely due to the addition of Census Designated Places to the census County that had previously been counted as unincorporated area.

Source: RWMG 2013 (Table 2-3).

Tables 5.18-2 through 5.18-4 summarize the average year, single-dry year, and multiple-dry year supply and demand projections in the AVIRWMP for 2010–2035. The projections assume that urban demand will rise from 87,000 afy in 2010 to 118,000 afy in 2035. Agricultural demand is assumed to be 92,000 afy in an average year and 98,000 afy in single-dry and multiple-dry years. Using these assumptions, the AVIRWMP indicates that, by 2035, the region’s water supplies would be sufficient to meet demands in an average year (Table 5.18-2). Demand would exceed supply by approximately 61,200 afy in a single-dry



year (Table 5.18-3) and by approximately 41,200 afy during a multiple-dry year drought (Table 5.18-4).

**TABLE 5.18-2  
ANTELOPE VALLEY INTEGRATED REGIONAL  
WATER MANAGEMENT PLAN PROJECTED WATER SUPPLY  
AND DEMAND (ACRE-FEET) COMPARISON FOR  
AN AVERAGE WATER YEAR**

	2010	2015	2020	2025	2030	2035
<b>Supplies</b>						
Groundwater, Total Safe Yield	110,000	110,000	110,000	110,000	110,000	110,000
WSSP-2 Extractions <sup>a</sup>	2,000	600	600	600	600	600
Subsurface Flow Loss	0	0	0	0	0	0
Direct Deliveries (AVEK, PWD, and LCID SWP Deliveries)	96,100	95,900	95,900	95,900	95,900	95,900
Recycle/Reuse <sup>b</sup>	82	82	82	82	82	82
Surface Deliveries (local reservoirs)	4,000	4,000	4,000	4,000	4,000	4,000
<b>Total Supply</b>	<b>212,200</b>	<b>210,600</b>	<b>210,600</b>	<b>210,600</b>	<b>210,600</b>	<b>210,600</b>
<b>Demands<sup>c</sup></b>						
Urban Demand	87,000	95,000	103,000	108,000	113,000	118,000
Agriculture Demand	92,000	92,000	92,000	92,000	92,000	92,000
<b>Total Demand</b>	<b>179,000</b>	<b>187,000</b>	<b>195,000</b>	<b>200,000</b>	<b>205,000</b>	<b>210,000</b>
<i>Supply and Demand Difference</i>	<i>33,200</i>	<i>23,600</i>	<i>15,600</i>	<i>10,600</i>	<i>5,600</i>	<i>600</i>
AVIRWMP: Antelope Valley Integrated Water Management Plan; af: acre-feet; WSSP-2: Water Supply Stabilization Project No. 2; AVEK: Antelope Valley – East Kern Water Agency; PWD: Palmdale Water District; LCID: Little Creek Irrigation District; SWP: State Water Project; M&I: municipal and industrial  Notes: Totals are rounded to the nearest 100.  <sup>a</sup> Assumes small withdrawals from WSSP-2 will occur to overcome conveyance constraints and enable utilization of 60%–61% of AVEK Table A (SWP reliability estimate). See explanation in Section 3.1.2 of the AVIRWMP. <sup>b</sup> Recycled water demands for 2010–2035 reflect existing 2013 M&I demands (i.e., Division Street Corridor and McAdam Park). <sup>c</sup> Demand includes groundwater extractions.  Source: RWMG 2013 (Table 3-14).						

**TABLE 5.18-3  
ANTELOPE VALLEY INTEGRATED REGIONAL  
WATER MANAGEMENT PLAN PROJECTED WATER  
SUPPLY AND DEMAND (ACRE-FEET) COMPARISON  
FOR A SINGLE-DRY WATER YEAR**

	2010	2015	2020	2025	2030	2035
<b>Supplies</b>						
Groundwater, Total Safe Yield	110,000	110,000	110,000	110,000	110,000	110,000
WSSP-2 Extractions <sup>a</sup>	0	23,000	23,000	23,000	23,000	23,000
Subsurface Flow Loss	0	0	0	0	0	0
Direct Deliveries (AVEK, PWD, and LCID SWP Deliveries)	14,500	17,700	17,700	17,700	17,700	17,700
Recycle/Reuse <sup>b</sup>	82	82	82	82	82	82
Surface Deliveries (local reservoirs)	4,000	4,000	4,000	4,000	4,000	4,000
<b>Total Supply</b>	<b>128,600</b>	<b>154,800</b>	<b>154,800</b>	<b>154,800</b>	<b>154,800</b>	<b>154,800</b>
<b>Demands<sup>c</sup></b>						
Urban Demand	87,000	95,000	103,000	108,000	113,000	118,000
Agriculture Demand	98,000	98,000	98,000	98,000	98,000	98,000
<b>Total Demand</b>	<b>185,000</b>	<b>193,000</b>	<b>201,000</b>	<b>206,000</b>	<b>211,000</b>	<b>216,000</b>
<i>Supply and Demand Difference</i>	<i>(56,400)</i>	<i>(38,200)</i>	<i>(46,200)</i>	<i>(51,200)</i>	<i>(56,200)</i>	<i>(61,200)</i>
<p>AVIRWMP: Antelope Valley Integrated Water Management Plan; af: acre-feet; WSSP-2: Water Supply Stabilization Project No. 2; AVEK: Antelope Valley – East Kern Water Agency; PWD: Palmdale Water District; LCID: Little Creek Irrigation District; SWP: State Water Project; M&amp;I: municipal and industrial</p> <p>Note: Totals are rounded to the nearest 100.</p> <p><sup>a</sup> Assumes periodic wet years have occurred to allow quantities of SWP deliveries above AVEK demands to fill the water bank.</p> <p><sup>b</sup> Recycled water demands for 2010–2035 reflect existing 2013 M&amp;I demands (i.e., Division Street Corridor and McAdam Park).</p> <p><sup>c</sup> Demand includes groundwater extractions.</p> <p>Source: RWMG 2013 (Table 3-15).</p>						

**TABLE 5.18-4**  
**ANTELOPE VALLEY INTEGRATED REGIONAL**  
**WATER MANAGEMENT PLAN PROJECTED WATER**  
**SUPPLY AND DEMAND (ACRE-FEET) COMPARISON FOR**  
**A MULTIPLE-DRY WATER YEAR**

	2010	2015	2020	2025	2030	2035
<b>Supplies</b>						
Groundwater, Total Safe Yield	110,000	110,000	110,000	110,000	110,000	110,000
WSSP-2 Extractions <sup>a</sup>	0	6,000	6,000	6,000	6,000	6,000
Subsurface Flow Loss	0	0	0	0	0	0
Direct Deliveries (AVEK, PWD and LCID SWP Deliveries)	56,300	54,700	54,700	54,700	54,700	54,700
Recycle/Reuse <sup>b</sup>	82	82	82	82	82	82
Surface Deliveries (local reservoirs)	4,000	4,000	4,000	4,000	4,000	4,000
<b>Total Supply</b>	<b>170,400</b>	<b>174,800</b>	<b>174,800</b>	<b>174,800</b>	<b>174,800</b>	<b>174,800</b>
<b>Demands<sup>c</sup></b>						
Urban Demand	87,000	95,000	103,000	108,000	113,000	118,000
Agriculture Demand	98,000	98,000	98,000	98,000	98,000	98,000
<b>Total Demand</b>	<b>185,000</b>	<b>193,000</b>	<b>201,000</b>	<b>206,000</b>	<b>211,000</b>	<b>216,000</b>
<i>Supply and Demand Difference</i>	<i>(14,600)</i>	<i>(18,200)</i>	<i>(26,200)</i>	<i>(31,200)</i>	<i>(36,200)</i>	<i>(41,200)</i>
AVIRWMP: Antelope Valley Integrated Water Management Plan; af: acre-feet; WSSP-2: Water Supply Stabilization Project No. 2; AVEK: Antelope Valley – East Kern Water Agency; PWD: Palmdale Water District; LCID: Little Creek Irrigation District; SWP: State Water Project; afy: acre-feet per year; M&I: municipal and industrial  Note: Values assume 4-year dry period begins in the year shown and totals are rounded to the nearest 100.  <sup>a</sup> Assumes periodic wet years have occurred to allow quantities of SWP deliveries above AVEK demands to fill the water bank. Full bank storage is evenly distributed over the 4-year dry period, rounding to about 6,000 afy each year. <sup>b</sup> Recycled water demands for 2010–2035 reflect existing 2013 M&I demands (i.e., Division Street Corridor and McAdam Park). <sup>c</sup> Demand includes groundwater extractions.  Source: RWMG 2013 (Table 3-16).						

Table 5.18-5 summarizes the 2010 per capita urban water use estimated in the AVIRWMP for the portions of the AVEK service area not supplied by another large retail purveyor and for other large water purveyors in the Antelope Valley. The estimates range from 280 gallons per capita per day (gpcd) in the QHWD to 152 gpcd in the RCSD. For information purposes, Table 5.18-5 also calculates the urban gpcd levels that would correspond with a ten percent reduction from the 2010 estimates. As discussed above, in 2009, the California legislature amended the *California Water Code* to require a 20 percent reduction in per capita urban water use by 2020. In addition, in 2016, five California resource agencies published a framework report for implementing Executive Order B-37-16 include an initial residential standard of 55 gpcd (DWR et al. 2016b). The AVIRWMP states that, regardless of whether a water agency achieves the 20 percent reductions mandated by State law, all purveyors are required to design and implement water conservation programs to further reduce per capita

consumption. With the implementation of these programs, it is expected that the average per capita water use in the Antelope Valley region will decrease (RWMG 2013). The 10 percent reduction from 2010 levels shown in Table 5.18-5 indicates potential levels of regional water demand assuming only a 10 percent reduction and residential water use, in most instances, above 55 gpcd.

**TABLE 5.18-5  
ANTELOPE VALLEY INTEGRATED REGIONAL  
WATER MANAGEMENT PLAN ESTIMATED 2010 PER CAPITA  
URBAN WATER USE IN THE ANTELOPE VALLEY**

	2010 Population	2010 Urban Water Use	2010 afy/person	2010 gpcd levels <sup>f</sup>	10% reduction from 2010 gpcd levels <sup>f</sup>
AVEK (excluding purveyors) <sup>a</sup>	84,000	15,000	0.181	162	145
LCID <sup>b</sup>	3,000	1,000	0.310	277	249
LACWWD40 <sup>c</sup>	172,000	46,000	0.265	237	213
PWD <sup>d</sup>	109,000	20,000	0.181	162	145
QHWD <sup>d</sup>	18,000	6,000	0.314	280	252
RCSD <sup>d</sup>	18,000	3,000	0.170	152	137
Antelope Valley Region <sup>e</sup>	403,000	90,000	0.223	199	179

AVIRWMP: Antelope Valley Integrated Water Management Plan; afy: acre-feet per year; gpcd: gallons per capita per day; AVEK: Antelope Valley – East Kern Water Agency; LCID: Littlerock Creek Irrigation District; LACWWD40: Los Angeles County Waterworks District No. 40; PWD: Palmdale Water District; QHWD: Quartz Hill Water District; RCSD: Rosamond Community Services District; UWMP: Urban Water Management Plan; CDPH: California Department of Public Health

Note: All numbers rounded to the nearest 1,000. Numbers do not include private well owners. It is assumed that the demand and population numbers reported in the UWMPs provide an approximate per capita estimate for the Region.

<sup>a</sup> As determined from data in the AVEK's 2010 UWMP. Values exclude population and demand numbers for LCID, LACWWD40, PWD, QHWD, and RCSD that fall inside the AVEK service area.

<sup>b</sup> Values exclude LCID agricultural demand. Demand verified by personal communication with Brad Bones at LCID on August 21, 2013. Population sizes from the Annual CDPH Drinking Water Program Report.

<sup>c</sup> Population size from the Annual CDPH Drinking Water Program Report. Water demand is based on values from the Antelope Valley 2010 Integrated UWMP (which is based on land use).

<sup>d</sup> Based on values provided in the 2010 UWMPs and 2009 actual water use.

<sup>e</sup> Antelope Valley Region per capita water use was determined by dividing total water demand by total population. These numbers do not include private well owners. Values in the Antelope Valley Region row may differ from the sum of district information due to rounding errors.

<sup>f</sup> Gallons per capita per day estimated by using afy per person reported in the AVIRWMP's Table 3-4. The afy per person estimates for specific purveyors in the AVIRWMP vary slightly from the amounts derived by dividing the reported service area population by water use. For consistency, the AVIRWMP values are used to estimate gpcd levels. Potential gpcd rates reflecting a 10% reduction from estimated 2010 gpcd levels are included for informational purposes.

Source: RWMG 2013 (Table 3-4).

The AVIRWMP indicates that conservation measures could substantially reduce the supply and demand projections for the 2015–2035 period. The plan states that aggressive

conservation could reduce urban water demands by ten percent by 2035 (RWMG 2013). Significant water conservation was achieved in the Antelope Valley during the recent drought. In 2015, for example, LACWWD40 water use was 165 gpcd, which is substantially below the 2010 level of 237 gpcd estimated in the AVIRWMP and the District's 5-year baseline (2003–2007) average use of 267 gpcd (LACWWD40 2017).

The AVIRWMP also discusses other water sources potentially available to the region, including Table A transfers from other SWP contractors; SWP Article 21 water; transfers from the Central Valley Project (CVP) system operated by the U.S. Bureau of Reclamation (USBR); transfers from other water rights holders in the Sacramento Valley; treated storm water captured and recharged into the ground; and desalinated water. Potential additional supplies identified in the AVIRWMP are briefly discussed below.

- **State Water Project Table A Transfers.** Certain SWP contractors, or their member agencies or subcontractors, hold a contractual right to SWP Table A Amounts and are required to make substantial annual payments to maintain these amounts regardless of whether SWP water is actually requested or delivered. SWP participants may desire to reduce these fixed costs by selling excess Table A Amounts to other users. As discussed in Section 5.18.6, approximately 3,444 afy of Table A Amounts were purchased from Central Valley water districts for Project use. Other potential Table A transfer opportunities for the Antelope Valley are reasonably likely to become available in the future.
- **Article 21 Water.** As discussed above, SWP Article 21 water is made available on an unscheduled and interruptible basis under Article 21 of the SWP contracts and is typically available only in average to wet years for a limited time in winter months. Although the development of local banking operations, including the Water Supply Stabilization Project No. 2 (WSSP-2) operated by AVEK, could increase the potential utility of Article 21 water for use in the Antelope Valley region, the AVIRWMP indicates that Article 21 water is not considered a long-term reliable supply (RWMG 2013).
- **Central Valley Project Water.** CVP supplies, if available, would be transported by AVEK via the SWP conveyance facilities on a low-priority basis and would be less reliable than SWP supplies. Like SWP supplies, CVP supplies are constrained by Delta species, water quality, and export system management issues. The transfer of CVP water from agricultural to urban use could also generate socioeconomic impacts, and most CVP contractor supplies have already been allocated for other uses, including environmental restoration projects. Consequently, the AVIRWMP indicates that CVP water is not available for long-term, reliable sale or exchange that would facilitate use in the Antelope Valley (RWMG 2013).

The General Plan Update EIR utilized the AVIRWMP 2035 regional supply estimate of 210,600 afy and estimated the incremental demand growth associated with General Plan implementation by assuming that the urban water demand would be approximately 142 gpcd in 2035 (DRP 2015c, Table 5.18-17). Based on this demand level and the higher amount of population growth anticipated prior to the adoption of the AVAP Update, the General Plan Update Draft EIR estimates that implementation of the General Plan would

result urban demand of approximately 170,400 afy in unincorporated Antelope Valley. The General Plan Update EIR concludes that, even with the planned future water supplies under consideration by Antelope Valley water agencies, water supplies in the Antelope Valley planning area would not be adequate to serve anticipated demand from growth and that impacts on Antelope Valley water supplies as a result of General Plan implementation would be significant and unavoidable (DRP 2015c).

The General Plan Update Final EIR states that the Los Angeles County Board of Supervisors adopted the AVAP Update after the General Plan Update Draft EIR was prepared and that the AVAP update was consistent with the buildout projections identified in the Antelope Valley Reduced Intensity Alternative in the General Plan Update Draft EIR. The buildout levels that would result from the implementation of the AVAP update are substantially lower than under the previous version of the County General Plan. As approved, the AVAP update would result in a plan buildout total of 106,180 dwelling units, a 405,410 resident population, 134,351 employees, and a jobs/housing ratio of 1.3 compared with the prior General Plan buildout of 278,158 dwelling units, 1,070,571 population, 51,219 employees and a jobs/housing ratio of 0.18. The Final EIR for the AVAP update utilized the AVIRWMP average Antelope Valley estimate of per capita water use (199 gpcd) to evaluate the water demand growth that could occur from implementing the plan. The General Plan Update Final EIR determined that the lower residential and related development associated with the AVAP update would reduce future water demand, but that the plan's water supply impacts would nevertheless remain significant and unavoidable (DRP 2015c).

## **Water Quality**

### ***Groundwater Quality***

Groundwater quality in the Antelope Valley Region is excellent within the principal aquifer but degrades toward the northern portion of the dry lakes areas. Groundwater is typically characterized by calcium bicarbonate near the surrounding mountains and is characterized by sodium bicarbonate or sodium sulfate in the central part of the basin. In the eastern part of the basin, the upper aquifer has sodium-calcium bicarbonate type water and the lower aquifer has sodium bicarbonate type water. The water in the principal aquifer has a total dissolved solid (TDS) concentration ranging from 200 to 800 milligrams per liter (mg/L) and is considered to be generally suitable for domestic, agricultural, and industrial uses. The deep aquifer typically has a higher TDS level. Hardness ranges from 50 to 200 mg/L, and high fluoride, boron, nitrates, chromium, and antimony are a problem in some areas of the basin. The groundwater in the basin is used for both agricultural and municipal and industrial (M&I) purposes (RWMG 2013).

Arsenic is closely monitored in the Antelope Valley region; it is a naturally occurring inorganic contaminant that is often found in groundwater and is occasionally found in surface water. Anthropogenic sources of arsenic include agricultural, industrial, and mining activities. Arsenic can be toxic in high concentrations, and is linked to increased risk of cancer when consumed for a lifetime at or above the regulated maximum contaminant level (MCL) of ten parts per billion (ppb). Arsenic levels above the MCL have been observed in the

Antelope Valley region. When detected in wells, local water districts typically blend the affected water with higher-quality supplies to reduce arsenic concentrations (RWMG 2013).

Hexavalent chromium or chromium-6 is also monitored in the Antelope Valley. Chromium-6 can occur in the environment from the erosion of natural chromium deposits, but can also be produced by industrial processes such as chrome plating, dyes and pigments, and leather and wood preservation. In June 2014, California adopted a 0.010 mg/L (10 ppb) MCL for Chromium-6 (SWRCB 2015a).

Other regional water quality concerns include nitrate levels above the current MCL of 45 parts per million (ppm) and high TDS levels in portions of the Antelope Valley Basin. Groundwater monitoring data from the mid-to-late 1990s indicate that nitrate (NO<sub>3</sub>) concentrations periodically exceed the primary MCL for drinking water in two wells located in the southern portion of the groundwater basin near the Palmdale Wastewater Reclamation Plant (WRP). Agricultural fertilization practices and discharge of treated wastewater has likely contributed to the elevated levels. Actions have been implemented to address these concerns and to minimize any impact from treated wastewater, including treatment upgrades, a change in effluent management practices, the implementation of a recycled water distribution system, and groundwater remediation activities near the Palmdale WRP site (RWMG 2013).

### ***Imported Water Quality***

SWP water quality is continuously monitored by the DWR. Table 3-18 of the AVIRWMP, which summarizes DWR testing data collected from SWP water samples over a two-year period (2010–2012), shows that SWP supplies prior to treatment generally meet or exceed all applicable MCLs. As previously discussed, SWP water is treated by one of four AVEK facilities prior to delivery to the existing water purveyors, including the Quartz Hill Water Treatment Plant (90 million gallons per day [mgd]), the Eastside Water Treatment Plant (10 mgd), the Rosamond Water Treatment Plant (14 mgd), and the Acton Water Treatment Plant (4 mgd). These facilities further ensure that SWP-supplied water achieves all applicable drinking water quality objectives (RWMG 2013).

### ***Recycled Water Quality***

Regional infrastructure required to produce and distribute tertiary-treated effluent from the region's three water reclamation plants continues to be developed in the Antelope Valley. The water will be treated to levels suitable for unrestricted reuse, including for irrigating freeway landscapes, parks, schools, senior complexes, and new home developments. The effluent will also meet all Waste Discharge Requirements (WDRs) issued by the Regional Water Quality Control Board for the region. Revised WDRs for the Lancaster WRP were issued in 2009 and in 2011 for the Palmdale WRP. When used to recharge groundwater, recycled water will be blended or subject to additional water quality requirements to protect regional groundwater. TDS and nutrients from recycled water will be managed in conjunction with the adopted 2014 Salt/Nutrient Management Plan for the Antelope Valley.

## 5.18.4 PROJECT DESIGN FEATURES

- PDF 18-1** All indoor appliances and potable and non-potable water distribution and application systems will conform to the water conservation requirements in the *Centennial Specific Plan* and the Centennial Green Development Plan. The Project will meet or exceed the indoor and outdoor residential and non-residential standards in the California Green Building Standards (CALGreen) and County Green Building Standards codes; State Appliance Efficiency Regulations; and State residential and non-residential indoor and outdoor water use standards, including standards that would be adopted under Executive Order B-37-16. All non-construction water use on the Project site will be metered and monitored. The Project Water Purveyor will implement water-based budget rates in conformance with all applicable laws and in a manner consistent with similar rate structures implemented throughout California, including the Irvine Ranch Water District, the Rancho California Water District, the Western Municipal Water District, and the Eastern Municipal Water District.
- PDF 18-2** All on-site landscaping and irrigation equipment will conform with the plant palette and irrigation efficiency requirements for specific land uses in Section 3.4 of the *Centennial Specific Plan* to ensure that outdoor water use achieves projected levels and to
- Retain the look and/or feel of a regionally appropriate landscape;
  - Minimize changes in soil types and the energy required to irrigate them;
  - Minimize irrigated areas; and
  - Minimize water demand in irrigated areas.
- PDF 18-3** Recycled water treated to *California Code of Regulations* Title 22 unrestricted reuse standards will be produced from on-site treatment facilities and used to meet Project demand and to reduce potable water and maximize recycled water use.
- PDF 18-4** Water Use Reports will be prepared and submitted to the County to verify that projected water use efficiencies are being achieved (1) at the end of the 5<sup>th</sup> year following first occupancy or occupancy of the 4,000<sup>th</sup> dwelling unit and (2) at the end of the 10<sup>th</sup> year following first occupancy or occupancy of the 10,000<sup>th</sup> dwelling unit, whichever occurs later. In the event that a Water Use Report indicates that consumption exceeds projected levels, response measures must be implemented to ensure that available supplies will be sufficient to meet future demand.



### 5.18.5 THRESHOLD CRITERIA

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact if it would:

**Threshold 18-1** Have insufficient reliable water supplies available to serve the project demands from existing entitlements and resources, considering existing and projected water demands from other land uses.

**Threshold 18-2** Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

### 5.18.6 ENVIRONMENTAL IMPACTS

**Threshold 18-1** **Would the project have sufficient reliable water supplies available to serve the project demands from existing entitlements and resources, considering existing and projected water demands from other land uses?**

#### On-Site Impacts

The Project has been designed to achieve indoor and outdoor water demand and recycled water use levels that meet or exceed California regulatory requirements, including the CALGreen Code and the State's Appliance Efficiency Regulations; it has also been designed to be consistent with existing water use in the state's more efficient communities. Water demand will be sustainably met by using groundwater; in-basin return flows; recycled water; imported water supplies that have been secured for Project use; service area deliveries from AVEK that have been incorporated into the Agency's UWMP; and imported water stored in water banking facilities in accordance with the adjudication Judgment and Physical Solution. Recycled water produced from on-site wastewater flows will supply approximately 40 percent of demand at Project buildout.

All indoor and outdoor water use will be metered. The metering data will be compiled into Water Use Reports provided to the County after approximately 25 percent and 50 percent of the Project has been built, following first occupancy, to assess the extent to which planned water use efficiencies are being achieved. In the event that a Water Use Report indicates that consumption exceeds projected levels, the Project Water Purveyor must implement response measures to ensure that available supplies will be sufficient to meet future demand. Potential response measures include legally permissible cost-based adjustments to water and wastewater budget-based rates; additional enforcement; water system repairs or equipment upgrades; or obtaining supplemental water supplies. No additional development will be approved until sufficient response measures, if required, have been implemented to the satisfaction of the County.

Consistent with the peer review of the Project's water supply and demand (see Appendix 5.18-G) the Project Water Purveyor will implement water budget-based rates to ensure that applicable water indoor and outdoor water use standards are achieved in a fair and equitable manner (Kennedy/Jenks 2017). Water budget based rates for indoor and outdoor residential, commercial, industrial and other uses have been used throughout California, including the Irvine Ranch Water District (IRWD), the Rancho California Water District, the Eastern Municipal Water District, and the Western Municipal Water District. The rates are based on the costs associated with water consumption for specific uses, such as residential indoor; outdoor residential yard; and commercial, industrial, and institutional indoor and outdoor use. The IRWD rates, for example, incorporate a 50 gpcd baseline factor for residential use and residential yard irrigation in accordance with applicable landscape area and plants. The costs of supplying water increase with the volume of use because a supplier must utilize more expensive supplies to meet progressively higher marginal water demands. As a result, water-budget based rates used by the IRWD and other districts incorporate lower rates for use below the applicable indoor and outdoor budgets, and higher rates for use above the budgeted levels to reflect the marginal costs of supplying additional water.

Water budget based rates provide an effective means for discouraging overuse generally and for significantly reducing outdoor water use. For example, the IRWD implemented this type of rate structure in 1991 and has since achieved a 50 percent reduction in per capita water use for residential customers. Average IRWD residential indoor and outdoor water use is about 85 gpcd, among the lowest levels in the State, and IRWD is regarded as a statewide leader in water efficiency (IRWD 2017). A 2016 study found that water budget-based rates significantly reduce overall water demand, particularly by less efficient users, and are much more effective than watering restrictions, low-flow fixtures and appliances, turf removal subsidies, and information/education campaigns (Mukherjee et al. 2016).

In 2015, a California Court of Appeals decision found that a water district's tiered rate structure violated the state constitution because the rates in each tier were not related in any way to the water purveyor's marginal cost of service (*Capistrano Taxpayers Assn., Inc. V. City Of San Juan Capistrano* 235 Cal.App.4th 1493 [2015]). The Capistrano case emphasized, however, that water budget based or tiered rates are "thoroughly compatible" with the state constitution provided they reasonably reflect the cost of service to each parcel. The court also determined that water rates may also permissibly impose higher rates on high-use consumers whose extra use of water forces water agencies to incur higher costs to supply extra water. Several districts, including the IRWD, have determined that the water budget based rates comply with the requirements of the Capistrano case because they are properly based on documented costs of service (IRWD 2015; Western Municipal Water District 2015). The Project Water Purveyor will comply with all legal requirements in the establishment of water budget based rates.

### ***Project Water Demand***

The Project's water demand incorporates the recommendations of the Peer Review Report submitted by Kennedy-Jenks to the County in 2017 (Appendix 5.18-G). To reflect historical water use levels in the Antelope Valley and Santa Clarita areas where much of the existing housing and other developed infrastructure predates the installation of more efficient indoor

and outdoor water fixtures and irrigation technologies, the Peer Review Report recommends using a 60 to 65 gpcd range as the indoor residential water use factor for the Project. As discussed in Section 5.18.2, Relevant Plans, Policies, and Regulations, state law currently requires that water districts reduce per capita urban demand by 20 percent by 2020. Consistent with this objective, more stringent, low-flow fixture requirements have been implemented in the CALGreen Code, as adopted by Los Angeles County and the state in 2013, which include the emergency regulations adopted in response to Executive Order No. B-29-15. These building codes specify the maximum allowable flowrates for fittings and fixtures and are consistent with the *California Health and Safety Code*, the California Plumbing Code, and the California Energy Commission's proposed Appliance Efficiency Regulations. These building codes include the following standards, which have recently been updated in response to the Governor's Executive Order No. B-29-15:

- **Toilets:** 1.28 gallons per flush
- **Showers:** effective July 1, 2016, 2.0 gallons per minute (gpm) at 80 pounds per square inch (psi) decreasing to 1.8 gpm after July 1, 2018
- **Bathroom Faucets:** 1.2 gpm at 60 psi
- **Kitchen Faucets:** 1.8 gpm at 60 psi;
- **Common Area Bathroom Faucets:** 0.5 gpm at 60 psi
- **Urinals:** 0.125 gallon per flush

In November 2016, five state resource agencies published a framework report for implementing permanent water conservation measures, including indoor and outdoor residential, commercial, industrial, and institutional water use standards to implement Executive Order B-37-16. The report states that, until a new standard for indoor residential water use is adopted in 2025, the existing *California Water Code* standard of 55 gpcd will apply in California (DWR et al. 2016b). As noted in the framework report and in the current California Water Plan, the USEPA and the DWR have published studies demonstrating that standard homes built after 2001 that do not include the USEPA's more efficient WaterSense residential specifications consume 44.2 gpcd for indoor uses (DWR 2014; Aquacraft 2011a, 2011b). The studies also show that standard homes retrofitted or built to WaterSense or similar specifications can achieve indoor water use rates ranging from 35.6 to 39 gpcd (see Table 5.18-6).

**TABLE 5.18-6  
RESIDENTIAL INDOOR WATER USE RATES IN  
U.S. ENVIRONMENTAL PROTECTION AGENCY AND  
CALIFORNIA DEPARTMENT OF WATER RESOURCES  
NATIONAL AND CALIFORNIA STUDIES**

Type of Home	Indoor Water Use (gpcd)
USEPA study of nationwide homes built before 1995	62.2
California study of 93% of homes built before 1994 and 7% of homes built between 1995 and 2006	53.9
“Standard homes” built since 2001 not specifically designed for water use efficiency	44.2
Standard homes retrofitted to approximate USEPA WaterSense specifications	39
High efficiency homes built to USEPA WaterSense or similar specifications	35.6
gpcd: gallons per capita per day; USEPA: U.S. Environmental Protection Agency; DWR: California Department of Water Resources	
Sources: Aquacraft 2011a (Table 4-33), 2011b (Tables 63 and 73).	

The analysis of Project water supply and demand uses the most conservative residential indoor demand recommended in the Peer Review Report (i.e., 65 gpcd). This water use factor is 47 percent higher than the post-2001 standard home rate documented in the DWR and USEPA studies (44.2 gpcd) and 18 percent higher than the 55 gpcd standard in the multi-agency framework report and the statewide provisional standard set by the state legislature in 2009 (*California Water Code*, Section 10608.20[B]). The Project will comply with all applicable water conservation, fixture and irrigation efficiency standards, including existing and proposed standards that would result in or require lower water demands. Water budget based rates will be implemented by the Project Water Purveyor and will incorporate the more stringent of the existing state 55 gpcd or future adopted State or County use residential indoor use factors to ensure that Project demand will not exceed the projected levels. As a result, the Project’s water use may be lower than projected using the recommended water use factors in the Peer Review Report.

As discussed in Section 4.0, Project Description, at full buildout, the Project will include up to 19,333 dwelling units; a resident population of 57,150; and up to 10,097,208 square feet of commercial, business park, recreation, civic, institutional, and utility uses. The total potable water demand will be approximately 6,788 afy, including a 5 percent potable water system loss. Approximately 4,577 afy of recycled water will be generated by treating the Project’s wastewater flow. To account for losses in the wastewater treatment and recycled water distribution system, the demand estimates include a conservative ten percent loss between indoor water demand and wastewater flow volumes and the available recycled water supply. Recycled water will be used to irrigate parks, common areas, slopes, arterial roadways, landscaped non-residential areas, portions of larger residential lots, and for wastewater and cooling purposes in the business park. Total water demand at buildout will be approximately 11,365 afy, including potable system losses. Recycled water will supply approximately 40 percent of the Project’s buildout demand.

The Project Water Purveyor will continuously meter and monitor all on-site water use to identify and repair water system facility, equipment, fixtures and irrigation device leaks to conserve supplies. A water budget-based rate structure that meets applicable legal requirements will be utilized to create volumetric pricing incentives for greater water use efficiency based on the marginal cost of supplying water in excess of budgeted levels; to identify water users that are significantly exceeding planned consumption rates; and to allow for the remediation of malfunctioning equipment or enforcement to address chronic overuse. In addition, the Project Water Purveyor will monitor water use to ensure conformance with the plant palette and irrigation efficiency standards for specific land uses in Section 3.4 of the *Centennial Specific Plan*. These standards include the installation of water- and climate-sensing irrigation controllers that will reduce demand by applying outdoor water only on an as-needed basis.

Table 5.18-7 summarizes the projected water demand by land use for the Project. The water demand, loss, and other factors used in the analysis are consistent with the recommendations of the Peer Review Report submitted (see Appendix 5.18-G).

**TABLE 5.18-7  
CENTENNIAL LAND USE AND WATER DEMAND AT PROJECT BUILDOUT**

Land Use Designation	Net Acres	Density (du/ac)	Dwelling Units	Building (sf)	Persons/du	Indoor Potable Demand		Outdoor Potable Demand		Total Potable Demand afy	Recycled (Irrigation and Dual Use Plumbing) Water Demand		
						Factor <sup>a</sup>	afy	Factor <sup>b</sup>	afy		Irrigation (%)	Factor <sup>c</sup>	afy
<b>Residential</b>													
Very Low Density	646	2	1,270		3.17	206	293	130	185	478		166	236
Low Density	1,960	5	9,660		3.17	206	2,230	81	876	3,106		103	1,115
Medium Density	674	9											
Detached			3,168		3.17	206	731	81	287	1,019			
Attached			2,880		2.38	155	499	25	81	580		46	148
High Density	136	13	2,055		2.38	155	356	5	12	368		57	131
Very High Density	12	24	300		2.38	155	52	1	0 <sup>f</sup>	52		15	5
<i>Residential Subtotal</i>	<i>3,428</i>		<i>19,333</i>		<i>57,150</i>		<i>4,161</i>		<i>1,441</i>	<i>5,602</i>			<i>1,635</i>
<b>Schools</b>													
<b>Students</b>													
Grades (K-8)	88		6,985			5	39			39	50%	4,000	197
Grades (9-12)	60		2,840			10	32			32	50%	4,000	134
<i>Schools Subtotal</i>	<i>148</i>		<i>9,825</i>				<i>71</i>			<i>71</i>			<i>332</i>
<b>Non-Residential</b>													
<b>Rooms</b>													
Commercial	95			1,034,550		200	232			232	20%	2,800	60
Business Park	483												
Potable Indoor and Irrigation				7,211,358		65	368			368	20%	2,800	303
Recycled Indoor Use													157
Hotel			400	152,460		125	56			56			
Civic/Institutional	90			1,568,160		50	88			88	15%	2,800	42
Public/Utility <sup>d</sup>	191			200,000		65	15			15	5%	2,800	30
<i>Commercial Subtotal</i>	<i>859</i>			<i>9,966,528<sup>g</sup></i>			<i>758</i>		<i>0</i>	<i>758</i>			<i>592</i>
<b>Open Space/Parks/Slopes/Etc.</b>													
Public Parks	163										80%	4,200	613
Private Parks	19										50%	4,200	45
Park Lakes	20										75%	4,200	71
Recreation/Entertainment	75			130,680		200	29		5	34	50%	2,900	122
Slopes	750										100%	1,200	1,008
Arterial Roadways <sup>e</sup>	327										30%	1,500	160
Not Irrigated													

**TABLE 5.18-7  
CENTENNIAL LAND USE AND WATER DEMAND AT PROJECT BUILDOUT**

Land Use Designation	Net Acres	Density (du/ac)	Dwelling Units	Building (sf)	Persons/du	Indoor Potable Demand		Outdoor Potable Demand		Total Potable Demand	Recycled (Irrigation and Dual Use Plumbing) Water Demand			
						Factor <sup>a</sup>	afy	Factor <sup>b</sup>	afy		afy	Irrigation (%)	Factor <sup>c</sup>	afy
Open Space	5,623													
Internal Roadways	830													
Other	80													
<i>Open Space/Parks/Slopes/Etc. Subtotal</i>	7,887			130,680			29		5	34				2,018
<i>Non-Residential Subtotal</i>	8,894			10,097,208			858		5	862				2,942
<b>Subtotal</b>	<b>12,322</b>						<b>5,019</b>		<b>1,446</b>	<b>6,465</b>				<b>4,577</b>
Potable System Losses (5%)							251		72	323				
<b>Total Water Demand</b>							<b>5,270</b>		<b>1,518</b>	<b>6,788</b>				<b>4,577</b>

du/ac: dwelling units per acre; sf: square feet; du: dwelling unit; afy: acre-feet per year; K: Kindergarten; gpd: gallons per day

<sup>a</sup> Indoor Water Demand is estimated as gpd per dwelling unit for residential; gallons per thousand square feet for non-residential; gpd per student; and gpd per hotel room.

<sup>b</sup> Outdoor Potable Water Demand is estimated as gpd/unit for residential and gallons per thousand square feet for non-residential land uses.

<sup>c</sup> Common Area Irrigation Demand is estimated as gpd/unit for residential and gallons per acre per day multiplied by the applicable irrigation percentage shown for each land use.

<sup>d</sup> Building square footage for water district facilities is not included in the non-residential building area totals.

<sup>e</sup> Includes approximately 4,136,951 sf of irrigation for the 6-lane arterial roadway, 4-lane arterial collector and industrial collector included in the *Centennial Specific Plan*.

<sup>f</sup> Number here is 0.34 and was rounded to "0".

<sup>g</sup> The 200,000 sf for Public/Utility is not included in the total

All values subject to rounding.

Source: Psomas 2017a

In 2015, the DWR updated the state Model Water Efficient Landscape Ordinance (MWELo) to reduce the maximum level of potable outdoor water use that California should use for outdoor irrigation to reduce water demand. As amended, the MWELo requires the calculation of a Maximum Applied Water Allowance (MAWA) for outdoor water use that is no more than 55 percent of the reference evapotranspiration (ET<sub>o</sub>) rate for residential landscaping and 45 percent for commercial landscaping. Evapotranspiration (ET) is the loss of water to the atmosphere by the combined processes of evaporation from soil and plant surfaces and water taken up by the plants, used, and subsequently transpired as water vapor. The ET<sub>o</sub> rate is derived from the measured ET levels for standardized grass or alfalfa at weather stations in specific locations of the state. In general, the reference ET<sub>o</sub> rate is higher in drier and hotter regions than in wetter and cooler locations. Based on the reported ET<sub>o</sub> levels at 3 California monitoring stations closest to the site, the reference ET<sub>o</sub> rate for the Project site is approximately 64.15 inches per year (Psomas 2017c).

The Project has been designed to reduce potable outdoor demand by using water-efficient plants and efficient irrigation equipment to facilitate landscaping that meets the MAWA as required by the MWELo, specifically no more than 55 percent of the reference ET<sub>o</sub> for residential landscaping and no more than 45 percent of the reference ET<sub>o</sub> for commercial landscaping. This equals an average application rate of approximately 35 inches per year for residential landscaping and 29 inches per year for commercial landscaping based on the ET<sub>o</sub> rate of 64.15 inches per year. As shown in Section 3.4 of the *Centennial Specific Plan*, residential and other land use landscaping will utilize a plant palette and irrigation equipment to ensure that outdoor water use is consistent with these application rates. Landscaping will primarily consist of climate-adapted plants that require occasional water (with a plant factor as defined in the MWELo of 0.3 or less) installed on at least 75 percent of the planted area, excluding areas irrigated with recycled water. Efficient irrigation will be achieved through the use of automatic weather-based irrigation controllers required on all lots that use ET or soil moisture sensor data and have rain sensors. Pressure regulators will be installed on irrigation systems to ensure the dynamic pressure of the system is within the manufacturer's recommended pressure range. The irrigation objective will be flexibly achieved by matching plant types with a required level of irrigation efficiency within each lot. Lots that include turfed areas, for example, must utilize very low water use shrubs in other locations and install efficient turf and drip irrigation systems to meet the overall outdoor water application rate. Lots that are planted with very low water use shrubs could achieve the outdoor application rate with less efficient irrigation systems or a mix of low, moderate, and limited numbers of high-water use shrubs. Consistent with the California Water Plan and the Peer Review Report, a budget-based water rate structure based on the cost of water service for the Project will be utilized to ensure that outdoor demand remains within projected levels (DWR 2014 [Vol. 3, Ch. 3]; Kennedy/Jenks 2017).

As shown in Table 5.18-7, approximately 75 percent (285 afy of 377 afy) of the outdoor water use for medium density attached, high density, and very high density residential will be supplied by recycled water in common area landscaping. In addition, dual water piping will be installed to supply recycled water for irrigation of the Project's very low and low density lots. About 56 percent (1,351 afy of 2,412 afy) of the outdoor irrigation in very low density and low density lots will consist of recycled water supplied from the on-site wastewater reclamation facilities. Recycled water will be used on approximately 50 percent



of the landscape areas around the outer portions of each lot and supplemented with potable water for irrigation adjacent to residential structures. Areas irrigated with recycled water are designated in the MWELo as a Special Landscape Area allowing higher irrigation application rates up to 100 percent of the applicable ETo. The residential areas irrigated with recycled water will still implement water efficient palettes and irrigation techniques to facilitate landscaping that meets a MAWA of 70 percent of the reference ETo.

The Project's total residential water use will be approximately 113 gpcd at buildout, including the projected 65 gpcd of potable water for indoor residential use recommended in the Peer Review Report; 22.5 gpcd for outdoor potable residential water use; and 25.5 gpcd of recycled water for outdoor irrigation in very low and low density lots and residential common areas.

Commercial, business park, industrial, and civic/institutional (CII) indoor water use was estimated by using factors developed for similar land uses in the Irvine Ranch Water District 1999 Water Resources Master Plan (IRWD 2003) and in a 2011 American Water Works Association report (Morales et al. 2011). The factors estimate indoor water use on the basis of gallons per day (gpd) utilized per 1,000 square feet (ksf) of non-residential floor space. The IRWD water use factors were derived from an eight-year study of water use data in the IRWD service area. The 2011 American Water Works Association report developed CII water use factors from customer-level water billing data for 3,172 customers combined with a statewide (Florida) inventory. The CII indoor water use factors, developed from the 2 studies and used to estimate Project demand, are summarized in Table 5.18-7 and include 200 gpd/ksf for commercial land uses, 65 gpd/ksf for business park land uses, 50 gpd/ksf for civic and institutional land uses, and 125 gpd/room for hotels (Psomas 2017a). Indoor CII potable water use will be further reduced by installing dual plumbing systems in the business park for use in toilets and urinals as well as for building cooling purposes. As shown in Table 5.18-7, approximately 30 percent of total business park indoor demand (157 afy of 525 afy) will be met by using recycled water to meet these demands.

Non-residential outdoor irrigation, including school and park turf areas, CII, roadway landscaping, and other park and vegetated slope areas, will be reduced by requiring the installation of equipment with high irrigation efficiencies and low water-use plants on the site. "Irrigation efficiency" refers to the percentage of applied water that can be used by irrigated plants net of evaporation, conveyance, soil infiltration, and other losses. The Project will require the installation of equipment with a 0.80 outdoor irrigation efficiency for public and private parks and a 0.81 efficiency for recreation and entertainment land use, arterial roadway, and slope irrigation (Psomas 2017c).

Vegetation water requirements are defined in the MWELo as a "plant factor" ranging from 0 to 1 that, when multiplied against the applicable reference ETo, reflects the amount of water required to support a plant species. The plant factor range for low water use plants is 0.1 to 0.3; the plant factor range for moderate water use plants is 0.4 to 0.6; and the plant factor range for high water use plants is 0.7 to 1.0. As shown in Table 5.18-7, the Project will irrigate 750 acres of slopes for stability and to control erosion. To reduce slope irrigation demand, the plant factor for species used to vegetate slopes will be 0.2, the middle of the range for low water use plants. The irrigation efficiency and plant factor requirements will generate a

recycled water demand for slopes of approximately 1,008 afy (see Table 5.18-7). Consistent with the Peer Review Report, the Project water demand includes a plant establishment factor to account for water use required during the initial phases of landscape establishment.

Table 5.18-8 summarizes the Project's buildout water demand, including approximately 6,788 afy of potable and 4,577 afy of recycled water use. Total demand will be approximately 11,365 afy. At full buildout, the Project's total per capita water use will be approximately 177.5 gpcd.

**TABLE 5.18-8  
SUMMARY OF PROJECT BUILDOUT DEMAND  
AND PER CAPITA WATER USE**

Potable Demand (afy)	6,788
Recycled Demand (afy)	4,577
<b>Total Water Demand (afy)</b>	<b>11,365</b>
Buildout Population	57,150
Total Water Use (gpcd)	177.5
Source: Psomas 2017a	

As discussed above, the General Plan Update Draft EIR and the AVIRWMP estimate per capita urban water demand for the Antelope Valley and water districts serving the region (see Table 5.18-8). The General Plan Update Draft EIR estimates the average 2035 per capita daily water demand in the County, including Antelope Valley, at 142 gpcd to comply with the State's urban water use reduction mandates (DRP 2015c). The General Plan Update Final EIR incorporates the AVAP Final EIR analysis, which projected water demands based on the average AVIRWMP estimate for the Antelope Valley of 199 gpcd. The Project's buildout demand of approximately 177.5 gpcd is in the middle of and consistent with the range of these projections. As shown in Table 5.18-5, the AVIRWMP estimates that in 2010 overall regional water use averaged 199 gpcd. The AVIRWMP also notes that the 2010 levels may decline to meet the State's water reduction requirements, including the 20 percent urban water use reduction by 2020 enacted by the State in 2009. As shown in Table 5.18-5, if the regional water districts analyzed in the AVIRWMP reduced estimated 2010 urban demand by 10 percent from 2010 levels regional water use would average about 179 afy. The Project's water demand is also consistent with these projections.

The Project will achieve higher levels of water use efficiency than in most existing Antelope Valley developed areas because new development must utilize significantly more efficient plumbing, technology, fixtures, appliances, and other water system equipment to comply with applicable federal, State, and local regulations. The State's provisional residential indoor and other standards that would be implemented under Executive Order B-37-16 also require that new development water consumption be more efficient than in existing communities. Outside the cities of Lancaster and Palmdale, the region is largely rural with large lots or farm areas and isolated subdivisions that do not possess the centralized services, conservation features, and planned landscaping or water recycling features included in the Project. The region's more urban areas generally were not constructed and

have not been upgraded to include the water efficient technologies and management measures required for the Project, including the extensive use of recycled water and native and drought-tolerant landscaping. As a result, existing regional water utilization rates are anticipated to remain generally higher than the Project's water consumption rates. Project development will result in an increment of regional growth that incorporates more efficient potable and recycling water systems and requirements.

As discussed above, the analysis of Project demand includes the factors recommended in the Peer Review Report submitted to the County, including a 65 gpcd indoor water consumption rate (Kennedy/Jenks 2017). The existing State residential indoor water use standard is 55 gpcd. Published studies indicate that lower rates of consumption have been achieved in California (DWR 2014; Aquacraft 2011a, 2011b). The 2016 framework plan for implementing Executive Order B-37-16 cites a 2016 Water Research Foundation study that found that the national residential indoor water use average is about 59 gpcd and that toilet replacement and continued enforcement of federal clothes washing machine water use efficiency standards would lower residential indoor water use by 6 gpcd by 2030 and by 9 gpcd by 2040 (DWR et al. 2016b). The Project will comply with all applicable laws and regulations, including State and local water use standards that may be lower than the conservative rates used in the Project demand analysis. Consequently, actual project demand may be lower than projected, as both existing and potential new water use standards and requirements are implemented in California.

### ***Construction Demand***

As shown in Table 5.18-9, construction will require grading of approximately 127 million cubic yards (mcy) from Year 1 to Year 18 of the Project. About 76.72 acre-feet of water will be required to obtain the optimum moisture content for compaction and for dust suppression and other construction purposes per mcy of grading. Approximately 9,744 acre-feet of water for construction will be required from Year 1 to Year 18 of the Project.

**TABLE 5.18-9  
CONSTRUCTION WATER DEMAND BY PHASE AND YEAR**

<b>Year</b>	<b>Grading (mcy)</b>	<b>Water Demand (af)</b>
Year 1	2.0	153
Year 2	11.0	844
Year 3	10.0	767
Year 4	8.0	614
Year 5	6.0	460
Year 6	6.0	460
Year 7	5.0	384
Year 8	4.0	307
Year 9	5.0	384
Year 10	6.5	499
Year 11	17.0	1,304
Year 12	7.5	575
Year 13	6.0	460
Year 14	8.0	614
Year 15	7.0	537
Year 16	7.0	537
Year 17	8.0	614
Year 18	3.0	230
Year 19	0.0	0
Year 20	0.0	0
<b>Total</b>	<b>127.0</b>	<b>9,744</b>
mcy: million cubic yards; af: acre-feet		
Totals may not add due to rounding.		
Source: Psomas 2017a		

Construction water use is a one-time demand that does not recur after construction is complete. The additional construction water demand during Project years 1 through 18 has been incorporated into the projections of average, single-dry and multiple-dry year water supplies shown in Tables 5.18-10, 5.18-11, and 5.18-12.

### ***Project Water Supplies***

Project water supplies consist of imported surface water, recycled water, groundwater, return flows, and banked surface water that are managed in an interrelated, conjunctive manner to meet demand. The following discussion first summarizes the Project's primary water facilities. Next, the amount and reliability of the Project's water supplies and the projected supplies and demand during average, single-dry, and multiple-dry years are discussed in detail.

## Water Facilities

As shown in Exhibit 5.18-7, Preliminary Water Storage and Distribution System, the Project's water supply facilities include existing off-site and proposed on-site water banking facilities that allow for the percolation, storage, and extraction of water for Project use; on-site potable water treatment facilities to treat potable water to applicable water quality standards, including the federal and California Safe Drinking Water Acts and related regulations; on-site wastewater treatment facilities that will treat the Project's indoor wastewater flows to Title 22 unrestricted reuse standards; and water distribution facilities including pipelines, pump stations, storage reservoirs, and pressure regulating valves that will convey recycled water for outdoor irrigation and indoor business park use. The Project's water facilities will be owned and operated by a Project Water Purveyor that will be regulated by the California Public Utilities Commission or formed as a Community Services District, a statutory water district, or other entity with the appropriate capacity to own, operate, and maintain the Project's water system. The Project Water Purveyor will be funded through a rate-payer system and fees. Until the Project Water Purveyor is established, the Project Applicant/Developer will be responsible for all Project-related water services. All of the Project's water supplies and the design, permitting, financing, and construction of all treatment, collection, and distribution infrastructure will be provided by the Project Applicant/Developer. The following sections describe the water supply facilities that will serve the Project.

**Existing Tejon Ranch Company Water Bank.** The Tejon Ranch Company (TRC) and its affiliates currently own and operate a water bank on 160 acres located northeast of the Project site in Kern County (TRC Water Bank).<sup>1</sup> The water bank was constructed in 2006 and currently stores water for TRC and AVEK. As of December 2015, approximately 17,287 acre-feet is stored for Project use. The TRC Water Bank would provide water storage and extraction facilities to the Project under a contract with the Project Water Purveyor. The conveyance facilities between the TRC Water Bank and the Project would be designed, permitted, financed, and constructed by the Project Applicant/Developer. TRC would also provide appropriate easements for access to the TRC Water Bank. The TRC Water Bank is included as a preexisting banking facility that will continue operations in the Antelope Valley in accordance with the adjudication Judgment and Physical Solution (see Appendix 5.18-D).

The water bank consists of several recharge basins or infiltration ponds separated by a series of small overflow weirs. Water is introduced to the facility by pumping water from a turnout on the East Branch of the California Aqueduct (East Branch) to the banking facility and then infiltrated into the local aquifer for storage. All water banked for Project use is subject to a leave-behind requirement of ten percent of the infiltrated water amount to account for banking losses; to support the regional aquifer; and to conform with the requirements of the Judgment and Physical Solution. AVEK also pumped water from a turnout on the East Branch to the TRC Water Bank during 2011 to store excess supplies available under its SWP water supply contract. The turnout serving the TRC Water Bank is owned by AVEK and is located at

---

<sup>1</sup> Kern County is a responsible agency for purposes of the Centennial EIR.

approximately the intersection of 305<sup>th</sup> Street West and the Aqueduct. The turnout has been upgraded and will be managed for Project use in accordance with turnout operating and maintenance agreements among TRC, AVEK, and the DWR. A pipeline has been installed between the turnout and the TRC Water Bank and can deliver water to separate ponds in the recharge facility. The TRC Water Bank has the capacity to recharge approximately 11,500 afy. There is at least 161,000 acre-feet of unused aquifer storage within 0.5 mile of the existing TRC banking facility and the proposed on-site water banking facility (described below)(GEI 2005, 2010). The location of the TRC Water Bank relative to the Project is depicted in Exhibit 4-13, Centennial Project – Conceptual Domestic Water Supply System, in Section 4.0, Project Description.

**On-Site Water Banking Facility.** A second, approximate 100-acre water banking facility will be designed, permitted, financed, and constructed by the Project along the northern edge of the site to provide additional water recharge capacity. The on-site bank will also facilitate the periodic rotation of infiltration or extraction between the TRC Water Bank and the on-site bank to avoid potential impacts to the local aquifer. A transmission pipeline will extend from an existing East Branch turnout located at approximately the intersection of 320<sup>th</sup> Street West and the California Aqueduct, and will be routed along the southern edge of the bank to allow for delivery to recharge ponds in the facility. The turnout will be upgraded and managed in accordance with the turnout operating and maintenance agreements between AVEK and the DWR. The on-site water bank will also be able to obtain water from a turnout located on the West Branch of the California Aqueduct. A series of contoured infiltration basins separated by a network of berms and overflow weirs will be constructed to receive and infiltrate the water. The on-site water bank's soil and storage characteristics are similar to those of the existing TRC banking facility and will have the capacity to infiltrate and store approximately 7,200 afy. As indicated above, there is at least 161,000 acre-feet of unused aquifer storage within 0.5 mile of the proposed on-site and the existing TRC Water Bank facilities (GEI 2010, 2005). The on-site water banking facilities are depicted in Exhibit 4-13. New water banking facilities in the Antelope Valley Basin, including the proposed on-site bank, are subject a storage agreement with the watermaster in accordance with the adjudication Judgment and Physical Solution (see Appendix 5.18-D).

**Monitoring and Extraction Wells.** A series of existing and new on-site and off-site wells will be used to monitor groundwater levels; to extract banked water; to recover return flows; and to extract groundwater for Project use in accordance with the Judgment and Physical Solution. Off-site wells will be located on land owned by TRC to the north and east of the site. The well system will be connected to the on-site water treatment and distribution facilities by a network of pipelines that will be designed, permitted, financed, and constructed by the Project Applicant/Developer. Exhibit 4-13 shows the Project's conceptual monitoring and extraction well field and water transmission system.

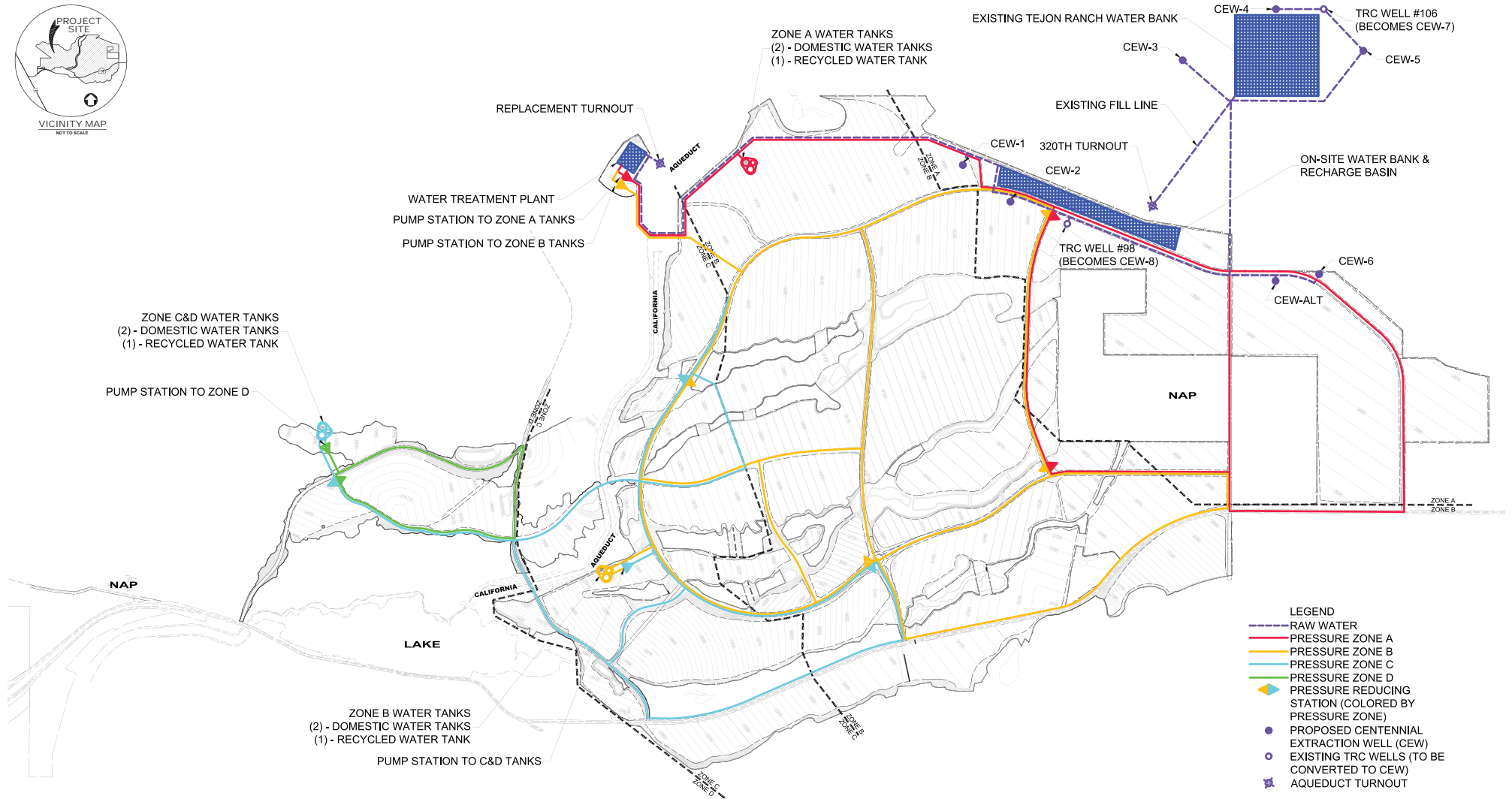
**Potable Water Treatment Facility.** The Project Applicant/Developer will design, permit, finance, and construct an on-site water treatment plant adjacent to the West Branch of the Aqueduct to provide potable water for the Project. The treatment plant

will include required chlorination and other disinfection facilities; it will also include ion exchange or other available, feasible technologies that will ensure that potential constituent levels, including arsenic, are reduced below applicable MCL and other water quality requirements. The DWR has constructed a new turnout from the West Branch to replace a turnout previously demolished in conjunction with the enlargement of the Tehachapi Afterbay located to the north of the Project site. The turnout is owned and managed by AVEK. The West Branch turnout can be used to supply the on-site water bank during periods when the East Branch may lack capacity to convey water to the facility. The locations of the Project water treatment plant, the West Branch turnout, and the primary connecting pipelines between these facilities are identified in Exhibit 4-13.

**Wastewater Treatment Facilities.** All wastewater flows generated by the Project will be collected and treated to Title 22 standards for unrestricted reuse in on-site wastewater treatment facilities. Approximately 90 percent of the indoor wastewater flows will be available for external irrigation and for wastewater and cooling use within the business park. At buildout, the recycled water supply will meet approximately 40 percent of the Project's water demand. The Project Applicant/Developer will design, permit, finance, and construct the on-site wastewater collection, treatment, and recycled water distribution facilities. Wastewater reclamation facilities are also discussed in Sections 5.2 (Hydrology and Flood) and 5.19 (Wastewater) of this EIR. The locations of the planned wastewater reclamation facilities are shown in Exhibit 4-14, Centennial Project – Conceptual Wastewater System, in Section 4.0, Project Description.

### ***Water Supplies***

The Project's water supplies include the following: (1) water currently banked at the existing TRC Water Bank to the north of the Project site; (2) purchased and in-lieu program rights to water deliveries from AVEK and the return of certain water supplies loaned to AVEK in 2008 and 2009 for later return and delivery (collectively, "AVEK call water"); (3) groundwater subject to the allocations in the Judgment and Physical Solution; (4) Table A Amounts transferred from the Tulare Lake Basin Water Storage District and the Dudley Ridge Water District that will be imported for Project use under an existing agreement with AVEK; (5) service area deliveries of SWP water by AVEK that are incorporated in the Agency's current UWMP; (6) recycled water treated to Title 22 unrestricted reuse levels generated by the Project's on-site wastewater treatment facilities; and (7) in-basin return flows from Project imported water use in accordance with the Judgment and Physical Solution. The existing TRC Water Bank and the proposed on-site water bank will be used to bank, store, and retrieve water for use in later dry periods to enhance the Project's overall water supply reliability. As shown in Tables 5.18-10, 5.18-11, and 5.18-12, the Project's water supplies meet projected demand at buildout and, on a sustainable basis thereafter, allow for the maintenance of an average annual reserve banked supply of more than 79,000 acre-feet. The amount of the average annual reserve that will be maintained in the water banks equates to more than 11 years of the Project's full buildout potable demand and provides the Project with a significant emergency supply.



# Preliminary Water Storage, and Distribution System

Centennial Project

Exhibit 5.18-7



**TABLE 5.18-10  
AVERAGE YEAR SUPPLIES AND DEMAND, YEARS 1-20 TO PROJECT BUILDOUT AND YEARS 21-25 AFTER BUILDOUT**

Annual Sources and Uses of Water Supplies	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	
<b>Supplies Available</b>																										
Table A: Tulare Lake (less 5% to AVEK)	813	813	813	813	813	813	813	813	813	813	813	813	813	813	813	813	813	813	813	813	813	813	813	813	813	813
Table A: Dudley Ridge (less 5% to AVEK)	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117	1,117
Recycled Water	146	301	512	802	1,014	1,296	1,529	1,818	2,031	2,308	2,552	2,884	3,121	3,407	3,629	3,903	4,124	4,345	4,577	4,577	4,577	4,577	4,577	4,577	4,577	4,577
Return Flows	0	0	0	0	2	14	36	67	105	160	225	320	382	448	516	580	623	713	794	862	932	981	1,004	1,023	1,034	
Groundwater	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	1,634	
AVEK Table A Import	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	2,360	
<i>Total Supplies</i>	<i>6,070</i>	<i>6,225</i>	<i>6,436</i>	<i>6,726</i>	<i>6,940</i>	<i>7,234</i>	<i>7,489</i>	<i>7,809</i>	<i>8,060</i>	<i>8,392</i>	<i>8,701</i>	<i>9,128</i>	<i>9,427</i>	<i>9,779</i>	<i>10,069</i>	<i>10,407</i>	<i>10,671</i>	<i>10,982</i>	<i>11,295</i>	<i>11,363</i>	<i>11,433</i>	<i>11,482</i>	<i>11,505</i>	<i>11,524</i>	<i>11,535</i>	
<b>Water Demands</b>																										
Project Water	624	1,060	1,633	2,221	2,786	3,395	3,984	4,569	5,117	5,731	6,379	7,034	7,614	8,202	8,751	9,327	9,870	10,441	10,983	11,365	11,365	11,365	11,365	11,365	11,365	11,365
Construction Water	153	844	767	614	460	460	384	307	384	499	1,304	575	460	614	537	537	614	230	0	0	0	0	0	0	0	
Plant Establishment	92	52	70	55	67	61	68	54	64	63	77	59	65	56	62	56	61	56	61	18	0	0	0	0	0	
<i>Total Demand</i>	<i>869</i>	<i>1,956</i>	<i>2,470</i>	<i>2,890</i>	<i>3,313</i>	<i>3,916</i>	<i>4,436</i>	<i>4,930</i>	<i>5,565</i>	<i>6,293</i>	<i>7,760</i>	<i>7,668</i>	<i>8,139</i>	<i>8,872</i>	<i>9,350</i>	<i>9,920</i>	<i>10,545</i>	<i>10,727</i>	<i>11,044</i>	<i>11,383</i>	<i>11,365</i>	<i>11,365</i>	<i>11,365</i>	<i>11,365</i>	<i>11,365</i>	
<b>Supplies Transferred to (from) Water Bank</b>	<b>5,201</b>	<b>4,269</b>	<b>3,966</b>	<b>3,836</b>	<b>3,627</b>	<b>3,318</b>	<b>3,053</b>	<b>2,879</b>	<b>2,495</b>	<b>2,099</b>	<b>942</b>	<b>1,460</b>	<b>1,289</b>	<b>908</b>	<b>719</b>	<b>489</b>	<b>127</b>	<b>255</b>	<b>252</b>	<b>(20)</b>	<b>69</b>	<b>117</b>	<b>140</b>	<b>159</b>	<b>170</b>	
<b>Water Bank Activity and Balances</b>																										
<b>Beginning Water Bank Balance</b>	<b>17,287</b>	<b>21,635</b>	<b>26,781</b>	<b>31,655</b>	<b>36,411</b>	<b>40,980</b>	<b>45,270</b>	<b>49,323</b>	<b>53,218</b>	<b>56,768</b>	<b>59,961</b>	<b>62,114</b>	<b>64,732</b>	<b>67,197</b>	<b>69,318</b>	<b>71,270</b>	<b>73,014</b>	<b>74,433</b>	<b>75,967</b>	<b>77,499</b>	<b>78,783</b>	<b>78,845</b>	<b>78,950</b>	<b>79,076</b>	<b>79,219</b>	
Supplies Transferred to (from) Water Bank	5,201	4,269	3,966	3,836	3,627	3,318	3,053	2,879	2,495	2,099	942	1,460	1,289	908	719	489	127	255	252	(20)	69	117	140	159	170	
AVEK Call Water	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	1,450	0	0	0	0	0	
<b>Net Transfers to (from) Water Bank</b>	<b>6,651</b>	<b>5,719</b>	<b>5,416</b>	<b>5,286</b>	<b>5,077</b>	<b>4,768</b>	<b>4,503</b>	<b>4,329</b>	<b>3,945</b>	<b>3,549</b>	<b>2,392</b>	<b>2,910</b>	<b>2,739</b>	<b>2,358</b>	<b>2,169</b>	<b>1,939</b>	<b>1,577</b>	<b>1,705</b>	<b>1,702</b>	<b>1,430</b>	<b>69</b>	<b>117</b>	<b>140</b>	<b>159</b>	<b>170</b>	
10% Loss for Current Year Additions (excl. GW)	(2,303)	(572)	(542)	(529)	(508)	(477)	(450)	(433)	(395)	(355)	(239)	(291)	(274)	(236)	(217)	(194)	(158)	(170)	(170)	(145)	(7)	(12)	(14)	(16)	(17)	
<b>Ending Water Bank Balance (reserve supply)</b>	<b>21,635</b>	<b>26,781</b>	<b>31,655</b>	<b>36,411</b>	<b>40,980</b>	<b>45,270</b>	<b>49,323</b>	<b>53,218</b>	<b>56,768</b>	<b>59,961</b>	<b>62,114</b>	<b>64,732</b>	<b>67,197</b>	<b>69,318</b>	<b>71,270</b>	<b>73,014</b>	<b>74,433</b>	<b>75,967</b>	<b>77,499</b>	<b>78,783</b>	<b>78,845</b>	<b>78,950</b>	<b>79,076</b>	<b>79,219</b>	<b>79,372</b>	
AVEK: Antelope Valley – East Kern Water Agency																										
All values are subject to rounding.																										
Source: Psomas 2017a.																										

*This page intentionally left blank*

**TABLE 5.18-11  
WATER SUPPLIES AND DEMAND IN A SINGLE-DRY YEAR,  
PROJECT YEARS 5, 10, 15, AND 20 (FULL BUILDOUT)**

<b>Annual Sources and Uses of Water Supplies</b>	<b>Year 5</b>	<b>Year 10</b>	<b>Year 15</b>	<b>Year 20</b>
<b>Supplies</b>				
Table A: Tulare Lake (less 5% to AVEK)	69	69	69	69
Table A: Dudley Ridge (less 5% to AVEK)	95	95	95	95
Recycled Water	1,014	2,308	3,629	4,577
Return Flows	2	160	516	862
Groundwater	1,634	1,634	1,634	1,634
AVEK Table A Import	200	200	200	200
<i>Total Supplies</i>	<i>3,014</i>	<i>4,466</i>	<i>6,143</i>	<i>7,437</i>
<i>Total Demand (including construction and plant establishment)</i>	<i>3,313</i>	<i>6,293</i>	<i>9,350</i>	<i>11,383</i>
<b>Supplies Transferred to (from) Water Bank</b>	<b>(299)</b>	<b>(1,827)</b>	<b>(3,207)</b>	<b>(3,946)</b>
<b>Water Bank Activity and Balances</b>				
<b>Beginning Water Bank Balance</b>	<b>36,411</b>	<b>56,768</b>	<b>69,318</b>	<b>77,499</b>
Supplies Transferred to (from) Water Bank	(299)	(1,827)	(3,207)	(3,946)
AVEK Call Water (assumed to be zero in single-dry years)	0	0	0	0
<b>Net Transfers to (from) Water Bank</b>	<b>(299)</b>	<b>(1,827)</b>	<b>(3,207)</b>	<b>(3,946)</b>
10% Loss for Current Year Additions	0	0	0	0
<b>Ending Water Bank Balance (reserve supply)</b>	<b>36,112</b>	<b>54,941</b>	<b>66,111</b>	<b>73,553</b>
AVEK: Antelope Valley – East Kern Water Agency				
All values are subject to rounding.				
Source: Psomas 2017a.				

**TABLE 5.18-12  
WATER SUPPLIES AND DEMAND IN A MULTIPLE-DRY YEAR PERIOD STARTING IN  
YEAR 3, YEAR 8, YEAR 13, AND YEAR 18 TO FULL BUILDOUT**

<b>DROUGHT STARTING IN YEAR 3</b>					
<b>Annual Sources and Uses of Water Supplies</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Dry Years</b>		
			<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
<b>Supplies</b>					
Table A: Tulare Lake (less 5% to AVEK)	813	813	165	221	331
Table A: Dudley Ridge (less 5% to AVEK)	1,117	1,117	227	303	454
Recycled Water	146	301	512	802	1,014
Return Flows	0	0	0	0	2
Groundwater	1,634	1,634	1,634	1,634	1,634
AVEK Table A Import	2,360	2,360	480	640	960
<i>Total Supplies</i>	<i>6,070</i>	<i>6,225</i>	<i>3,018</i>	<i>3,600</i>	<i>4,395</i>
<i>Total Demand (including construction and plant establishment)</i>	<i>869</i>	<i>1,956</i>	<i>2,470</i>	<i>2,890</i>	<i>3,313</i>
<b>Supplies Transferred to (from) Water Bank</b>	<b>5,201</b>	<b>4,269</b>	<b>548</b>	<b>710</b>	<b>1,082</b>
<b>Water Bank Activity and Balances</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Dry Years</b>		
			<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
<b>Beginning Water Bank Balance</b>	<b>17,287</b>	<b>21,635</b>	<b>26,781</b>	<b>27,274</b>	<b>27,913</b>
Supplies Transferred to (from) Water Bank	5,201	4,269	548	710	1,082
AVEK Call Water (no delivery in drought years)	1,450	1,450	0	0	0
<b>Net Transfers to (from) Water Bank</b>	<b>6,651</b>	<b>5,719</b>	<b>548</b>	<b>710</b>	<b>1,082</b>
10% Loss for Current Year Additions	(2,303)	(572)	(55)	(71)	(108)
<b>Ending Water Bank Balance (reserve supply)</b>	<b>21,635</b>	<b>26,781</b>	<b>27,274</b>	<b>27,913</b>	<b>28,887</b>
AVEK: Antelope Valley – East Kern Water Agency					
All values are subject to rounding.					
Source: Psomas 2017a					

**TABLE 5.18-12 (CONT.)  
WATER SUPPLIES AND DEMAND IN A MULTIPLE-DRY YEAR PERIOD STARTING IN  
YEAR 3, YEAR 8, YEAR 13, AND YEAR 18 TO FULL BUILDOUT**

<b>DROUGHT STARTING IN YEAR 8</b>					
<b>Annual Sources and Uses of Water Supplies</b>	<b>Year 6</b>	<b>Year 7</b>	<b>Dry Years</b>		
			<b>Year 8</b>	<b>Year 9</b>	<b>Year 10</b>
<b>Supplies</b>					
Table A: Tulare Lake (less 5% to AVEK)	813	813	165	221	331
Table A: Dudley Ridge (less 5% to AVEK)	1,117	1,117	227	303	454
Recycled Water	1,296	1,529	1,818	2,031	2,308
Return Flows	14	36	67	105	160
Groundwater	1,634	1,634	1,634	1,634	1,634
AVEK Table A Import	2,360	2,360	480	640	960
<i>Total Supplies</i>	<i>7,234</i>	<i>7,489</i>	<i>4,391</i>	<i>4,934</i>	<i>5,847</i>
<i>Total Demand (including construction and plant establishment)</i>	<i>3,916</i>	<i>4,436</i>	<i>4,930</i>	<i>5,565</i>	<i>6,293</i>
<b>Supplies Transferred to (from) Water Bank</b>	<b>3,318</b>	<b>3,053</b>	<b>(539)</b>	<b>(631)</b>	<b>(446)</b>
<b>Water Bank Activity and Balances</b>	<b>Year 6</b>	<b>Year 7</b>	<b>Dry Years</b>		
			<b>Year 8</b>	<b>Year 9</b>	<b>Year 10</b>
<b>Beginning Water Bank Balance</b>	<b>40,980</b>	<b>45,270</b>	<b>49,323</b>	<b>48,784</b>	<b>48,153</b>
Supplies Transferred to (from) Water Bank	3,318	3,053	(539)	(631)	(446)
AVEK Call Water (no delivery in drought years)	1,450	1,450	0	0	0
<b>Net Transfers to (from) Water Bank</b>	<b>4,768</b>	<b>4,503</b>	<b>(539)</b>	<b>(631)</b>	<b>(446)</b>
10% Loss for Current Year Additions	(477)	(450)	0	0	0
<b>Ending Water Bank Balance (reserve supply)</b>	<b>45,270</b>	<b>49,323</b>	<b>48,784</b>	<b>48,153</b>	<b>47,707</b>
AVEK: Antelope Valley – East Kern Water Agency					
All values are subject to rounding.					
Source: Psomas 2017a					

**TABLE 5.18-12 (CONT.)  
WATER SUPPLIES AND DEMAND IN A MULTIPLE-DRY YEAR PERIOD STARTING IN  
YEAR 3, YEAR 8, YEAR 13, AND YEAR 18 TO FULL BUILDOUT**

<b>DROUGHT STARTING IN YEAR 13</b>					
<b>Annual Sources and Uses of Water Supplies</b>	<b>Year 11</b>	<b>Year 12</b>	<b>Dry Years</b>		
			<b>Year 13</b>	<b>Year 14</b>	<b>Year 15</b>
<b>Supplies</b>					
Table A: Tulare Lake (less 5% to AVEK)	813	813	165	221	331
Table A: Dudley Ridge (less 5% to AVEK)	1,117	1,117	227	303	454
Recycled Water	2,552	2,884	3,121	3,407	3,629
Return Flows	225	320	382	448	516
Groundwater	1,634	1,634	1,634	1,634	1,634
AVEK Table A Import	2,360	2,360	480	640	960
<i>Total Supplies</i>	<i>8,701</i>	<i>9,128</i>	<i>6,009</i>	<i>6,653</i>	<i>7,524</i>
<i>Total Demand (including construction and plant establishment)</i>	<i>7,760</i>	<i>7,668</i>	<i>8,139</i>	<i>8,872</i>	<i>9,350</i>
<b>Supplies Transferred to (from) Water Bank</b>	<b>942</b>	<b>1,460</b>	<b>(2,129)</b>	<b>(2,218)</b>	<b>(1,826)</b>
<b>Water Bank Activity and Balances</b>	<b>Year 11</b>	<b>Year 12</b>	<b>Dry Years</b>		
			<b>Year 13</b>	<b>Year 14</b>	<b>Year 15</b>
<b>Beginning Water Bank Balance</b>	<b>59,961</b>	<b>62,114</b>	<b>64,732</b>	<b>62,603</b>	<b>60,385</b>
Supplies Transferred to (from) Water Bank	942	1,460	(2,129)	(2,218)	(1,826)
AVEK Call Water (no delivery in drought years)	1,450	1,450	0	0	0
<b>Net Transfers to (from) Water Bank</b>	<b>2,392</b>	<b>2,910</b>	<b>(2,129)</b>	<b>(2,218)</b>	<b>(1,826)</b>
10% Loss for Current Year Additions	(239)	(291)	0	0	0
<b>Ending Water Bank Balance (reserve supply)</b>	<b>62,114</b>	<b>64,732</b>	<b>62,603</b>	<b>60,385</b>	<b>58,559</b>
AVEK: Antelope Valley – East Kern Water Agency					
All values are subject to rounding.					
Source: Psomas 2017a					

**TABLE 5.18-12 (CONT.)  
WATER SUPPLIES AND DEMAND IN A MULTIPLE-DRY YEAR PERIOD STARTING IN  
YEAR 3, YEAR 8, YEAR 13, AND YEAR 18 TO FULL BUILDOUT**

<b>DROUGHT STARTING IN YEAR 18</b>					
Annual Sources and Uses of Water Supplies	Year 16	Year 17	Dry Years		
			Year 18	Year 19	Year 20
<b>Supplies</b>					
Table A: Tulare Lake (less 5% to AVEK)	813	813	165	221	331
Table A: Dudley Ridge (less 5% to AVEK)	1,117	1,117	227	303	454
Recycled Water	3,903	4,124	4,345	4,577	4,577
Return Flows	580	623	713	794	862
Groundwater	1,634	1,634	1,634	1,634	1,634
AVEK Table A Import	2,360	2,360	480	640	960
<i>Total Supplies</i>	<i>10,407</i>	<i>10,671</i>	<i>7,564</i>	<i>8,169</i>	<i>8,818</i>
<i>Total Demand (including construction and plant establishment)</i>	<i>9,920</i>	<i>10,545</i>	<i>10,727</i>	<i>11,044</i>	<i>11,383</i>
<b>Supplies Transferred to (from) Water Bank</b>	<b>489</b>	<b>127</b>	<b>(3,163)</b>	<b>(2,874)</b>	<b>(2,565)</b>
Water Bank Activity and Balances	Year 16	Year 17	Dry Years		
			Year 18	Year 19	Year 20
<b>Beginning Water Bank Balance</b>	<b>71,270</b>	<b>73,014</b>	<b>74,433</b>	<b>71,270</b>	<b>68,396</b>
Supplies Transferred to (from) Water Bank	489	127	(3,163)	(2,874)	(2,565)
AVEK Call Water (no delivery in drought years)	1,450	1,450	0	0	0
<b>Net Transfers to (from) Water Bank</b>	<b>1,939</b>	<b>1,577</b>	<b>(3,163)</b>	<b>(2,874)</b>	<b>(2,565)</b>
10% Loss for Current Year Additions	(194)	(158)	0	0	0
<b>Ending Water Bank Balance (reserve supply)</b>	<b>73,014</b>	<b>74,433</b>	<b>71,270</b>	<b>68,396</b>	<b>65,831</b>
AVEK: Antelope Valley – East Kern Water Agency					
All values are subject to rounding.					
Source: Psomas 2017a					

Documentation concerning the water supply sources summarized below is included as Appendices H through P of the WSA (Appendix 5.18-A).

**Existing Banked Water.** TRC purchased and has stored approximately 17,287 acre-feet of water in the TRC Water Bank for Project use. The stored water was conveyed from the California Aqueduct to the TRC Water Bank, released into the bank's percolation ponds, and infiltrated into the ground. TRC is storing the banked water for the benefit of the Project in accordance with an agreement between TRC and the Project Applicant (Appendix I of Appendix 5.18-A). Consistent with the Judgment and Physical Solution, 10 percent of the stored amount of water must be retained in the aquifer to supplement groundwater supplies and to account for infiltration and extraction losses.

**Antelope Valley – East Kern Water Agency Call Water.** AVEK is the primary SWP contractor for the Antelope Valley and sells SWP water to other districts and users

throughout its service area. During 2008 and 2009, SWP supplies were severely constrained by drought conditions and regulatory limits affecting the operation of the SWP Delta pumps. To help alleviate the critical water shortage that was emerging in the Antelope Valley, TRC agreed to loan certain water supplies to AVEK for return in later years pursuant to two agreements. The remaining balance of water that AVEK is required to return to TRC under the agreements is 13,595 acre-feet. TRC has also participated in an in-lieu program administered by AVEK under which AVEK provides surface supplies in future wetter years in exchange for TRC using groundwater and foregoing SWP deliveries in prior dry years. The amount of water that AVEK is required to supply to TRC under the in lieu program is 13,032 acre-feet. In 2007 and 2008, TRC purchased 2,362 acre-feet of water from AVEK for future delivery. For ease of reference, these water supplies are collectively referred to as “AVEK Call Water” in this EIR. The total amount of AVEK Call Water available for Project use is 28,989 acre-feet. As shown in Table 5.18-10, the AVEK Call Water is used as part of the Project’s reserve supply, and delivery is assumed to occur on a pro-rata basis over 20 average water years. The actual delivery timing can be flexibly arranged with AVEK to reflect the agency’s available supplies from year to year. The water supply and demand projections assume that no AVEK Call Water would be supplied in either a single-dry year or during multiple-dry year droughts (see Table 5.18-11 and Table 5.18-12). Documentation concerning the AVEK Call Water is included in Appendices J, O, and P of Appendix 5.18-A.

**Table A Water Transfers from the Tulare Lake Basin Water Storage District and the Dudley Ridge Water District.** In 2008, TRC acquired the rights to approximately 1,451 afy of SWP Table A Amounts held by the Tulare Lake Basin Water Storage District (Tulare Lake) and subcontracted by Tulare Lake to GWF Energy, LLC and the Lurene Mattson Trust to meet general water needs on TRC property. In 2010, TRC also acquired the rights to approximately 1,993 afy of SWP Table A Amounts held by the Dudley Ridge Water District (Dudley Ridge) and subcontracted by Dudley Ridge to the 3-R Land and Development Company, LLC, the Friend Family Trust, the Don Jackson Family LLC, and the Donald Lee Jackson Revocable Trust. The transfer agreements are included in Appendices L and K of Appendix 5.18-A. In 2012, TRC and AVEK executed an assignment and import agreement under which the Tulare Lake and Dudley Ridge Table A Amounts were transferred to AVEK in accordance with SWP system rules and regulations, and AVEK agreed to import the supplies for Project use subject to cost reimbursement and the provision of five percent of the imported amounts for agency use (see Appendix 5.18-E).

As discussed in Section 5.18.4, SWP Table A water is subject to delivery variability due to weather, regulatory constraints, seasonal demand, and other factors. The availability of the Tulare Lake and Dudley Ridge transfer water for Project use is evaluated in this EIR by using the ELT scenario in DCR Appendix C developed for AVEK by the DWR (CNRA 2015) and the lower, more conservative single-dry year reliability rate of five percent to reflect 2014 conditions used in the AVEK 2015 UWMP. The 2015 UWMP projects that deliveries in an average or normal year will be 59 percent of Table A amounts; 5 percent of Table A amounts in a single-dry year; and 12 percent, 16 percent, and 24 percent of Table A amounts, respectively, in the



three consecutive dry years in a multiple-dry year period. Under this scenario and accounting for AVEK's 5 percent supply retention in the TRC-AVEK import agreement, the Project would receive approximately 1,930 afy from the Tulare Lake and Dudley Ridge Table A Amounts in an average year (see Table 5.18-10), 164 afy in single-dry years (see Table 5.18-11) and from 392 to 785 afy in multiple-dry year droughts (see Table 5.18-12).

Table A water is subject to the terms of the SWP contracts between the DWR and the SWP contractors. Article 2 of the contract provides for a minimum term of at least 75 years, which generally extends through 2035 unless construction financing bonds or Project repayment terms require a longer period. Article 4 of the contract provides for renewal at the election of the contractor at the same amount, cost, conveyance, and quality as the prior contract. Article 4 also provides for similar renewal rights at the end of each succeeding term. The intent of these provisions is to provide SWP system participants with a stable, reasonably priced, reliable long-term source of water. According to the AVEK 2015 UWMP, the term of the SWP contracts is expected to be extended to December 31, 2085 (AVEK 2016). The consolidated and amended AVEK SWP contract, including Articles 2 and 4, is included in Appendix 518-E.

**Antelope Valley – East Kern Water Agency Service Area Deliveries.** The entire Project site and approximately 38,611 acres of TRC land are located within the AVEK jurisdictional boundaries and have been subject to AVEK annual water service assessments since the mid-1970s (Exhibit 5.18-6, Project Site and Tejon Ranch Company Land Ownership within the AVEK Service Area).

Section 61.1 of the AVEK Agency Law (California Uncodified Acts 9095, Sections 49–96) states that AVEK shall

... whenever practicable, distribute and apportion the water purchased from the State of California or water obtained from any other source as equitably as possible on the basis of total payment by a district or geographical area within the agency regardless of its present status, of taxes, in relation that such payment bears to the total taxes and assessments collected from all other areas. It is the intent of this section to assure each area or district its fair share of water based on the amounts paid into the agency as they bear relation to the total amount collected by the agency.

TRC and AVEK executed a water services agreement in 1976 that provides for deliveries from AVEK to TRC in accordance with the agency's rules and regulations. The water services agreement is attached as Appendix 5.18-E. Since 1976, TRC has received approximately 79,000 acre-feet of water from AVEK (Appendix 5.18-E), including approximately 6,700 acre-feet received by TRC in 2006 and 2007. TRC has the right to request water deliveries from AVEK in the future in accordance with principles set forth in Section 61.1 of the AVEK Agency Law and under the water services agreement.

AVEK provides wholesale water to TRC, LACWWD40, and other Antelope Valley water districts and end users in its service area. Table 4-2 of the AVEK 2015 UWMP itemizes the Agency's projected future demands for wholesale water from 2020 to 2035 and includes TRC demand of 4,000 afy. All of this amount will be used by TRC to meet Project demand. The AVEK UWMP includes the recovery of up to 36,000 afy of water banked by AVEK in wetter years that will partially offset SWP delivery reductions during single-dry and multiple-dry years. Consequently, during drier periods, the UWMP indicates that more water would be available to AVEK to meet demand than from SWP supplies alone. To provide a conservative assessment and because the Project will be served by an on-site and TRC's existing off-site water banking facilities, the delivery reliability of the 4,000 afy of TRC demand identified in the UWMP is analyzed by assuming that only SWP water will be used to meet this demand. If AVEK uses non-SWP sources of supply in single-dry and multiple-dry years to meet TRC demand, delivery reliability in these drier years would be higher than projected.

As discussed above, the ELT scenario used in the 2015 UWMP includes an average or normal year delivery of 59 percent of Table A amounts; a single-dry year delivery of 5 percent of Table A amounts; and multiple-dry year period deliveries of 12 percent, 16 percent and 24 percent of Table A amounts. Assuming that all of the 4,000 afy of TRC demand in the UWMP was supplied from SWP water, the Project would receive approximately 2,360 afy in an average year (see Table 5.18-10), 200 afy in a single-dry year (see Table 5.18-11) and from 480 to 960 afy in multiple-dry years (see Table 5.18-12). As discussed above, Table A water is subject to the terms of the SWP contracts between the DWR and the SWP contractors, and the SWP contracts are expected to be extended to December 31, 2085 (AVEK 2016).

**Imported Water Return Flows.** The adjudication Judgment and Physical Solution provides that imported water used to meet urban demand in the Antelope Valley Basin may be recovered by the importing party in an amount equal to 39 percent of the average imported water use over the prior five years. As shown in Table 5.18-10, the amount of in-basin return flows attributable to the Project's imported water use will increase as the Project is developed and will mature five years after buildout. At full buildout in Year 20, in-basin return flows will be approximately 862 afy and will increase to a maximum of 1,034 afy by Year 25.

The Judgment and Physical Solution also allows for the production of return flows generated by imported water use in the Antelope Valley Watershed surrounding the basin in an amount to be determined to the satisfaction of the watermaster. Portions of the Project site are located in the basin watershed, and imported water use in these areas would be expected to generate return flows that could be used to meet Project demand. The amount of any such return flows has not yet been quantified and no application has been made to the watermaster concerning the use of these potential supplies. Consistent with the recommendations of the Peer Review Report, the analysis of Project water supply and demand does not include return flows that may be generated by imported water use in the Antelope Valley Watershed surrounding the basin (Kennedy/Jenks 2017). In the event the watermaster approves the

production water return flows generated by imported water use in the basin watershed, the Project's water supplies will be higher than projected.

**Groundwater.** As discussed above, TRC is a party to the Judgment and Physical Solution entered by the Superior Court in the Antelope Valley groundwater adjudication. Exhibit 4 to the Judgment and Physical Solution allocates overlying production rights to groundwater in amounts consistent with the basin's total sustainable yield. The adjudication Judgment and Physical Solution, including Exhibit 4, is included in Appendix 5.18-D. Following a seven-year rampdown period applicable to all basin groundwater users, TRC has been allocated an overlying production right of 1,634 afy. All of TRC's overlying right allocation will be provided to and utilized by the Project. As discussed above, groundwater production in accordance with the Judgment and Physical Solution is considered to be highly reliable from year to year and unaffected by single-dry or multiple-dry year conditions (RWMG 2013).

Water quality samples indicate that groundwater in the Project area is suitable for potable use. Total dissolved solids (TDS) concentrations in several shallow and deep wells analyzed by Geosyntec in 2007 were approximately 318 milligrams per liter (mg/L) and hydrogen potential (pH) levels were neutral at 7.5. Iron and manganese were not detected in the samples. Nitrate concentrations were measured at 12.6 mg/L (as nitrate), which is below the applicable maximum contaminant level (MCL) drinking water standard of 45 mg/L. The boron concentration was 0.26 mg/L compared with the California Department of Public Health Action Level of 1 mg/L (Geosyntec 2007). Arsenic was detected in a deep local aquifer at approximately 11.9 micrograms per liter ( $\mu\text{g/L}$ ), which is above the State and federal MCL of 10  $\mu\text{g/L}$ . No other metals, including total chromium, were detected above applicable MCL standards. Chromium-6 was detected at a very low level (0.5  $\mu\text{g/L}$ ) in one well sample taken in 2005 (GEI 2010, 2005). None of the deep aquifer groundwater samples contained detectable concentrations of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), asbestos, total and fecal coliform bacteria, e. coli bacteria, 1,2,3-trichloropropane, or 1,2-dibromoethane (Geosyntec 2007).

Water quality tests performed by GEI in 2010 focused on the deep aquifer that would serve the Project and were consistent with the 2007 sampling results. TDS levels ranged from 310 to 320 mg/L, well below applicable standards. The results also indicate the presence of coliform bacteria and odor at the applicable MCL of 3.0 threshold odor number (TON). These results are typical for wells that are used for agriculture and well water that is not disinfected or treated for potable use. Standard chlorine disinfection, ultra-violet (UV) light disinfection or, if needed, physical cleaning by either scrubbing or brushing, followed by disinfection would meet applicable potable water standards for these characteristics (GEI 2010). Arsenic was observed in one well at 13  $\mu\text{g/L}$  (higher than the applicable MCL of 10  $\mu\text{g/L}$ ) and at 8.9  $\mu\text{g/L}$  in a second location. Further aquifer sampling will be conducted prior to Project residential, commercial, or employment-related groundwater use to verify these results. The analysis data will be reviewed by the California Department of Public Health (CDPH) Drinking Water Program to confirm that constituent levels

comply with federal and State drinking water standards. If elevated arsenic levels are confirmed in subsequent water quality analyses, the Project will implement an integrated treatment approach to ensure that arsenic concentrations in potable water are maintained at applicable levels for potable water, including the following potential measures:

- *Well Screening to Exclude Arsenic-Containing Sediments.* Public water suppliers in the Antelope Valley, including LACWWD40, have demonstrated that arsenic concentrations in well water can be significantly reduced by installing screens that isolate soils or well zones where arsenic occurs. An isolation strategy will be evaluated and deployed to reduce potential arsenic concentrations in well water serving the Project to the extent feasible (Psomas 2011; DWR 2009).
- *Blending.* Potable water will be conveyed to and treated in a central water treatment facility, including well extractions and SWP supplies (see Exhibit 4-13, Centennial Project – Conceptual Domestic Water System). Depending on the annual and seasonal availability of SWP supplies (which typically contain arsenic concentrations that range from 1–4 ppb), well and SWP water can be blended in the facility to meet the arsenic MCL requirements (Psomas 2011; DWR 2009).
- *Ion Exchange Process.* Ion exchange is a USEPA-approved technology for the removal of arsenic from potable water supplies. An application of the technology developed by Envirogen, a commercial treatment system supplier, has been documented to be effective in reducing arsenic to non-detect levels in a plant operated by the Victorville Water District (VWD) under conditions similar to Antelope Valley and the Project area. The ion exchange process uses an adsorptive media such as iron oxide that bonds arsenic to the surface of the media in a staggered bed design. Water is passed through the media, where the arsenic is bonded and captured, and the purified water is then conveyed for further use. In 2002, VWD treated approximately 127 million gallons of well water using a mobile, 1,000 gallon per minute (gpm) Envirogen facility to non-detect levels. Approximately 99.94 percent of the treated water was recovered for potable use. Based on these results, VWD contracted with Envirogen to install a full-scale, centralized 6,000-gpm arsenic removal facility that will treat groundwater extracted from 5 wells. Envirogen has also operated 4 similar permitted units during the last 5 to 6 years with treatment capacities ranging from 1,200 to 8,000 gpm and recovery rates for treated product water averaging 99.90 to 99.94 percent. These units are located in Victorville, California (one unit treating water from the La Mesa Well); Mecca, California (two units treating water from Well 6806 and Well 7802); and one unit in Gilbert, Arizona. The Victorville, Mecca, and Gilbert installations show that ion exchange technology does not generate a significant wastewater stream and effectively removes arsenic from potable water supplies. The primary disposal requirements associated with the technology include the filtration media and solids suspended in the media. Assuming arsenic occurs in Project-serving groundwater at the highest tested level of approximately 13 µg/L, treatment to meet buildout demand could generate approximately 90 pounds of arsenic in a normal year and approximately 200 pounds of arsenic in a single-dry year. Disposal options include (1) disposal

at dedicated regeneration locations; (2) cleaning in a dedicated on-site facility that would remove the arsenic and other solids from the adsorptive media and transporting the solids for disposal at USEPA-approved regional facilities, such as the Harbors Environmental Services in Wilmington, California; or (3) transporting the adsorptive media and solids for cleaning and disposal at the Wilmington or a similar, USEPA-approved facility (Psomas 2011; DWR 2009).

Additional treatment technologies currently exist (e.g., reverse osmosis) that can supplement the treatment approach if required to meet the arsenic concentration objectives. Future techniques may be also be developed that could treat arsenic in a more cost-effective manner and reduce treatment wastes. The treatment facilities will be managed to allow for the systematic consideration and evaluation of available arsenic filtration technologies over time to ensure that applicable arsenic concentration levels are maintained and to reduce treatment wastes to the maximum extent feasible.

**Recycled Water.** Wastewater will be collected and treated to unrestricted reuse standards in accordance with Title 22 of the *California Code of Regulations*. The on-site distribution system will provide recycled water for outdoor irrigation and for 30 percent of indoor business park demand. Dual plumbing will also be installed to meet irrigation needs along the outer portions of very low density and low density residential lots with an area of at least 7,000 square feet.

The Project's proposed recycled water use is consistent with the Recycled Water Policy adopted in 2009 by the State Water Resources Control Board (Resolution No. 2009-0011). The Recycled Water Policy goals include (1) increasing statewide use of recycled water over 2002 levels by at least one million afy by 2020 and by at least two million afy in 2030 and (2) substituting as much recycled water for potable water as possible by 2030. To facilitate these goals, the Recycled Water Policy provides direction to each RWQCB regarding the appropriate criteria for issuing recycled water use permits to streamline the recycled project permitting process. At buildout, approximately 4,577 afy of recycled water will be used to meet 40 percent of total Project water demand.

### ***Project Buildout Water Supply and Demand Projections***

This section discusses buildout supply and demand during average (normal), single-dry, and multiple-dry years over a 20-year projection in conformance with Section 10910(c)(3) of the *California Water Code*. The projections incorporate the ELT scenario 82-year hydrologic projections used by AVEK in the 2015 UWMP (AVEK 2016).

Tables 5.18-10 through 5.18-12 provide buildout supply and demand projections during average, single-dry and multiple-dry years. The average year projections use the ELT long-term average reliability factor of 59 percent in the AVEK UWMP for SWP supplies. Single-dry year projections are presented in five-year increments and assume SWP deliveries will be five percent of Table A Amounts, the level used in AVEK's UWMP. Multiple-dry year projections are presented in five-year increments with the first two years shown as normal

years and the last three years as a dry period or drought. Consistent with the ELT scenario and the AVEK UWMP, three-year drought period annual delivery rates used in the analysis are 12 percent, 16 percent, and 24 percent of the applicable SWP Table A amounts.

The projections show that Project supplies are sufficient to meet buildout demand for the 20-year analysis period and on a sustainable basis after buildout. The average year analysis in Table 5.18-10 is extended to Year 25 to provide projections up to the time when in-basin return flows fully mature. Project reserve supplies reach a maximum annual average volume of more than 79,000 acre-feet by Year 25 and would increase over time as return flows mature, and available supplies would, on average, exceed supplies in future years. Tables 5.18-11 and 5.18-12 show that stored water will be sufficient to meet demand when imported water supplies are limited both in single-dry years and multiple-dry years during and after Project buildout.

### ***Water Use Monitoring and Reporting Requirements***

The Specific Plan Green Development Program requires that the Project Water Purveyor meter all Project water use and provide the County with two water use reports. The first report must be submitted to the County at the end of the 5<sup>th</sup> year following first occupancy or occupancy of the 4,000<sup>th</sup> dwelling unit, whichever occurs latest. The second report must be provided to the County at the end of the 10<sup>th</sup> year following first occupancy or occupancy of the 10,000<sup>th</sup> dwelling unit, whichever occurs latest.

The purpose of the reports is to verify that the projected rates of potable and recycled water use for residential, CII, irrigation, and other purposes are being achieved and that available water supplies are sufficient to meet future demand after approximately 25 percent and 50 percent of the Project is completed. If the water use documented in a water use report exceeds projected levels, the Project Water Purveyor must implement response measures to reduce water consumption, such as modifying the water budget based rates in accordance with applicable laws, surcharges, additional enforcement, or water system repairs or upgrades. If required, the response measures could also include securing supplemental water, including the following potential water sources:

- **Imported Water Return Flows from Basin Watershed Use.** As discussed above, subject to the submission of an engineering report and approval by the watermaster, the Judgment and Physical Solution allows for the production of return flows generated by imported water use in the Antelope Valley Basin Watershed in addition to return flows from imported water use in the basin (see Appendix 5.18-D). Imported water will be used within the portions of the Project site that are outside the basin but within the basin watershed. If the return flows generated by this imported water use can be sufficiently quantified and approved by the watermaster, Project supplies would be augmented by this additional water source.
- **In-Basin Transfers.** The Judgment and Physical Solution for the Antelope Valley Basin allows for the transfer of overlying production rights from one party to another subject to watermaster approval (see Appendix 5.18-D). If required, supplemental supplies could be acquired from other parties pursuant to the Judgment and Physical

Solution and with watermaster approval in a manner that would avoid significant impacts to regional groundwater and groundwater users.

- **Antelope Valley – East Kern Water Agency Fee Program.** As summarized in the LACWWD40's 2015 UMWP, AVEK has implemented a fee program to facilitate obtaining additional imported water supplies to meet new demands in the region. The program requires payment to AVEK for each acre-foot of additional supply, and AVEK will use the funding to purchase water supplies that can be imported to the region using the SWP conveyance system. The fee program will likely focus on Table A transfers from other SWP contractors in accordance with the existing SWP contracts and DWR rules and regulations. AVEK acquisition of Table A transfers for fee program use would not generate additional impacts or require mitigation beyond the measures identified in the applicable SWP system environmental review process.
- **Additional Table A Transfers.** As discussed above, TRC acquired rights to 3,444 afy of Table A Amounts from Tulare Lake and Dudley Ridge for Project purposes. Additional Table A transfer opportunities may become available in the future. If available, Table A water secured for the Project would be transferred to AVEK's SWP account in accordance with applicable SWP contracts and rules and would be imported subject to an agreement with AVEK. Transfers of Table A Amounts would require the approval of the transferring SWP contractor, AVEK, and the DWR after appropriate environmental review. Project acquisition of additional Table A transfers would not generate additional impacts or require mitigation beyond the measures identified in the SWP system environmental review process.
- **Investment in Efficient Water Use Retrofit Programs or Additional Recycled Water Capacity for Existing Antelope Valley Users.** One or more water purveyors in the Antelope Valley may adopt a program under which additional water rights could be acquired by investing in water fixture retrofitting, new recycled water capacity, or other actions that reduce existing consumption in the region. It is likely that significant water savings could be achieved in existing residences, commercial and industrial buildings, or agricultural operations by replacing older fixtures and distribution equipment with modern, water-efficient facilities. Potable water demand could also be reduced by increasing the supply and delivery capacity of high-quality recycled water for irrigation in lieu of potable supplies. A regional water user could pay for applicable retrofits or capacity enhancements; establish the extent of reduced water consumption that results from the new facilities; and be credited with a supply equal to the net savings minus an applicable safety margin. Any such retrofit or recycled water program would be conducted in conjunction with regional water management programs designed to increase supply reliability and would be documented to ensure that net water savings were generated for the Antelope Valley. Other potential environmental impacts and mitigation measures that could be associated with a retrofit program would be evaluated by the applicable water purveyor or other implementing agency. No additional environmental review or mitigation would likely be required to participate in a retrofit or recycled water supply credit program approved by a local or regional water district or agency.
- **Storm Water Reuse.** The Urban Water Management Planning Act requires a consideration of storm water reuse as a potential future water supply. The

LACWWD40's 2015 UWMP indicates that certain districts in the Antelope Valley have considered or are implementing storm water reuse projects, including the Amargosa Creek Storm Water Runoff Recharge and Retention Basin project. It is possible that the Project could participate in the funding of these or similar regional storm water retention and reuse programs in exchange for rights to use a portion of the resulting additional supply. Regional programs would be subject to environmental evaluation and permitting by the applicable lead agency. Project participation in such efforts would not generate additional impacts or require mitigation beyond the measures identified by the Project's lead agency.

- **Desalination.** The Urban Water Management Planning Act requires a consideration of desalination as a potential future water supply. The Antelope Valley has no access to seawater and the 2015 AVEK UWMP states that desalination of brackish groundwater would add costs without increasing the Agency's supplies. The LACWWD40's 2015 UWMP indicates that, although there are no opportunities for the development of desalinated water in the district's service area, it may be possible for AVEK to partner with another SWP contractor, contribute financially to the construction of an ocean desalination facility, and obtain SWP water rights in exchange. Desalination facilities can involve potentially significant environmental impacts associated with brine disposal; with building and obtaining rights-of-way for water conveyance facilities; and with energy use. Due to cost and potential mitigation requirements, operating a desalination facility for Project use is not a feasible option. The Project could participate in the funding of a desalination project and SWP exchange program and acquire rights to use a portion of the resulting new supply. A desalination project coupled with an SWP water exchange would be subject to environmental evaluation and permitting by the applicable lead agencies. Project participation in a desalination program would not generate additional impacts or require mitigation beyond the measures identified by the lead agencies.
- **Other Potential Private or Public Water Sales.** Public or private entities may acquire rights to non-SWP water that can be transferred to the Project site by means of the California Aqueduct. The acquisition of sale and delivery rights from a seller, as well as the sale and transfer to the Project, would require appropriate agency approvals and environmental review. Water delivered to the Project site would also be required to meet applicable California Aqueduct water quality standards. Approvals from AVEK, the DWR, and other potential conveyance facility rights holders would be necessary to deliver third-party water through the California Aqueduct to the turnouts that serve the Project. In general, the conveyance of non-SWP water would occur on a lower priority than the conveyance of SWP supplies in the Aqueduct system, and transfers that rely on variable conveyance rights are more difficult to complete. A transfer relying on variable conveyance in the California Aqueduct would generally occur when there is surplus capacity and water would be stored until needed within the on-site and TRC water banks. Certain of the potential impacts associated with the purchase and conveyance of non-SWP supplies to and through the SWP system would be analyzed and mitigated in review processes undertaken by the participating water agencies. Additional impacts and mitigation measures could be associated with the transfer of water from the originating location, including the possibility of impacts to agriculture or other uses. The extent of these



impacts and mitigation would depend on the locations from which the water was obtained and the pre-transfer uses of the transferred supplies and would be reviewed by the participating water agencies.

### ***On-Site Water Supply Impacts***

Based on the supply and demand projections discussed above and summarized in Tables 5.18-10 through 5.18-12, the Project's water supplies will be able to sustainably meet demand up to and following buildout with an average annual banked reserve of more than 79,000 acre-feet, or more than 11 years of full buildout potable demand. The Project's indoor and outdoor potable water use will be minimized by meeting and exceeding applicable State CALGreen Code and County Green Building Standards Code residential and non-residential equipment and water flow requirements. All Project landscaping and irrigation must conform to the plant palette and irrigation efficiency requirements in Section 3.4 of the Specific Plan. Outdoor water use will be consistent with the MWEL0 as amended in 2015. The projected annual residential per capita indoor and outdoor water demand of approximately 113 gpcd and total per capita water urban use of approximately 177.5 gpcd is consistent with the 2035 per capita water use rates projected by the County in the General Plan Update draft and final EIRs (142–199 gpcd) and the AVIRWRMP 2010 average water demand estimate of 199 gpcd and a conservative 10 percent reduction from the 2010 average level to meet the state's 20 percent urban water use reduction mandate (179 gpcd) (see Table 5.18-5).

As discussed above, the Project water supplies and demand analysis uses the recommended factors in the Peer Review Report submitted to the County (Kennedy/Jenks 2017). Certain of these factors, such as an assumed indoor residential use of 65 gpcd, are relatively conservative compared with recent studies, reported use by other water districts, and the State's current indoor residential standard of 55 gpcd. The analysis of Project supplies also does not include imported water return flows from basin watershed use that may be permitted by the watermaster in accordance with the Judgment and Physical Solution. Finally, the supply analysis does not assume that AVEK will use banked or groundwater supplies to meet the 4,000 afy of TRC demand incorporated into the AVEK UWMP during a single-dry or multiple-dry year. Consequently, the analysis of Project water supplies and demand includes conservative water use and supply assumptions.

The Project's use of groundwater and return flows from imported water in the Antelope Valley Basin and watershed areas will conform to the requirements of the adjudication Judgment and Physical Solution and will avoid significant impacts to groundwater supplies. High quality recycled water will be produced and distributed on site to meet 40 percent of buildout demand, including outdoor irrigation and for indoor wastewater and cooling in the business park. The use of recycled water is consistent with California and County policies that encourage increased municipal and industrial recycled water supplies.

Available SWP supplies include imported water secured and transferred to AVEK for importation and Project use and service area deliveries to TRC incorporated in Table 4-2 of the Agency's 2015 UWMP. The existing TRC and proposed on-site water banks allow for the wet-year storage and dry-year use of AVEK and other deliveries, which significantly

increases the overall reliability of both regional and Project water supplies. The TRC Water Bank is a preexisting facility that will continue operations under the adjudication Judgment and Physical Solution. The proposed water bank will be operated in conformance with a storage agreement with the adjudication watermaster.

Potentially significant water supply impacts could occur if on-site water use exceeds projected levels or if SWP delivery reliability is lower than projected. If water use is less efficient than projected, demand could exceed supply in the latter of the Project's buildout years (see Table 5.18-12). If the annual average SWP delivery reliability is lower than estimated, less imported water would be available to meet Project demand from the secured Table A sources under the TRC-AVEK agreement and from the service area deliveries to TRC incorporated into the 2015 UWMP.

Mitigation Measure (MM) 18-1 and MM 18-2 will reduce these potential impacts to less than significant levels. MM 18-1 requires implementation of the water efficiency measures included in Part 2B of the Specific Plan's Green Development Program and the water conservation measures included in PDFs 18-1, 18-2, and 18-3. These measures will result in the installation of residential and non-residential water fixtures, irrigation, and other equipment that will exceed applicable State CALGreen Code and County Green Building Standards Code standards; will ensure that landscaping demand conforms to the more stringent of the MWELo or County standards; and will ensure that approximately 40 percent of total Project demand will be met by using recycled water. MM 18-1 also requires that the Project's on-site water use be monitored at all times. Finally, MM 18-1 requires that the Project Water Purveyor implement water budget based rates that reflect all applicable legal requirements to provide pricing incentives for meeting and exceeding projected levels of demand. The rates will be based on the projected indoor and outdoor water use factors summarized Table 5.18-7 except for indoor residential water use, which will incorporate the more stringent of the 55 gpcd standard in the recent multi-agency framework report (DWR et al. 2016b) or subsequent standards that may be implemented by the State or County. As shown in Table 5.18-7, residential indoor water use accounts for approximately 61 percent (4,161 afy of 6,788 afy) of the Project's full buildout potable water demand. The incorporation of a lower indoor residential use standard than assumed in the analysis in the water budget based rates will provide additional assurance that the Project demands will meet or exceed projected levels.

MM 18-2 requires implementation of water use monitoring and reporting, as described in Part 2B of the Specific Plan's Green Development Program and PDF 18-4, including the submission of water use reports to the County at the end of the 5<sup>th</sup> and 10<sup>th</sup> years or the occupancy of the 4,000<sup>th</sup> and 10,000<sup>th</sup> units, whichever occurs latest. The reports will utilize metering data to determine whether the water use efficiencies summarized in Table 5.18-7 are being achieved as the Project is built and that available water supplies are sufficient to meet future demand. If a report determines that water use is exceeding projected levels, the Project Water Purveyor must identify specific response measures to ensure that water supplies will meet future demand. These measures may include modified water-budget based rates to encourage lower water use in conformance with applicable legal requirements; enforcement; system repairs or upgrades to reduce losses and increase efficiency; or securing new water sources.

MM 18-1 and MM 18-2 ensure that Project's water efficiency will be achieved and that water supplies will be confirmed in reports that utilize on-site metering data after approximately 25 percent and 50 percent of the proposed Project has been built. If required, the Project Water Purveyor must identify and implement response measures that will ensure that available supplies will meet future demand. No subsequent development may occur until the County is satisfied that water supplies are sufficient to meet future demand. Potential impacts related to water use efficiency and water supply reliability will be reduced to less than significant levels with the incorporation of MM 18-1 and MM 18-2.

## Off-Site Impacts

As shown on Exhibit 4-13, Centennial Project – Conceptual Domestic Water System, in Section 4.0, Project Description, certain components of the Project's water infrastructure would be located outside the Project site. These infrastructure components include extraction wells; water conveyance pipelines; and related piping, control structures, and electrical power systems. The operation of the off-site groundwater extraction wells and related water conveyance pipelines and systems do not impact Project water supplies because these systems are necessary to implement the proposed domestic water system.

The impacts of constructing off-site water infrastructure are described in the respective technical sections of this EIR (e.g., biological resources, land use). The operational impacts from using these off-site infrastructure systems are also described in the respective technical sections (e.g., air quality, utility systems) of this EIR. The construction of off-site systems will not result in significant impacts to water supplies.

**Impact Summary:** On-site water supply impacts will be less than significant with the incorporation of mitigation measures MM 18-1 and MM 18-2. The construction of off-site systems will not result in significant impacts to water supplies and no mitigation is required.

**Threshold 18-2** **Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?**

## On-Site and Off-Site Impacts

The Project's use of groundwater and return flows from in-basin imported water use is regulated by the terms and conditions of the adjudication Judgment and Physical Solution. The Judgment and Physical Solution incorporates and implements a judicial determination of the total sustainable yield of the Antelope Valley aquifer and limits the use of native supplies and imported water return flows to levels that will allow for the sustainable use of groundwater, including the avoidance of overdraft conditions. Groundwater use in accordance with the Judgment and Physical Solution would not result in a lowering of local groundwater to levels that would impact the production rate of pre-existing nearby wells

and would not cause groundwater to drop to levels that would not support existing or planned land uses. Consequently, Project groundwater and return flow use would not significantly impact groundwater levels and no mitigation is required.

The Project's potential impacts to groundwater recharge are discussed in more detail in Section 5.2, Hydrology and Flood, and Section 5.4, Water Quality. Project development would not interfere substantially with groundwater recharge to the extent of causing a net deficit in aquifer volume or a lowering of the local groundwater table. Under existing conditions, the Project is located in a watershed of approximately 39,600 acres, of which approximately 36,660 acres, including most of the Project site and the surrounding watershed, drains to the Antelope Valley Groundwater Basin. No surface water flows will be redirected to other watersheds under post-development conditions. Under existing conditions, approximately 3,308 acre-feet of runoff to the basin is generated from the Project site during a 50-year storm event, excluding flows from the site west toward Gorman Creek. At buildout, approximately 4,362 acre-feet of runoff to the basin would be generated from Project areas during a 50-year storm event. The increase in runoff volume is related to the reduction of permeable areas due to development (Psomas 2017b).

To ensure that no loss of groundwater recharge potential in the basin would occur, the Project will construct and maintain 26 storm water infiltration basins with a total storage capacity of approximately 2,229 acre-feet in alluvial, low-lying locations of the site. The basins are typically located adjacent to or within natural drainages and in development areas in the flatter eastern areas of the Project site. Natural soil conditions are better suited for infiltration in these locations and promote effective infiltration. Each basin has been sized to impound water at depths of approximately six to eight feet and to discharge within a maximum of four days. The short draw-down time minimizes evaporation losses and maximizes groundwater recharge. The depth of stored water promotes infiltration by reducing the surface area of ponded water and lowering evaporation losses below the level that occur under existing site conditions. The basin system will also intercept low flow discharges during the summer months, which will incrementally add to overall groundwater recharge volumes. Basin performance will be monitored and maintenance will be performed as required to maintain the planned infiltration rates (Psomas 2017b). The Project's runoff management and basin system is discussed in more detail in Section 5.2, Hydrology and Flood.

Project runoff volume would increase from impervious surfaces introduced by development. On-site basins will capture and infiltrate this runoff to maintain existing peak flow rates and volumes during storm events at off-site discharge locations (see Section 5.2, Hydrology and Flood). Most of the basins are located in the eastern portions of the site that contribute surface flows and groundwater recharge to the Antelope Valley Basin. As a result, Antelope Valley Basin recharge rates would either be unaffected by or could potentially increase as a result of Project development.

***Impact Summary:*** There would be a less than significant impact to groundwater supplies, groundwater recharge rates, groundwater levels, and to existing and potential future well uses; no additional mitigation is required.

## 5.18.7 MITIGATION MEASURES

**MM 18-1** In addition to complying with the water efficiency and conservation set forth in Divisions 4.3 and 5.3 of the California Green Building Standards (CALGreen) Code or the County Green Building Standards Code, whichever are more stringent, the Project Applicant/Developer shall implement the measures listed below.

**Meter Water Use.** Install, maintain, and monitor all non-construction potable and non-potable water use using appropriate metering equipment throughout the site.

**Reduce Potable Water Use with On-Site Recycled Water.** Install, maintain, and operate on-site wastewater treatment and conveyance facilities that provide recycled water treated to California Title 22 unrestricted reuse standards from on-site wastewater. Recycled water shall be used to meet (i) 100 percent of commercial, business park, institutional, school, hotel, park, and slope irrigation demand and (ii) outdoor irrigation demand in 50 percent of the total very low and low density residential lot landscaped area.

**Water Efficient Appliances.** Require installation of water-efficient major appliances (washers, dryers, dishwashers) in compliance with the California Appliance Efficiency Regulations, Energy Star®, or other applicable standards.

**Water Efficient Irrigation.** Require the installation of irrigation equipment with a minimum 0.80 irrigation efficiency for all public and private park, recreation and entertainment land use, arterial roadway, and slope irrigation uses. Water Smart/Evapotranspiration-based controllers shall be used. Low water use plants and shrubs shall be used in all irrigated slope areas with an average plant factor of 0.2, as defined in the State Model Water Efficient Landscape Ordinance.

**Water Budget Based Water Rates.** Require that the Project Water Purveyor implement water budget based rates in compliance with all applicable legal requirements and in a manner consistent with the use of such rates by other water districts in California (e.g., Irvine Ranch Water District). The water budget based rates shall incorporate and be designed to ensure that Project potable water use meets or exceeds the following standards and adjusted as may be required to meet more stringent standards that may be adopted by the State or Los Angeles County:

*1. Indoor Water Use Standards*

- (a) Residential indoor water use – 55 gallons per capita per day
- (b) Commercial indoor water use – 200 gallons per day per thousand square feet
- (c) Business Park indoor water use – 65 gallons per day per thousand square feet, including recycled water for commercial wastewater and cooling use except where prohibited by applicable law for particular types of areas or uses (e.g., employee cafeterias)

- (d) Institutional indoor water use – 50 gallons per day per thousand square feet
- (e) Hotel indoor water use – 125 gallons per day per room.

## 2. Outdoor Water Use Standards

- (a) Residential outdoor water use – 55 percent of the reference evapotranspiration rate for the Project site
- (b) Commercial, industrial, and institutional outdoor use – 45 percent of the reference evapotranspiration rate for the Project site

**MM 18-2** The Project Applicant/Developer shall submit to the County Water Use Reports prepared by a qualified specialist to the satisfaction of the County to verify that the projected water use efficiencies are being achieved (1) at the end of the 5<sup>th</sup> year following first occupancy or occupancy of the 4,000<sup>th</sup> dwelling unit, whichever occurs later and (2) at the end of the 10<sup>th</sup> year following first occupancy or occupancy of the 10,000<sup>th</sup> dwelling unit, whichever occurs later. In the event that a Water Use Report indicates that consumption exceeds the projected levels, response measures must be implemented to ensure that available supplies will be sufficient to meet future demand. No further development will be approved until additional measures are implemented to achieve the required efficiencies and/or provide additional water supplies, as confirmed by the Project Water Purveyor. No subsequent Tentative Maps shall be approved until the Project Water Purveyor has demonstrated to the satisfaction of the County that the implementation of specific water demand and supply response measures will ensure that available supplies will meet future Project demand.

### 5.18.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Impacts to water supply will be less than significant after mitigation. Potential groundwater impacts will be less than significant and no mitigation is required. The Project will contribute to a significant and unavoidable cumulative impact to regional water supplies.

### 5.18.9 REFERENCES

Antelope Valley – East Kern Water Agency (AVEK). 2016 (June). *2015 Urban Water Management Plan*. Palmdale, CA: AVEK. [http://www.avek.org/fileLibrary/file\\_476.pdf](http://www.avek.org/fileLibrary/file_476.pdf) (Appendix 5.18-F).

———. 2013 (September 18). Supervisors OK Water Agreement for New Building. Palmdale, CA: AVEK. [http://www.avek.org/index.cfm?fuseaction=news\\_item2&news\\_id=2](http://www.avek.org/index.cfm?fuseaction=news_item2&news_id=2).

———. 2012 (October 25). Agreement between Antelope Valley – East Kern Water Agency and Tejon RanchCorp Providing for Importation of Additional SWP Table A Amounts (Appendix 5.18-E).

Aquacraft Water Engineering and Management (Aquacraft). 2011a (July). *Analysis of Water Use in New Single-Family Homes* (submitted by W.B. DeOreo to the Salt Lake City Corporation and the USEPA). Boulder, CO: Aquacraft.

———. 2011b (April). *California Single Family Water Use Efficiency Study*. Boulder, CO: Aquacraft.

*California American Water v. City of Seaside* (2010) 183 Cal. App. 4<sup>th</sup> 471, 480.

California Department of Housing and Community Development (HCD). 2016 (September). *2016 Report to the Legislature: Status of the California Green Building Standards Code*. Sacramento, CA: HCD. <http://www.hcd.ca.gov/building-standards/calgreen/docs/CALGreen-report-to-legislature-2016.pdf>.

———. 2016b. *Residential Mandatory Measures Effective January 1, 2017, 2016 CALGreen Code*. Sacramento, CA: HCD. [http://www.hcd.ca.gov/building-standards/calgreen/docs/HCDSHL605\\_2016.pdf](http://www.hcd.ca.gov/building-standards/calgreen/docs/HCDSHL605_2016.pdf).

California Department of Water Resources (DWR). 2014. *California Water Plan* (Volume 3, Chapter 3, Urban Water Use Efficiency, Update 2013). Sacramento, CA: DWR. [http://www.water.ca.gov/waterplan/docs/cwpu2013/Final/Vol3\\_Ch03\\_UrbanWUE.pdf](http://www.water.ca.gov/waterplan/docs/cwpu2013/Final/Vol3_Ch03_UrbanWUE.pdf).

———. 2010 (August). *The State Water Project Delivery Reliability Report 2009*. Sacramento, CA: DWR. (Appendix C of the Centennial Water Supply Assessment [Appendix 5.18-A of this EIR]).

———. 2009 (April). *Water Quality in the State Water Project 2004 and 2005*. Sacramento, CA: DWR. (Appendix Q-2 of the Centennial Water Supply Assessment [Appendix 5.18-A of this EIR])

———. 2008 (February 5, last modified). *Levee Repair – History of Levees*. Sacramento, CA: DWR. <http://www.water.ca.gov/levees/history/>.

———. 2004 (February 27). *Antelope Valley Groundwater Basin. California's Groundwater Bulletin 118*. Sacramento, CA: DWR. [http://www.water.ca.gov/pubs/groundwater/bulletin\\_118/basindescriptions/6-7.pdf](http://www.water.ca.gov/pubs/groundwater/bulletin_118/basindescriptions/6-7.pdf).

California Department of Water Resources, U.S. Bureau of Reclamation, and California Natural Resources Agency (DWR et al.). 2016a (December). *Bay Delta Conservation Plan/California WaterFix Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS)*. Sacramento, CA: DWR. <http://baydeltaconservationplan.com/FinalEIREIS.aspx>.

———. 2015a (December, access date). *The Environmental Review Process*. Sacramento, CA: DWR. <http://baydeltaconservationplan.com/EnvironmentalReview/EnvironmentalReview/EnvironmentalReview.aspx>.

- . 2015b (July). Public Review Partially Recirculated Draft Environmental Impact Report/Supplemental Draft Environmental Impact Statement (RDEIR/SDEIS). Sacramento, CA: DWR. <http://baydeltaconservationplan.com/2015PublicReview/PublicReviewRDEIRSDEIS.aspx>.
- California Department of Water Resources, State Water Resources Control Board, California Public Utilities Commission, California Department of Food and Agriculture, and the California Energy Commission (DWR et al). 2016b (November). *Making Water Conservation a California Way of Life: Implementing Executive Order B-37-16*. Sacramento, CA: the State. [http://www.water.ca.gov/wateruseefficiency/conservation/docs/EO\\_B-37-16\\_Report.pdf](http://www.water.ca.gov/wateruseefficiency/conservation/docs/EO_B-37-16_Report.pdf).
- California Energy Commission (CEC). 2015 (July). *2015 Appliance Efficiency Regulations* (prepared by H. Singh, K. Rider, and J. Babula). Sacramento, CA: CEC. <http://www.energy.ca.gov/2015publications/CEC-400-2015-021/CEC-400-2015-021.pdf>.
- California Natural Resources Agency (CNRA). 2015 (July 1). State Water Project Delivery Capability Report 2015 (a Memorandum from E. Reyes (Chief, Central Valley Modeling Section), F. Chung (Chief, Modeling Support Branch), and P.A. Marshall (Chief, Bay-Delta Office) to S. Darabzand, Central Valley Modeling Section, Department of Water Resources). Sacramento, CA: CNRA. <https://msb.water.ca.gov/documents/86800/144575dd-0be1-4d2d-aeff-8d7a2a7b21e4>.
- California, State of. 2016a (access date). *California Code of Regulations*. Sacramento, CA: the State. [https://govt.westlaw.com/calregs/index?\\_lrTS=20160407175110069&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/calregs/index?_lrTS=20160407175110069&transitionType=Default&contextData=(sc.Default)).
- . 2016b (May 9). Executive Order Aims to Make Water Conservation a Way of Life in California. Sacramento, CA: the State. <https://www.gov.ca.gov/news.php?id=19408>.
- . 2015a (April 1). Governor Brown Directs First Ever Statewide Mandatory Water Reductions. Sacramento, CA: the State. <https://www.gov.ca.gov/news.php?id=18910>.
- . 2015b (as amended through 2016). *California Water Code* (Division 6, Conservation, Development, and Utilization of State Water Resources; Part 2.74, Sustainable Groundwater Management; Chapter 1, General Provisions; Sections 10720–10720.9, Sustainable Groundwater Management Act). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=WAT&division=6.&title=&part=2.74.&chapter=1.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=WAT&division=6.&title=&part=2.74.&chapter=1.&article=)
- . 2014 (January 17). Governor Brown Declares Drought State of Emergency. Sacramento, CA: the State. <https://www.gov.ca.gov/news.php?id=18368>.
- . 2013 (January, last amended). *California Business and Professions Code* (Division 4, Real Estate; Part 2, Regulation of Transactions; Chapter 1, Subdivided Lands; Article 2, Investigation, Regulation, and Report; Section 11010). Sacramento, CA: the State.



[http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=BPC&division=4.&title=&part=2.&chapter=1.&article=2](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=BPC&division=4.&title=&part=2.&chapter=1.&article=2).

- . 2011 (January, effective date). *California Water Code* (Division 6, Conservation, Development, and Utilization of State Water Resources; Part 2.55, Sustainable Water Use and Demand Reduction; Chapter 3, Urban Retail Water Suppliers; Section 10608.20). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=WAT&division=6.&title=&part=2.55.&chapter=3.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=WAT&division=6.&title=&part=2.55.&chapter=3.&article=).
- . 2010a (February, effective date). *California Water Code* (Division 6, Conservation, Development, and Utilization of State Water Resources; Part 2.55, Sustainable Water Use and Demand Reduction; Chapter 3, Urban Retail Water Suppliers; Section 10608.16). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=WAT&division=6.&title=&part=2.55.&chapter=3.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=WAT&division=6.&title=&part=2.55.&chapter=3.&article=).
- . 2010b (February, effective date). *California Water Code* (Division 35, Sacramento-San Joaquin Delta Reform Act of 2009; Part 1, General Provisions; Chapter 4, Definitions; Section 85053). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=WAT&division=35.&title=&part=1.&chapter=4.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=WAT&division=35.&title=&part=1.&chapter=4.&article=).
- . 2010c (February, effective date). *California Water Code* (Division 35, Sacramento-San Joaquin Delta Reform Act of 2009; Part 1, General Provisions; Chapter 4, Definitions; Section 85054). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=WAT&division=35.&title=&part=1.&chapter=4.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=WAT&division=35.&title=&part=1.&chapter=4.&article=).
- . 2009 (as amended through 2016). *California Water Code* (Division 6, Conservation, Development, and Utilization of State Water Resources; Part 2.2, Integrated Regional Water Management Plans; Sections 10530–10552, Integrated Regional Water Management Planning Act). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=WAT&division=6.&title=&part=2.2.&chapter=&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=WAT&division=6.&title=&part=2.2.&chapter=&article=).
- . 2006a (as amended through 2016). *California Public Resources Code* (Chapter 1.699, Disaster Preparedness and Flood Prevention Bond Act of 2006; Sections 5096.800–5096.968). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=PRC&division=5.&title=&part=&chapter=1.699.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=PRC&division=5.&title=&part=&chapter=1.699.&article=).
- . 2006b (as amended through 2016). *California Public Resources Code* (Division 43, The Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006; Sections 75001–75130). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=PRC&division=43.&title=&part=&chapter=&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=PRC&division=43.&title=&part=&chapter=&article=).

- . 2005 (January, effective date). *California Government Code* (Title 7, Planning and Land Use; Division 2, Subdivisions; Chapter 4, Requirements; Article 1, General; Section 66473.7). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=2.&title=7.&part=&chapter=4.&article=1](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=2.&title=7.&part=&chapter=4.&article=1).
- . 2002a (January, effective date). *California Government Code* (Title 7, Planning and Land Use; Division 1, Planning and Zoning; Chapter 4, Zoning Regulations; Article 2.5, Development Agreements; Section 65867.5). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=4.&article=2.5](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=4.&article=2.5).
- . 2002b (January, effective date). *California Government Code* (Title 7, Planning and Land Use; Division 2, Subdivisions; Chapter 3, Procedure; Article 3, Review of Tentative Map by Other Agencies; Section 66455.3). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displaySection.xhtml?lawCode=GOV&sectionNum=66455.3](http://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=GOV&sectionNum=66455.3).
- . 2002c (January, effective date). *California Public Resources Code* (Division 13, Environmental Quality; Chapter 4, Local Agencies; Section 21151.9). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=13.&title=&part=&chapter=4.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=13.&title=&part=&chapter=4.&article=).
- . 2002d (as amended through 2004). *California Water Code* (Division 26.5, Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002; Chapter 8, Integrated Regional Water Management; Sections 79560–79565). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=WAT&division=26.5.&title=&part=&chapter=8.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=WAT&division=26.5.&title=&part=&chapter=8.&article=).
- . 1996 (as amended through 2015). *California Water Code* (Division 7, Water Quality; Chapter 7, Water Reclamation; Sections 13500–13557, Water Recycling Law). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=WAT&division=7.&title=&part=&chapter=7.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=WAT&division=7.&title=&part=&chapter=7.&article=).
- . 1995a (January, effective date). *California Water Code* (Division 1, General State Powers Over Water; Chapter 6, Water Reuse; Article 2, Declaration of Policy; Section 461). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=WAT&division=1.&title=&part=&chapter=6.&article=2](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=WAT&division=1.&title=&part=&chapter=6.&article=2).
- . 1995b (as amended through 2011). *California Water Code* (Division 6, Conservation, Development, and Utilization of State Water Resources; Part 2.10, Water Supply Planning to Support Existing and Planned Future Uses; Sections 10910–10915). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=WAT&division=6.&title=&part=2.10.&chapter=&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=WAT&division=6.&title=&part=2.10.&chapter=&article=).

———. 1983 (as amended through 2016). *California Water Code* (Division 6, Conservation, Development, and Utilization of State Water Resources; Part 2.6, Urban Water Management Planning; Sections 10610–10656). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=WAT&division=6.&title=&part=2.6.&chapter=&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=WAT&division=6.&title=&part=2.6.&chapter=&article=).

———. 1953. *California Water Code* (Division 1, General State Powers Over Water; Chapter 3, Water Shortage Emergencies; Section 354). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=WAT&division=1.&title=&part=&chapter=3.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=WAT&division=1.&title=&part=&chapter=3.&article=).

California Superior Court (CSC). 2015 (December). *Antelope Valley Groundwater Cases [Proposed] Judgement and Physical Solution* (Santa Clara Case No. 1-05-CV-049053). Los Angeles, CA: Superior Court of the State of California, County of Los Angeles – Central District. (Appendix 5.18-D).

*Capistrano Taxpayers Assn., Inc. V. City Of San Juan Capistrano* (2015) 235 Cal.App.4th 1493

*City of Santa Maria v. Adam* (2012) 211 Cal. App. 4th 266, 288

GEI Consultants, Inc. 2010 (November). *Hydrogeologic Investigation – Proposed Centennial Project Western Antelope Valley, Los Angeles County, California*. Glendale, CA: GEI (Appendix A of the Centennial Water Supply Assessment [Appendix 5.18-A of this EIR]).

———. 2005 (August 2). *Groundwater Recharge Pilot Project, Los Angeles, California*. Glendale, CA: GEI (Appendix B of the Centennial Water Supply Assessment [Appendix 5.18-A of this EIR]).

Geosyntec Consultants. 2007 (September). *Groundwater Sampling Results, Centennial Project Site, Los Angeles County, CA*. Huntington Beach, CA: Geosyntec (Appendix R of the Centennial Water Supply Assessment [Appendix 5.18-A of this EIR]).

Golden Valley Municipal Water District (GVMWD). 2011 (May). *Centennial Specific Plan Water Supply Assessment*. Gorman, CA: GVMWD (Appendix 5.18-A). Irvine Ranch Water District (IRWD). 2017 (January 19, last accessed). *Budget Based Rate Structures Provide Sustainable Water Savings*. Irvine, CA: IRWD. <http://www.irwd.com/liquid-news/allocation-based-conservation-rate-structures-provide-sustainable-water-savings>.

———. 2015 (January 19, 2017, last accessed). *IRWD Statement on the San Juan Capistrano Court Case*. Irvine, CA: IRWD. <http://irwd.com/liquid-news/irwd-statement-on-the-san-juan-capistrano-court-case>.

———. 2003 (July). *Water Resources Master Plan*. Irvine, CA: IRWD.

- Kennedy/Jenks Consultants. 2017 (January). *Peer Review of the Water Supply and Demand Assessment for the Proposed Centennial Specific Plan Development*. Pasadena, CA: Kennedy/Jenks. (Appendix 5.18-G)
- Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.
- . 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.
- . 2015c (March). *Final Environmental Impact Report, Los Angeles County General Plan Update, County of Los Angeles*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan/eir>.
- . 2015d (last accessed). *Los Angeles County, California – Code of Ordinances*. Tallahassee, FL: Municipal Code Corporation for the County of Los Angeles. [https://www.municode.com/library/ca/\\_angeles\\_county/codes/code\\_of\\_ordinances](https://www.municode.com/library/ca/_angeles_county/codes/code_of_ordinances).
- . 2014 (October). *Final Environmental Impact Report, Antelope Valley Area Plan, County of Los Angeles*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc/environmental/>.
- Los Angeles County Waterworks District 40 (LACWWD 40). 2017 (January) *Final Draft 2015 Urban Water Management Plan for WW 40*. Alhambra, CA: LACWWD40. <https://dpw.lacounty.gov/wwd/web/Documents/2015%20Integrated%20Urban%20Water%20Management%20Plan%20for%20the%20Antelope%20Valley.pdf>.
- Morales, M., J. Heaney, K. Friedman, and J. Martin. 2011. Estimating Commercial, Industrial, and Institutional Water Use on the Basis of Heated Building Area. *Journal AWWA* 103:6: 84–96. Denver, CO: American Water Works Association.
- Mukherjee, M, K. Mika, M. Gold. 2016. *Overcoming the Challenges to Using Tiered Water Rates to Enhance Water Conservation*, California Journal of Politics and Policy, 8(3). Berkeley, CA: Institute of Governmental Studies, U.C. Berkeley. <http://escholarship.org/uc/item/9d19z2f8>.
- Palmdale Water District (PWD). 1991 (November). *Water Supply Evaluation for the Antelope Valley* (prepared by Law Environmental). Palmdale, CA: PWD.
- Psomas. 2017a. *Centennial Water, Wastewater and Recycled Water Demands and System Plan*. Santa Ana, CA: Psomas (Appendix 5.19-A).
- . 2017b. *Centennial Specific Plan Development Impacts on Infiltration and Groundwater Recharge*. Santa Ana, CA: Psomas (Appendix 5.18-B).
- . 2017c. *Centennial Master Plan Hydrology*. Santa Clarita, CA: PSOMAS (Appendix 5.2-A).

- . 2011 (March). Arsenic Treatment: Technical Appendix for Centennial Water Supply Assessment. Santa Ana, CA: Psomas (Appendix Q-1 of the Centennial Water Supply Assessment [EIR Appendix 5.18-A]).
- Regional Water Management Group of the Antelope Valley Integrated Regional Water Management Plan (RWMG). 2013 (update). *Antelope Valley Integrated Regional Water Management Plan*. Palmdale, CA: RWMG. <http://www.avwaterplan.org/>.
- State Water Resources Control Board (SWRCB). 2016a (May). Notice of Approval of Emergency Regulatory Action, CA: SWRCB. [http://www.waterboards.ca.gov/water\\_issues/programs/conservation\\_portal/docs/emergency\\_reg/oal\\_approved\\_reg053116.pdf](http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/docs/emergency_reg/oal_approved_reg053116.pdf).
- . 2016b (June). General Order No. 2016-0068-DDW. Sacramento, CA: SWRCB. [http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/water\\_quality/2016/wqo2016\\_0068\\_ddw.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2016/wqo2016_0068_ddw.pdf).
- . 2015a (October 20, last update). Chromium-6 Drinking Water MCL. Sacramento, CA: SWRCB. [http://www.waterboards.ca.gov/drinking\\_water/certlic/drinkingwater/Chromium6.shtml](http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Chromium6.shtml).
- . 2015b (December, access date). Water Conservation Portal – Conservation Reporting. Sacramento, CA: SWRCB. [http://www.waterboards.ca.gov/water\\_issues/programs/conservation\\_portal/conservation\\_reporting.shtml](http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/conservation_reporting.shtml).
- . 2009 (February 3). Resolution No. 2009-0011: Adoption of a Policy for Water Quality Control for Recycled Water. Sacramento, CA: SWRCB. (Appendix N of the Centennial Water Supply Assessment [EIR Appendix 5.18-A]).
- U.S. Congress. 2016 (access date). *United States Code* (Title 42, the Public Health and Welfare; Chapter 6A, Public Health Service; Subchapter XII, Safety of Public Water Systems; Sections 300f et seq.). Washington, D.C.: U.S. Government Printing Office.
- U.S. Geological Survey (USGS). 2003. *Simulation of Ground-Water Flow and Land Subsidence in the Antelope Valley Ground-Water Basin, California* (prepared by D.A. Leighton and S.P. Phillips in cooperation with the Antelope Valley Water Group). Sacramento CA: USGS. <http://pubs.usgs.gov/wri/wrir034016/text.html>.
- Western Municipal Water District (WMWD). 2015 (April). *Tiered Rates FAQ*. Riverside, CA: WMWD. <http://www.wmwd.com/documentcenter/view/2322>.
- Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4<sup>th</sup> 412.

*This page is intentionally left blank.*

## 5.19 WASTEWATER COLLECTION

### 5.19.1 INTRODUCTION

#### Purpose

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that wastewater collection issues be evaluated as part of the environmental documentation process. The impacts of the proposed development on the Project site are analyzed at a project-level of detail; direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features. Growth-inducing impacts and cumulative impacts related to wastewater are described in Sections 6.0 and 7.0, respectively. Potential odor and other air quality impacts from operation of the wastewater treatment system are addressed in Section 5.11, Air Resources.

#### Summary

As discussed further in Section 4.0, Project Description, the Project will include wastewater treatment and recycled water distribution facilities to minimize potable water demand. Two wastewater reclamation facilities (WRFs) would be constructed to provide solids handling, biogas reuse, and recycled water treated to unrestricted reuse standards under Title 22 of the *California Code of Regulations*. One WRF would be located west of the West Branch of the California Aqueduct (WRF West) and one would be located east of the Aqueduct (WRF East). As discussed in Section 5.18, Water Resources, recycled water will be used for outdoor irrigation and indoor wastewater and cooling in the proposed business park. At full buildout, recycled water will meet approximately 40 percent of total Project's water demand.

The WRFs are proposed in locations that allow for wastewater to generally flow by gravity for treatment. Pump stations would be required to serve areas that cannot flow by gravity. Seasonal storage ponds would be provided at the WRF East site to temporarily store recycled water during periods of lower demand (e.g., during winter) for use during high demand periods (e.g., during summer). Feasible and applicable wastewater treatment facility mosquito and health vector best management practices recommended by the California Department of Public Health will be implemented for the ponds (CDPH 2012). As discussed in Section 5.18, the Project's water facilities will be owned and operated by a Project Water Purveyor that will be regulated by the California Public Utilities Commission (CPUC) or formed as a Community Services District, a statutory water district, or other entity with the appropriate capacity to own, operate, and maintain the Project's water system. The Project Water Purveyor or an alternate qualified public utility district would provide wastewater services, including the operation and maintenance of the WRFs and recycled water system. The WRFs will be required to obtain Waste Discharge Requirements and other approvals issued by the Lahontan Regional Water Quality Control Board (RWQCB) and comply with the State Water Resources Control Board's (SWRCB's) Recycled Water Use Policy.

Section 3.5 of the *Centennial Specific Plan* includes a Wastewater Management Plan (see also Project Design Features [PDFs] 19-1 through 19-3). The Wastewater Management Plan

requirements and PDFs 19-1 through 19-3 have been incorporated in mitigation measures (MMs) 19-3, 19-4 and 19-5. MM 19-1 ensures payment of all applicable fees associated with establishing the Project Water Purveyor, or an alternate qualified public utility district, as the operator of the WRFs. MM 19-2 requires that the Project either be annexed into an existing qualified public utility district (e.g. Golden Valley Municipal Water District) or that a new public utility district (e.g. Project Water Purveyor) has been created to serve the Project. The Project Water Purveyor or alternate qualified public utility district shall be responsible for the design, construction, and operation of the wastewater facilities, and shall ensure compliance with all applicable standards and regulations. MM 19-3 requires the Project Applicant/Developer to prepare a Facilities Report, a Pump Station Feasibility Report, and a Sewer Area Study consistent with County policies and requirements. These measures ensure that potential impacts related to wastewater treatment requirements and wastewater capacity will be less than significant.

## **Section Format**

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce significant impacts; and level of significance after mitigation. This information is presented in the following format (Please refer to Section 2.0, Introduction, and Section 5.0, Environmental Setting, Impacts, and Mitigation, for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Relevant Plans, Policies, and Regulations
- Environmental Setting
- Project Design Features
- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- References



## References

All references cited for preparation of this analysis are listed in Section 5.19.9. The primary technical references for this section are listed below.

1. Psomas. 2017a (February). *Potable Water, Wastewater and Recycled Water Demands and System Plan*. Santa Ana, CA: PSOMAS (Appendix 5.19-A).
2. Psomas. 2017b (April). *Wastewater Treatment Report, Centennial Project*. Santa Ana, CA: PSOMAS (Appendix 5.19-B).
3. Kennedy/Jenks Consultants. 2017 (April). Peer Review of the Wastewater Treatment Report for the Proposed Centennial Specific Plan Development. Pasadena, CA: Kennedy/Jenks Consultants (Appendix 5.19-C).

### 5.19.2 RELEVANT PLANS, POLICIES, AND REGULATIONS

#### Federal

##### *Capacity Assurance, Management, Operation, and Maintenance Program*

In January 2001, the U.S. Environmental Protection Agency (USEPA) published a proposed rule intended to clarify and expand permit requirements under the Clean Water Act to further protect public health and the environment from impacts associated with sanitary sewer overflows. The proposed rule is generally referred to as the Capacity Assurance, Management, Operation, and Maintenance Program (CMOM) regulation. The proposed CMOM regulation requires development and implementation of programs intended to meet the performance standard of eliminating sanitary sewer overflows; to provide overflow emergency response plans, system evaluations, and capacity assurance plans; to conduct program audits; and to implement public communication efforts.

#### State

##### *California Porter-Cologne Act*

The Porter-Cologne Water Quality Control Act of 1970 (Porter-Cologne Act)(*California Water Code*, Sections 13000 et. seq.) is California’s primary statute governing water quality and water pollution issues, including discharges from wastewater treatment facilities. The Porter-Cologne Act provides the SWRCB and nine RWQCBs authority to protect water quality and is the primary vehicle for implementing California’s responsibilities under the federal Clean Water Act (CWA). Each RWQCB must formulate and adopt a water quality control plan (commonly referred to as a “basin plan”) for the region within its jurisdiction. The basin plan must conform to the policies set forth in the Porter-Cologne Act and the State water policy established by the SWRCB. Each basin plan establishes beneficial uses for surface and ground water in the region and includes narrative and numeric water quality standards to protect those beneficial uses. Each RWQCB is also authorized to include water discharge prohibitions applicable to particular conditions, areas, or types of waste within its jurisdiction. The Act requires that, unless otherwise authorized by a general or other permit,

reports of waste discharges to regulated “waters of the State” must be provided to each RWQCB. The RWQCB may issue discharge permits under State law in response to a report of waste discharge. These permits are commonly referred to as “waste discharge requirements” (WDRs) and are issued by the RWQCBs for activities within each regional board’s jurisdiction. As discussed in Section 5.2, Hydrology and Flood, all of the proposed Project development areas are within the jurisdiction of the Lahontan RWQCB. No on-site development is proposed for the far western portions of the site that are regulated by the Los Angeles RWQCB.

### ***Wastewater Reclamation Facilities Regulation***

Planning, design, construction and operation of wastewater reclamation facilities are regulated under the provisions of Title 22 of the *California Code of Regulations*. The California RWQCBs use the Title 22 criteria and, with input from the California Department of Health Services (DHS), issue WDRs for all wastewater reclamation facilities to ensure that applicable water quality objectives and standards are not exceeded. The Lahontan RWQCB would issue WDRs to both of the WRFs proposed to serve the Project prior to commencing operations.

### ***Recycled Water Policy and Regulations***

The State of California has implemented laws that provide for and encourage the use of recycled water. Section 461 of the *California Water Code* states, “It is hereby declared that the primary interest of the people of the state in the conservation of all available water resources requires the maximum reuse of recycled water in the satisfaction of requirements for beneficial uses of water”. The State also encourages Californians to develop water recycling projects to help meet potable water demands and to augment surface and groundwater supplies through the provisions of Sections 13500–13556 of the *California Water Code*.

The regulation of recycled water is vested by State law in the SWRCB’s Division of Drinking Water (DDW). The DDW assumed responsibility for State drinking and recycled water regulation in 2014 when the State legislature transferred these functions from the California Department of Public Health (DPH). Sections 13500–13557 of the *California Water Code* regulate the protection of the potable water supply through the control of cross-connections with potential contaminants, including recycled water. Water quality standards and treatment reliability criteria for recycled water are codified in Title 22 of the *California Code of Regulations* (CCR Title 22). Title 22 establishes quality and/or treatment processes required to use recycled water for non-potable applications. Title 22 also addresses sampling and analysis requirements at a treatment plant; preparation of an engineering report prior to production or use of recycled water; and general treatment design requirements, reliability requirements, and alternative methods of treatment. Permits are issued to each water recycling project by one of the nine RWQCBs. These permits include water quality and public health protections, as detailed in Title 22.

On February 3, 2009, in Resolution No. 2009-0011, the SWRCB adopted a Recycled Water Policy (Policy) (SWRCB 2009). The Policy states, “In the face of an unprecedented water crisis due to the collapse of the Bay-Delta ecosystem, climate change, continuing population

growth combined with a severe drought on the Colorado River and failing levees in the Delta, the SWRCB has adopted a Recycled Water Policy in an effort to move aggressively towards a sustainable water future". The SWRCB Policy also states "we declare our independence from relying on the vagaries of annual precipitation and move towards sustainable management of surface waters and groundwater, together with enhanced water conservation, water reuse and the use of stormwater". The following goals were included in the Policy:

- Increase use of recycled water over 2002 levels by at least one million acre-feet per year (afy) by 2020 and at least two million afy by 2030.
- Increase the use of storm water over use in 2007 by at least 500,000 afy by 2020 and at least one million afy by 2030.
- Increase the amount of water conserved in urban and industrial areas by comparison to 2007 by at least 20 percent by 2020.
- Substitute as much recycled water for potable water as possible by 2030.

The SWRCB Policy provides direction to the RWQCBs regarding appropriate criteria to be used in issuing permits for recycled water projects and is intended to streamline recycled water project permitting while providing the RWQCBs with sufficient authority and flexibility to address site-specific conditions. The Policy encourages other public agencies to consider the benefits of using recycled water in evaluating the impacts of recycled water projects on the environment as required by CEQA. The Policy also acknowledges that the SWRCB shares jurisdiction over the use of recycled water with the RWQCBs and the DPH and recognizes that the DWR and CPUC have important roles in encouraging the use of recycled water. The Policy provides guidance concerning these roles. The Policy also includes incentives for using recycled water.

The Policy notes that (1) some groundwater basins contain salts and nutrients that exceed or threaten to exceed water quality objectives established in the Basin Plans; (2) all salts and nutrients should be managed on a basinwide or watershedwide basis through development of regional or subregional management plans; (3) every groundwater basin/sub-basin in California is to have a consistent, locally driven salt/nutrient management plan developed by water and wastewater entities, together with contributing stakeholders in collaborative processes, including compliance with CEQA and participation by RWQCB staff. The Policy describes the components of these salt and nutrient management plans. Finally, the Policy addresses the control of incidental runoff from landscape irrigation projects, recycled water, groundwater recharge projects, anti-degradation factors, control of emerging constituents, and chemicals of emerging concern.

In 2009, the SWRCB adopted a General Permit for landscape irrigation uses of recycled water to facilitate the California Legislature's intent to promote the use of recycled water (SWRCB Order No. 2009-0006-DWQ). The General Permit streamlines the regulatory process for the irrigation use of disinfected tertiary recycled water produced by a public entity at a municipal wastewater treatment facility. Such uses include parks, greenbelts, and playgrounds; school yards; athletic fields; golf courses; cemeteries; residential landscaping, common areas; commercial and industrial landscaping, (except eating areas); and freeway, highway, and street landscaping.

This Policy was amended on April 25, 2013, to require monitoring for constituents of emerging concern and for reducing the monitoring of priority pollutants in recycled water used for landscape irrigation.

### ***Model Water Efficient Landscape Ordinance***

The Water Conservation in Landscaping Act of 2006 (Assembly Bill [AB] 1881) required local agencies, no later January 1, 2010, to adopt the state model water efficient landscape ordinance (MWELo) or an equivalent local ordinance. State MWELo regulations were significantly strengthened in response to a drought executive order issued by the California Governor in 2015 (Executive Order B-29-15). The emergency regulations became effective on June 1, 2015, and require new development projects (including residential, commercial, industrial and institutional projects that require a permit, plan check, or design review) with landscape areas of 500 square feet (sf) or more to do the following:

- Dedicate landscape water meters or submeters for residential landscapes over 5,000 square feet (sf) and non-residential landscapes over 1,000 sf.
- Have pressure regulators and master shut-off valves for irrigation systems.
- Meet the national standard stated in the Ordinance to ensure that only high efficiency sprinklers are installed on all irrigation emission devices.
- Have flow sensors that detect and report high flow conditions due to broken pipes and/or popped sprinkler heads for landscape areas greater than 5,000 sf.
- Increase the minimum width of areas that can be overhead irrigated from 8 feet to 10 feet; areas less than 10 feet wide must be irrigated with subsurface drip or other technology that produces no over spray or runoff.

The maximum amount of water that can be applied to a landscaped area was reduced from 70 percent of the reference evapotranspiration (ET<sub>o</sub>) rate to 55 percent for residential landscape projects, and 45 percent of ET<sub>o</sub> for non-residential projects. The emergency regulations further restrict the amount of high water use plants and turf that may be used for residential and nonresidential development. The Project's compliance with the MWELo, as amended in 2015, is discussed in Section 5.18, Water Resources.

## **County**

### ***Los Angeles County General Plan and Antelope Valley Area Plan***

The *Los Angeles County General Plan* and the *Antelope Valley Area Plan* (AVAP), part of the County General Plan, were updated in 2015 and include goals and policies that address wastewater in the unincorporated County. The AVAP goal and policy applicable to the analysis of wastewater for the Project are listed below. Section 5.8, Land Use, Entitlements, and Planning, presents a more in-depth analysis of the Project's consistency with relevant plans, policies, and regulations.

**Goal COS 3:** A clean water supply untainted by natural and man-made pollutants and contaminants.

**Policy COS 3.2:** Restrict the use of septic systems in areas adjacent to aqueducts and waterways to prevent wastewater intrusion into the water supply.

### ***Wastewater Treatment Plant Operations***

As discussed in Section 5.18, Water Resources, the Project's water facilities will be owned and operated by a Project Water Purveyor that will be regulated by the CPUC or formed as a Community Services District, a statutory water district, or other entity with the appropriate capacity to own, operate, and maintain the Project's water system. The Project Water Purveyor or an alternate qualified public utility district would also provide wastewater services, including the operation and maintenance of the WRFs and recycled water system and be funded through a rate-payer system and fees. Until the Project Water Purveyor or an alternate qualified public utility district is established, the Project Applicant/Developer will be responsible for all Project-related wastewater and recycled water services. The design, permitting, financing, and construction of all wastewater treatment, collection, and distribution infrastructure will be provided by the Project Applicant/Developer.

### **5.19.3 ENVIRONMENTAL SETTING**

Due to the rural nature of existing land uses on and immediately surrounding the Project site, wastewater treatment for existing development is provided by septic tanks. There are currently no connections to an existing municipal wastewater system within the Project site or in adjacent areas. No wastewater treatment providers that could provide service for the proposed development are located or planned in the vicinity of the Project site. The nearest municipal wastewater management agency is the Sanitation Districts of Los Angeles County (LACSD), which serves approximately 5.6 million people in 78 cities and unincorporated areas within the County. The LACSD operates 11 wastewater reclamation plants (WRPs), which treat approximately 510 million gallons per day (mgd) of wastewater. The following 4 WRPs are located within 50 miles of the Project site (LACSD 2017):

- The Valencia WRP, located approximately 32 miles south of the Project site, which provides primary, secondary, and tertiary wastewater treatment and has a capacity of 21.6 mgd.
- The Saugus WRP, located approximately 35 miles south of the Project site, which provides primary, secondary, and tertiary wastewater treatment and has a capacity of 6.5 mgd.
- The Lancaster WRP, located approximately 41 miles east of the Project site, which provides tertiary wastewater treatment and has a capacity of 18 mgd.
- The Palmdale WRP, located approximately 43 miles east of the Project site, which provides primary, secondary, and tertiary wastewater treatment and has a capacity of 12 mgd.

## 5.19.4 PROJECT DESIGN FEATURES

- PDF 19-1** The Project will implement the Wastewater Management Plan, as discussed in Section 3.5 of the *Centennial Specific Plan*, and will include two wastewater reclamation facilities (WRFs) to provide on-site treatment of all Project-generated wastewater. Both WRFs will include solids disposal and primary, secondary, and tertiary treatment. The WRFs would be sited in locations that allow for wastewater to generally flow by gravity for treatment to reduce energy demands. Pump stations would be implemented to serve areas that cannot flow by gravity. As described in the Wastewater Management Plan, the WRFs will provide tertiary treatment (California Code of Regulations, Title 22 unrestricted reuse) and will produce recycled water for various outdoor uses, (e.g. landscaping, decorative water features including ponds, waterfalls, artificial streams) and for indoor wastewater and cooling in the business park, subject to all applicable laws and regulations. Biosolids will be hauled to a suitable landfill or used for conversion into fertilizer products. The effluent stream would be disinfected and discharged into the recycled water distribution system or into seasonal storage ponds. The two WRFs will be connected through a recycled water distribution system to balance storage and flow. The WRFs will include equipment to capture and reuse biogas for energy production to be used at the facility. The facilities would be operated and maintained by the Project Water Purveyor or an alternate qualified public utility district.
- PDF 19-2** WRF West will serve the Project area located west of the West Branch of the California Aqueduct and would be located on an approximate 3-acre site and will treat an average flow of approximately 0.34 million gallon per day (mgd). WRF West would be constructed in one phase.
- PDF 19-3** WRF East will serve the Project area located east of the West Branch of the California Aqueduct. The facility would be located in the northeasterly portion of the Project site and will treat an average flow of 4.28 million gallons per day. Lined seasonal recycled water storage ponds will be included in the WRF East design to temporarily store recycled water during times of low demand. Feasible and applicable wastewater treatment facility mosquito and health vector best management practices recommended by the California Department of Public Health will be implemented for the ponds. Waste solids would be hauled to a suitable off-site landfill or converted into fertilizer products. WRF East will also include equipment to capture and reuse biogas for energy production on the Project site. WRF East will be constructed in multiple phases to maximize operational and economic feasibility.

### 5.19.5 THRESHOLD CRITERIA

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist. The Project would result in a significant impact related to wastewater collection if it would:

- Threshold 19-1** Exceed wastewater treatment requirements of either the Los Angeles or Lahontan Regional Water Quality Control Boards.
- Threshold 19-2** Create water or wastewater system capacity problems, or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

### 5.19.6 ENVIRONMENTAL IMPACTS

- Threshold 19-1** **Would the project exceed wastewater treatment requirements of either the Los Angeles or Lahontan Regional Water Quality Control Boards?**

#### On-Site Impacts

As shown in Table 5.18-7 of Section 5.18 Water Resources, and in the Potable Water, Wastewater and Recycled Water Demands and System Plan Report (Appendix 5.19 A), total Project indoor water use at buildout will be approximately 4.48 mgd (5,019 afy), including 3.71 mgd (4,161 afy) for residential indoor demand, 0.74 mgd (829 afy) for schools, commercial, industrial and institutional indoor uses, and 0.03 mgd (29 afy) for other uses, including recreation. In addition to the indoor potable water flows contributing to wastewater flows, buildings in the Business Park land use will implement dual plumbing which will add 0.14 mgd (157 afy) to the wastewater flows for a total of 4.62 mgd (5,176 afy).

To account for losses in the wastewater treatment, recycled water distribution system and evaporation, the recycled water demand estimates include a conservative 10 percent loss between indoor water demand (wastewater flow volumes) and the available recycled water supply. This 10 percent loss is made up of the following components: approximately 2 percent losses through the wastewater treatment process, approximately 3 percent through evaporation losses in the recycled water storage ponds and approximately 5 percent loss through the distribution system. The evaporation losses were calculated on a monthly basis as part of the recycled water balance analysis and considered the recycled water seasonal storage pond area each month as the surface area and depth of storage fluctuated. Consequently, the supply of tertiary treated recycled water at buildout will be approximately 4.16 mgd or 4,658 afy.

Treatment of all wastewater generated on the Project site would occur at two permanent on-site WRFs and would consist of primary, secondary, and tertiary treatment processes using biological oxidation and solids handling techniques. Approximately 10 percent of Project

development will occur west of the West Branch of the California Aqueduct, and 90 percent will occur to the east of the Aqueduct. The WRF West facilities would be located west of the Aqueduct and would collect and treat wastewater from and produce recycled water for the western portion of the proposed development. The WRF East facilities would be significantly larger in size and would provide wastewater and recycled water service for nearly 90 percent of the proposed development. The locations of the on-site WRFs and related facilities, including the primary wastewater collection pipelines, treatment plant locations, and recycled water storage ponds, are shown on Exhibit 5.19-1, Preliminary Wastewater Collection System.

The maximum daily demand for potable water has been conservatively estimated to be 2.0 times the average daily demand. Consistent with this design approach, the WRFs will also have a nominal peak treatment capacity of 2.0 times the average daily flow, or 9.24mgd. The capacity of each treatment unit or element can be more accurately addressed in consultation with the Lahontan Regional Water Quality Control Board during the design process, based on its actual operating parameters which will account for a greater fluctuation in peak dry weather flow that may occur at the smaller WRF West, and general flow peaking resulting from wet weather flows that will occur at each WRF.

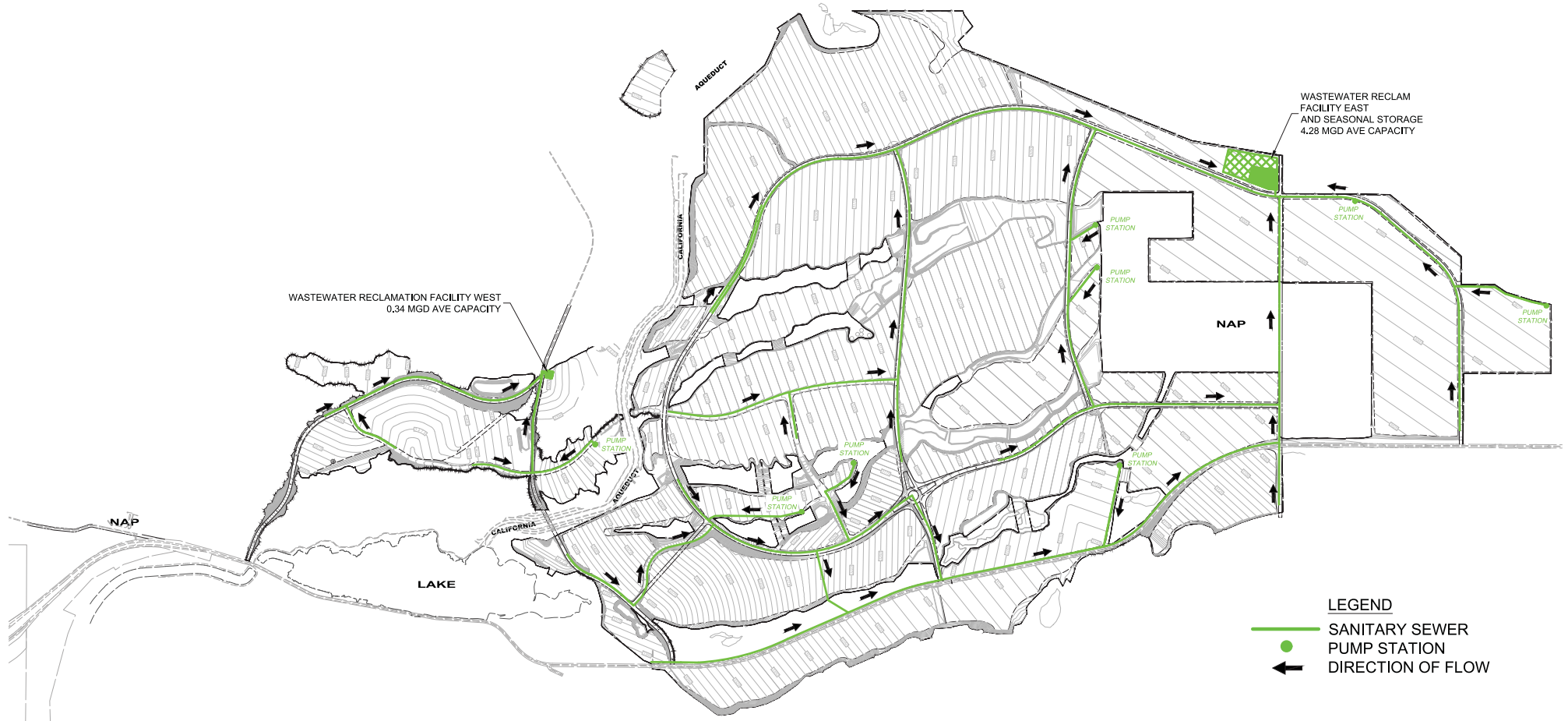
Both WRFs are proposed in locations that would allow for wastewater to generally flow by gravity for treatment and are sited in areas that are not adjacent to sensitive land uses. The wastewater collection system also includes locations where small sewer lift stations and force mains will be required. The proposed sewer lift stations will typically consist of a duplex, submersible pump system equipped with aboveground electrical facilities as well as generators to provide stand-by power. Telemetry systems will be included at each lift station and at each WRF to continuously monitor pump station operations and overall WRF flow processes. During the early stages of development, flows to the lift stations will be smaller than the ultimate design flow. The detailed design process for the lift stations and force mains will consider the potential for odor generation during initial low flow conditions and if required, provide odor control systems as part of the final design. Exhibit 5.19-1 depicts the proposed sewer pipeline routes and sewer pump station locations for the Project.

The treatment facilities will consist of primary treatment using grinder pumps and screening in channels, which can be constructed in phases, followed by secondary and tertiary treatment. The wastewater will be treated to meet CCR Title 22 unrestricted reuse standards, which requires biological oxidation clarification and filtration of the treated wastewater. Membrane bioreactor (MBR) wastewater treatment technology will be utilized to meet the recycled water quality objectives. MBR treatment systems have been permitted by the Lahontan RWQCB, including for use in an MBR tertiary treatment plant operated by the LACSD located between Lancaster and Rosamond near the intersection of State Route (SR) 138 and SR-14 (Order No. R6V-2006-0035).

The MBR process combines a biological treatment system followed by membrane filtration. This MBR technology will provide an effluent that exceeds secondary and tertiary Title 22 requirements and meet the discharge requirements set by the Lahontan Regional Water Quality Control Board. Solids handling will be provided by anaerobic digesters to treat the sludge followed by centrifuges or belt filter presses to further reduce the liquid content prior



D:\Projects\CEN\Centennial\GRA\PHIC\SEIR\Ex\_ WastewaterCollection\_20140424.ai



Source: Psomas 2017b

# Preliminary Wastewater Collection System

# Exhibit 5.19-1

Centennial Project



to being hauled to a suitable landfill or for conversion into fertilizer products. Exhibit 5.19-2, Treatment Methods at Project Wastewater Reclamation Facilities (WRF), provides an overview of treatment processes and methods that would be used at each WRF.

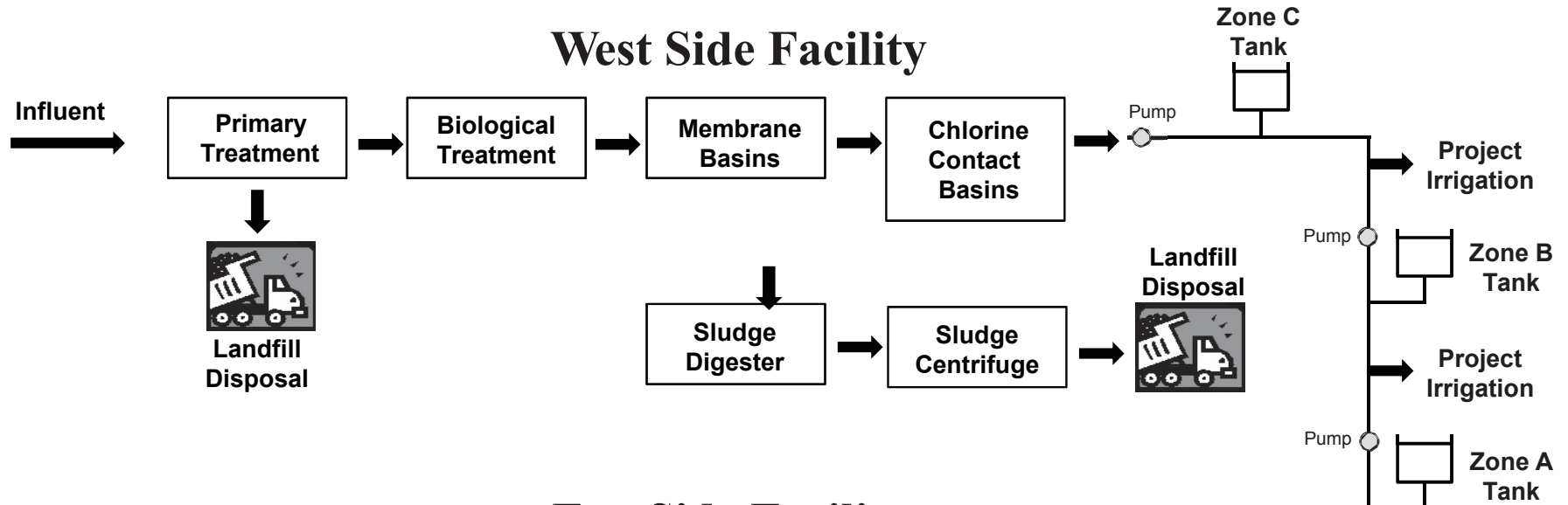
Exhibit 5.19-3, Preliminary Recycled Water, Storage, and Distribution System, depicts the proposed recycled water storage, and distribution system for the Project. All recycled water supplies would be generated by treating on-site wastewater flows at WRF East and WRF West. No supplemental recycled system supplies would be required or utilized by the Project. During most of the year, when there is sufficient demand for irrigation and other recycled water uses, recycled water will be disinfected and pumped from a booster pumping station at the WRF East into the Zone A recycled water distribution system (see Exhibit 5.19-3). In winter months when recycled water irrigation demand is reduced, excess supplies will be discharged to lined, seasonal storage ponds located adjacent to WRF East (see Exhibit 5.19-1). When demand increases in other parts of the year, the stored recycled supplies will be withdrawn from the ponds; polished by filtration and disinfection; and the pumped into the Zone A distribution system.

Recycled water operational storage tanks will be located on the same pads as the domestic water storage tanks, and the pressure zones of each system will have the same hydraulic gradient. This design approach will reduce the number of reservoir sites throughout the Project and will improve facility operation and maintenance. A recycled water booster pump station will be installed at each recycled reservoir site to pump water as required to higher zones and reservoirs. Pressure-reducing valves will be located at key locations within the recycled water system and will move supplies to lower zones; will maintain operating pressures; and will provide greater system reliability (Psomas 2017a).

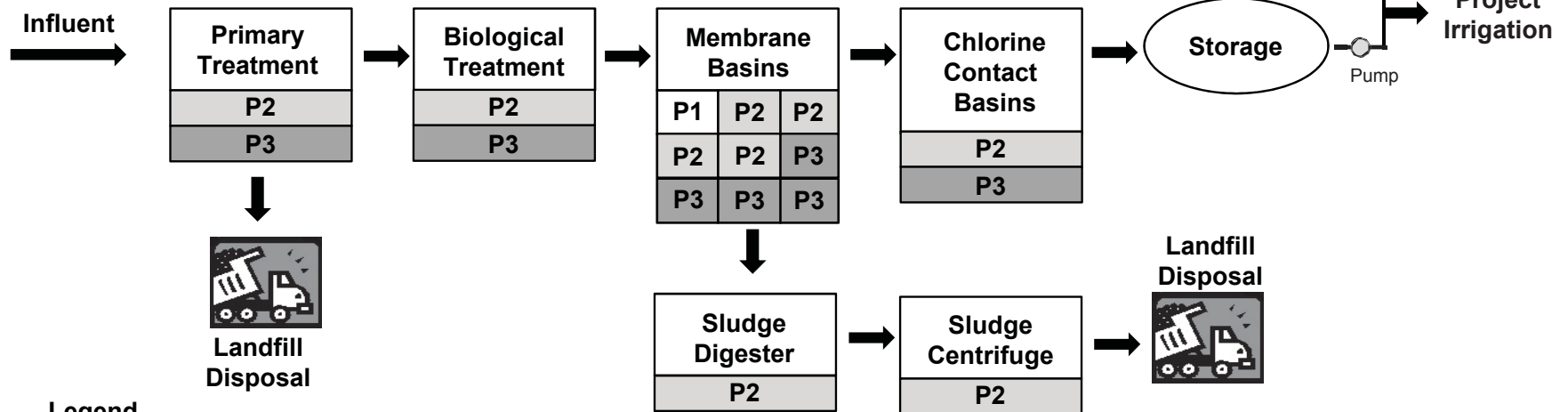
The use of recycled water on the Project site is described in detail in Section 5.18, Water Resources. At full buildout, recycled water will be used for (i) 100 percent of the commercial, business park, institutional, school, hotel, park, and slope outdoor irrigation demand; (ii) 56 percent of the total very low and low density residential lot outdoor irrigation demand (50 percent of the very low and low density landscape lot area); and (iii) wastewater and cooling use within the proposed business park except where prohibited by applicable law for particular types of areas or uses (e.g., employee cafeterias).

As discussed in Section 5.19.2, Title 22 of the *California Code of Regulations* establishes criteria for recycled water, treatment, conveyance, and water quality testing and is administered by the SWRCB Division of Drinking Water. State surface and groundwater quality, including discharge from the WRFs, is further regulated by the Lahontan RWQCB under the Porter Cologne Act. Each of the proposed WRFs will be required to obtain WDRs from the Lahontan RWQCB that include enforceable operational, treatment, conveyance, discharge, water quality and monitoring requirements before wastewater treatment and recycled water operations may commence. The WDRs issued by the Board will be consistent with the RWQCB's wastewater treatment requirements (Psomas 2017b). The proposed WRFs, wastewater treatment system, and recycled water system will not be located on or discharged to portions of the site within the boundaries of the Los Angeles RWQCB. The proposed wastewater system is also consistent with AVAP Goal COS 3 and Policy COS 3.2

## West Side Facility



## East Side Facility



**Legend**

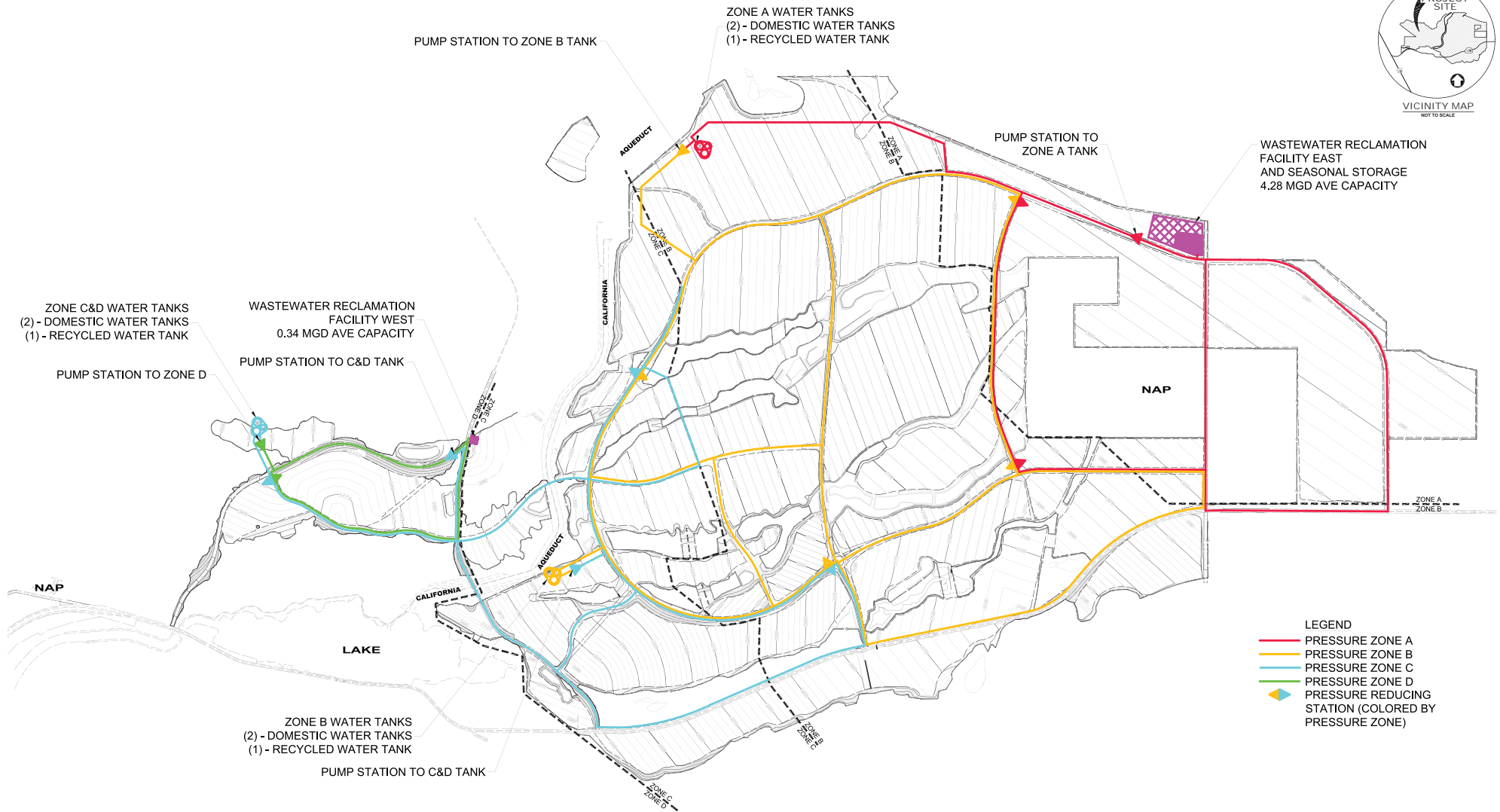
Phase 1 (P1)
Phase 2 (P2)
Phase 3 (P3)

Treatment Methods at Project Water Reclamation Facilities (WRF)

Exhibit 5.19-2

Centennial Project





- LEGEND**
- PRESSURE ZONE A
  - PRESSURE ZONE B
  - PRESSURE ZONE C
  - PRESSURE ZONE D
  - ◀▶ PRESSURE REDUCING STATION (COLORED BY PRESSURE ZONE)

# Preliminary Recycled Water, Storage, and Distribution System

Exhibit 5.19-3

Centennial Project

D:\Projects\CEN\Centennial\Graphics\EIR\Ex\_Recycled\_Water\_Eng\_20170206.ai

because no septic systems will be used by the Project and no wastewater intrusion will occur into the Project and adjacent water supplies.

MMs 19-1 through 19-5 require that the Project either be annexed into an existing qualified public utility district (e.g. Golden Valley Municipal Water District) or that a new public utility district (e.g. Project Water Purveyor) is created. The Project Water Purveyor or alternate qualified public utility district would be responsible for the design, construction, and operation of the on-site WRFs, wastewater conveyance and treatment facilities, and recycled water facilities, and would ensure compliance with all applicable standards and regulations. No wastewater facilities may be operated until WDRs have been issued by the Lahontan RWQCB. With mitigation, potential Project impacts from exceeding the wastewater treatment requirements of the Lahontan RWQCB will be less than significant.

### **Off-Site Impacts**

Both of the proposed WRFs and related conveyance pipelines, pump stations, and seasonal storage ponds that will serve the proposed development areas would be located entirely within the Project site. No wastewater discharges, including recycled water use, will occur off site. Accordingly, implementation of the WRFs would not involve any off-site impacts and would not exceed the wastewater treatment requirements of the Lahontan RWQCB. There would be no impact and no mitigation is required.

The proposed off-site Project features, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, would not generate wastewater. Therefore, the wastewater treatment requirements of the Lahontan RWQCB would not be exceeded. There would be no impact and no mitigation is required.

***Impact Summary:*** MMs 19-1 through 19-5 require that the proposed Project's wastewater and recycled water systems comply with all the wastewater treatment and recycling WDRs issued by the Lahontan RWQCB prior to WRF operation. With mitigation, Project implementation would not exceed the wastewater treatment requirements of the Lahontan RWQCB and potential impacts would be less than significant.

**Threshold 19-2** **Would the project create water or wastewater system capacity problems, or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

## On-Site Impacts

As discussed, the Project would involve the construction of new wastewater collection, conveyance, and treatment facilities. Potential environmental impacts of a facility's construction on resource categories other than wastewater (e.g., air quality/odors, biological resources, land use) are assessed throughout this Draft EIR in the appropriate topical sections.

As discussed above and in Section 5.18, Water Resources, the Project will reuse all wastewater generated on the site, subject to a loss of 10 percent of the volume of wastewater generated within the site and the amount of recycled water produced for reuse. Approximately 4.62 mgd of wastewater will be produced at Project buildout, which will result in a recycled supply of approximately 4.16 mgd (4,659 afy). As discussed in Section 5.18, Project outdoor irrigation and indoor wastewater and cooling in the proposed business park will utilize the available recycled water supplies, after accounting for system losses. If there is any excess recycled water that accrues on an annual basis, irrigation schedules can be modified slightly to use the excess supply. If recycled water generation does not reach the projected volumes to meet the forecast irrigation demands, then irrigation schedules will be adjusted to reduce demand to meet available supply, as was done in California during the recent drought conditions. The majority of recycled water demand will come from large HOAs, which the Golden Valley Municipal Water District (GVMWD) or other Public Utility District (PUD) can coordinate with to manage supply/demand balance. Additionally, demand and supply will be monitored as Project phasing progresses and appropriate adjustments to landscaping and irrigation systems can be made throughout Project development to maintain acceptable balance. The proposed wastewater treatment and recycled water systems will not create water or wastewater system capacity problems or require the construction of additional water or wastewater treatment facilities.

## Off-Site Impacts

All wastewater generated on the site would be conveyed for treatment to the two on-site WRFs using a dedicated, on-site system of gravity-flow sewer lines, pump stations, and trunk sewers. These facilities will be implemented entirely within the Project site. The Project will not connect with or receive service from any off-site wastewater treatment facilities, including the existing LACSD facilities that are closest to the site. The proposed off-site Project facilities, including intersections with SR-138, utility connections, water wells, and California Aqueduct crossings, would not generate wastewater. No potential impacts related to off-site water or wastewater system capacity problems, or the construction of new off-site water or wastewater treatment facilities will occur and no mitigation is required.

**Impact Summary:** Mitigation Measures (MMs) 19-1 through 19-5 require that the proposed Project's wastewater and recycled water systems be implemented as dedicated on-site facilities with sufficient capacity to convey and treat all on-site wastewater and produce recycled water treated to Tile 22 unrestricted reuse standards. The on-site demand for recycled water will approximate supply at full buildout. The Project will not connect with or receive any wastewater or recycled water supplies

from any off-site provider or source. With mitigation, Project implementation would not create water or wastewater system capacity problems, nor would it result in the construction of new water or wastewater treatment facilities or expansion of existing facilities; potential impacts would be less than significant.

### 5.19.7 MITIGATION MEASURES

The following mitigation measures are required to ensure that the proposed Project's wastewater treatment and recycled water facility implementation will be consistent with the wastewater treatment requirements of the Lahontan RWQCB; will not create water or wastewater system capacity problems.

- MM 19-1** The Project Applicant/Developer shall provide documentation to the County that it has completed all required procedures and has paid all applicable fees associated with establishing the Project Water Purveyor, or an alternate qualified public utility district, as the operator of the WRFs.
- MM 19-2** The Project Applicant/Developer shall demonstrate that the Project has either been annexed into an existing qualified public utility district (e.g. Golden Valley Municipal Water District) or that a new public utility district (e.g. Project Water Purveyor) has been created to serve the Project. The Project Water Purveyor or alternate qualified public utility district shall be responsible for the design, construction, and operation of the wastewater facilities, and shall ensure compliance with all applicable standards and regulations, including all Lahontan RWQCB and Title 22 requirements of the California Code of Regulations.
- MM 19-3** The Project shall incorporate the Wastewater Management Plan (*Centennial Specific Plan*, Section 3.5), and the Project Applicant/Developer shall prepare a Facilities Report, a Pump Station Feasibility Report, and a Sewer Area Study consistent with County Policies and Requirements.
- MM 19-4** The Project Applicant/Developer shall provide the County with plans and specifications that have been prepared in accordance with the Project Water Purveyor or alternate qualified public utility district requirements and standards that demonstrate that the WRF West shall serve the Project site west of the West Branch of the California Aqueduct. The facility shall be located on an approximate 3-acre site and shall treat an average flow of approximately 0.34 million gallon per day. Biosolids shall be hauled to a suitable landfill or used for conversion into fertilizer products.
- MM 19-5** The Project Applicant/Developer shall provide the County with plans and specifications that have been prepared in accordance with the Project Water Purveyor or alternate qualified public utility district requirements and standards that demonstrate that the WRF East shall serve the Project site east of the West Branch of the California Aqueduct. WRF East will be located near

the northeasterly corner of the Project and shall treat an average flow of 4.28 million gallons per day. Biosolids shall be hauled to a suitable landfill or used for conversion into fertilizer products. Lined seasonal recycled water storage ponds shall be implemented as required to temporarily store recycled water during times of low demand. The ponds shall implement feasible and applicable wastewater treatment facility best management practices for mosquito and health vector recommended in the California Department of Public Health's 2012 *Best Management Practices for Mosquito Control in California: Recommendations of the California Department of Public Health and the Mosquito and Vector Control Association of California*.

### 5.19.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of MMs 19-1 through 19-5 would reduce potentially significant impacts related to wastewater to levels that are less than significant.

### 5.19.9 REFERENCES

California Department of Public Health (CDPH). 2012 (July). *Best Management Practices for Mosquito Control in California: Recommendations of the California Department of Public Health and the Mosquito and Vector Control Association of California*.

Sacramento, CA: CDPH. [http://www.westnile.ca.gov/downloads.php?download\\_id=2376&filename=BMP for Mosquito Control 07-12.pdf](http://www.westnile.ca.gov/downloads.php?download_id=2376&filename=BMP%20for%20MosquitoControl07-12.pdf).

California, State of. 2016 (March, access date). *California Water Code* (Division 7, Water Quality; Chapter 7, Water Reclamation; Sections 13500–13557). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayexpandedbranch.xhtml?tocCode=WAT&division=7.&title=&part=&chapter=7.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayexpandedbranch.xhtml?tocCode=WAT&division=7.&title=&part=&chapter=7.&article=).

———. 2015 (as amended). *California Code of Regulations* (Title 22, Social Security). California, the State: Thompson Reuters for the California Office of Administrative Law. <http://ccr.oal.ca.gov/linkedslice/default.asp?SP=CCR-1000&Action=Welcome>.

———. 1995 (January 1, effective date). *California Water Code* (Division 1, General State Powers over Water; Chapter 6, Water Reuse; Section 461, Declaration of Policy). Sacramento, CA: the State. [http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=WAT&division=1.&title=&part=&chapter=6.&article=2](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=WAT&division=1.&title=&part=&chapter=6.&article=2).

Kennedy/Jenks Consultants. 2017 (April). Peer Review of the Wastewater Treatment Report for the Proposed Centennial Specific Plan Development. Pasadena, CA: Kennedy/Jenks Consultants (Appendix 5.19-C).

Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.

———. 2015b (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.



Psomas. 2017a (February). *Potable Water, Wastewater and Recycled Water Demands and System Plan, Centennial Project*. Santa Ana, CA: PSOMAS (Appendix 5.19-A).

———. 2017b (April). *Wastewater Treatment Report, Centennial Project*. Santa Ana, CA: PSOMAS (Appendix 5.19-B).

Sanitation Districts of Los Angeles County (LACSD). 2017 (May 4, access date). *Wastewater Facilities (including Current Flows and Inactive District: Santa Clarita Valley WRPs and Antelope Valley WRPs)*. Whittier, CA: LACSD.  
<http://www.lacsd.org/wastewater/wwfacilities/default.asp>.

State Water Resources Control Board (SWRCB). 2013. *Construction General Permit Fact Sheet*. Sacramento, CA: SWRCB. [http://www.waterboards.ca.gov/water\\_issues/programs/stormwater/docs/constpermits/wqo\\_2009\\_0009\\_factsheet.pdf](http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/constpermits/wqo_2009_0009_factsheet.pdf).

———. 2009 (February 3). State Water Resources Control Board Resolution No. 2009-0011: Adoption of a Policy for Water Quality Control for Recycled Water. Sacramento, CA: SWRCB. [http://www.waterboards.ca.gov/board\\_decisions/adopted\\_orders/resolutions/2009/rs2009\\_0011.pdf](http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2009/rs2009_0011.pdf).

## 5.20 DRY UTILITIES

This section of the Draft Environmental Impact Report (EIR) describes the potential impacts to dry utilities from implementation of the Project.

### 5.20.1 INTRODUCTION

#### **Purpose**

Appendix G of the California Environmental Quality Act (CEQA) Guidelines requires that impacts to dry utilities be evaluated as part of the environmental documentation process. Appendix F of the CEQA Guidelines suggests analysis of energy use and conservation, including natural gas and petroleum. The impacts of the proposed development Project site are analyzed at a project level of detail. The direct and indirect impacts are addressed for each threshold criterion for both the on-site and off-site Project features.

This section addresses potential direct and indirect impacts to electricity (Southern California Edison), natural gas (Southern California Gas Company), petroleum (related to motor vehicle operation), telephone (AT&T), and cable (yet to be determined, possibly CalNeva Broadband) utility services that will result from implementation of the Project.

#### **Summary**

The Project will result in the development of a maximum of 19,333 residential units. The new residential units will result in an increase in demand for dry utility services and facilities, including electricity (Southern California Edison), fossil fuels (natural gas and petroleum), telephone (AT&T), and cable television (CATV)(CalNeva Broadband or other provider yet to be determined).

Direct and indirect impacts to dry utility services and facilities will be less than significant. Each affected utility has been consulted to determine whether there will be adequate energy supplies, communication services, and the infrastructure to serve the Project. In the case of cable television, since there is currently no provider, one local Cable Television company is willing and able to provide services to the Project site. With implementation of the planned energy efficiency features and with upgrades to utility infrastructure near and within the Project site (as determined by each provider), there will be adequate energy and communication services for the Project in addition to the existing demand for these services.

There will be less than significant impacts associated with off-site features related to installation of infrastructure for electricity, natural gas, petroleum, telephone, cable television, and internet services. Any necessary off-site utility upgrades will occur within lands (easements) already owned by these respective utilities. The connection of off-site utilities has been included in the Project description and analyzed throughout this Draft EIR in conjunction with Project-level impacts. Regarding cable television services, the provider of this service has not been identified and, therefore, the location and extent of any off-site utility upgrades is unknown. At the time of preparation of this EIR (i.e., 2016), while CalNeva Broadband has the nearest existing CATV facilities and has indicated that they have the

capability to serve the Project with implementation of necessary infrastructure, no CATV Provider has been confirmed for the Project site at this time. Due to the magnitude of the Project's CATV demand, any company wishing to provide service to the Project site would need to provide sufficient evidence regarding its ability to serve the Project before that service provider would be selected. Regardless, the upgrade and/or retrofitting of the off-site fiber optic connections and necessary extensions are typically the responsibility of the Service Provider and would occur within easements owned by the Service Provider. The only other cable television company in the vicinity is Time Warner Cable, whose facilities stop near Castaic; and "currently does not have any plans to expand facilities any further north" (BJ Palmer 2015).

The analysis in this section focuses on the projected demand for dry utility services and the facilities necessary to meet this demand. The physical environmental impacts related to the implementation of necessary utility infrastructure are addressed as part of the Project analysis provided throughout this EIR.

## Section Format

As described in Section 5.0, Environmental Setting, Impacts, and Mitigation, and in accordance with State CEQA Guidelines Article 9 (Contents of Environmental Impact Reports), each topical environmental analysis includes a description of the existing setting; identification of thresholds of significance; analysis of potential Project effects and identification of significant impacts; identification of mitigation measures, if required, to reduce significant impacts; and level of significance after mitigation. This information is presented in the following format (please refer to Section 2.0, Introduction, and Section 5.0, Environmental Setting, Impacts, and Mitigation, for descriptions of each of these topics):

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Electricity
  - Relevant Plans, Policies, and Regulations
  - Environmental Setting
  - Project Design Features
  - Threshold Criteria
  - Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
    - On-Site Impacts
    - Off-Site Impacts
  - Mitigation Measures
  - Level of Significance After Mitigation
- Fossil Fuels (Natural Gas and Petroleum)
  - Relevant Plans, Policies, and Regulations
  - Environmental Setting

- Project Design Features
- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- Telephone Service
  - Relevant Plans, Policies, and Regulations
  - Environmental Setting
  - Project Design Features
  - Threshold Criteria
  - Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
    - On-Site Impacts
    - Off-Site Impacts
  - Mitigation Measures
  - Level of Significance After Mitigation
- Cable Television
  - Relevant Plans, Policies, and Regulations
  - Environmental Setting
  - Project Design Features
  - Threshold Criteria
  - Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
    - On-Site Impacts
    - Off-Site Impacts
  - Mitigation Measures
  - Level of Significance After Mitigation
- References

## References

Although all references cited for preparation of this analysis are listed in Section 5.20.6, the primary technical references for this section are listed below.

1. BJ Palmer & Associates, Inc. 2015 (August). *Dry Utility Analysis Centennial, Tejon Ranch Company* San Juan Capistrano, CA: BJ Palmer (Appendix 5.20-A).

## 5.20.2 ELECTRICITY

### Relevant Plans, Policies, and Regulations

#### *Federal*

##### Energy Independence and Security Act of 2007

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law. In addition to setting increased Corporate Average Fuel Economy (CAFE) standards for motor vehicles, the EISA includes other provisions related to energy efficiency:

- Renewable Fuel Standard (RFS) (Section 202)
- Appliance and Lighting Efficiency Standards (Sections 301–325)
- Building Energy Efficiency (Sections 411–441)

Additional provisions of the EISA address energy savings in government and public institutions, promoting research for alternative energy, additional research in carbon capture, international energy programs, and the creation of “green jobs”.

#### *State*

##### Title 24 Energy Efficiency Standards

California’s Energy Efficiency Standards for Residential and Non-Residential Buildings were established in 1978 in response to a mandate to reduce the State’s energy consumption. These standards are promulgated under the *California Code of Regulations* (CCR) Title 24, Part 6, and are commonly referred to as “Title 24”. The Title 24 standards are periodically updated to reflect new or improved energy efficiency technologies and methods. The 2016 Title 24 standards have been adopted and was effective January 1, 2017. A new development project is required to incorporate the most recent Title 24 standards in effect at the time the building permit application is submitted.

##### Title 24 Green Building Standards

The 2016 California Green Building Standards Code (24 CCR, Part 11), also known as the CALGreen code, contains mandatory requirements for new residential and nonresidential buildings (including buildings for retail, office, public schools and hospitals) throughout California (CBSC 2017b). The development of the CALGreen Code is intended to (1) cause a reduction in greenhouse gas (GHG) emissions from buildings; (2) promote environmentally responsible, cost effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, the code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction.

The CALGreen Code contains requirements for construction site selection, storm water control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more. The

code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for the verification that all building systems, such as heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

The CALGreen Code provides standards for bicycle parking, carpool/vanpool/electric vehicle spaces, light and glare reduction, grading and paving, energy efficient appliances, renewable energy, graywater systems, water efficient plumbing fixtures, recycling and recycled materials, pollutant controls (including moisture control and indoor air quality), acoustical controls, storm water management, building design, insulation, flooring, and framing, among others.

Beyond the mandatory standards, voluntary Tier 1 status can be achieved by complying with additional measures for energy and water efficiency, material conservation, and other design features. Examples of Tier 1 requirements are 15 percent less energy use in residential construction than required by existing regulations and 12 percent less indoor water use in non-residential construction. Tier 2 status can be achieved by complying with additional voluntary measures; example requirements are 30 percent less energy use in residential construction and 20 percent less indoor water use in non-residential construction. The Project would commit to achieving Tier 1 status pursuant to the CALGreen Code.

#### Senate Bill 1368 (Greenhouse Gas [GHG] Emissions Standard for Baseload Generation)

Senate Bill (SB) 1368 imposes a GHG emission standard on baseload generation. The new standard prohibits any more long-term investments in power plants unless their air emissions are as low as, or lower than, emissions from clean and efficient natural gas power plants. The law will be implemented and enforced by the California Public Utilities Commission (CPUC) and the California Energy Commission (CEC) in conjunction with the California Air Resources Board (CARB).

#### ***County***

#### Countywide Energy and Environmental Policy (January 2007)

In January 2007, the Los Angeles County Board of Supervisors adopted the Countywide Energy and Environmental Policy, which provides guidelines for sustainability and green building design within County departments. The Policy states that the County will join the California Climate Action Registry (CCAR) to establish goals for reducing GHG emissions. In addition, the policy incorporates a sustainable building program into County capital improvement projects and seeks to integrate energy-efficient and sustainable designs into future County building plans.

#### Los Angeles County General Plan and Antelope Valley Area Plan

The *Los Angeles County General Plan* and the *Antelope Valley Area Plan (AVAP)*, part of the County General Plan, include goals and policies that address electricity issues in the unincorporated County.

The AVAP goals and policies applicable to the analysis of electricity with Project implementation are listed below. Section 5.8, Land Use, Entitlements, and Planning, presents a more in-depth analysis of the Project's consistency with relevant plans, policies and regulations.

**Goal ED 1:** A healthy and balanced economic base in the Antelope Valley that attracts a wide range of industries and businesses and provides high-paying jobs for local residents.

**Policy ED 1.14:** Promote appropriate types of residential development in the vicinity of existing communities and town centers that are in reach of existing infrastructure and utilities.

**Goal COS 14:** Energy infrastructure that is sensitive to the scenic qualities of the Antelope Valley and minimizes potential environmental impacts.

**Policy COS 14.1:** Require that new transmission lines be placed underground whenever physically feasible.

**Policy COS 14.2:** If new transmission lines cannot feasibly be placed underground due to physical constraints, require that they be co-located with existing transmission lines, or along existing transmission corridors, whenever physically feasible.

**Policy COS 14.3:** If new transmission lines cannot feasibly be placed underground or feasibly collocated with existing transmission lines or along existing transmission corridors due to physical constraints, direct new transmission lines to locations where environmental and visual impacts will be minimized.

**Policy COS 14.4:** Discourage the placement of new transmission lines on undisturbed lands containing sensitive biotic communities.

**Policy COS 14.5:** Discourage the placement of new transmission lines through existing communities or through properties with existing residential uses.

**Policy COS 14.7:** Require that electrical power lines in new residential developments be placed underground.

## Environmental Setting

According to the U.S. Department of Energy, in 2012, California's total energy consumption—including for electricity generation—was 7,620.1 trillion British thermal units (Btu), representing approximately 7.7 percent of the United States' energy consumption. The major sources of consumed energy in California were petroleum (43.0 percent) and natural gas (32.0 percent). Other sources include coal, nuclear electric power, and renewable. Approximately 18 percent of this energy was consumed by residential users, 19 percent by commercial users, 24 percent by industrial users, and 39 percent by the transportation sector (USD OE 2016a). In 2014, California's major sources of electricity were natural gas (52.0 percent), nuclear (10.7 percent), hydroelectric (9.5 percent), coal (0.4 percent), and renewable sources (20.1 percent) (USD OE 2016b). In 2015, approximately 66.4 percent of

California's electricity was generated in state; approximately 12.2 percent came from the Pacific Northwest; and approximately 25.1 percent came from the Southwest (CEC 2016).

Electrical service to the Project site is provided by Southern California Edison (SCE). SCE uses different types of energy to produce electricity including coal, natural gas, hydroelectric plants, nuclear energy, and renewable resources. SCE is a regulated public utility that provides electricity to a business and residential population of approximately 15 million people within a 50,000-square-mile service area that covers Central, Coastal, and Southern California (SCE 2016). SCE is regulated by the CPUC, which is intended to protect consumers from overcharge and to promote energy efficiency, system reliability, and utility financial integrity. SCE is also required to provide service to existing and proposed future development in its service area.

SCE has both transmission and distribution facilities located both within and near the Project site. Transmission facilities consist of 66-kilovolt (kV), 220-kV, and 500-kV transmission lines; distribution facilities consist of 12-kV and 6.9 kV distribution lines. Overhead 66-kV transmission lines and 12-kV distribution lines are parallel to the northern side of State Route (SR) 138. The Bailey Substation, located on an SCE-owned parcel in the southwestern corner of the Project site, currently serves as a transmission-only substation and is not equipped for distribution. The off-site Gorman Substation serves as the primary distribution facility in the area. Located approximately 3.6 miles northwest of the Project site along Gorman Post Road, the Gorman Substation does not have space to expand its capacity (Peterson 2007). Existing electrical lines are shown in Exhibit 5.20-1, Known Major Utilities in the Project Area, and Exhibit 5.20-2, Dry Utilities Improvements.

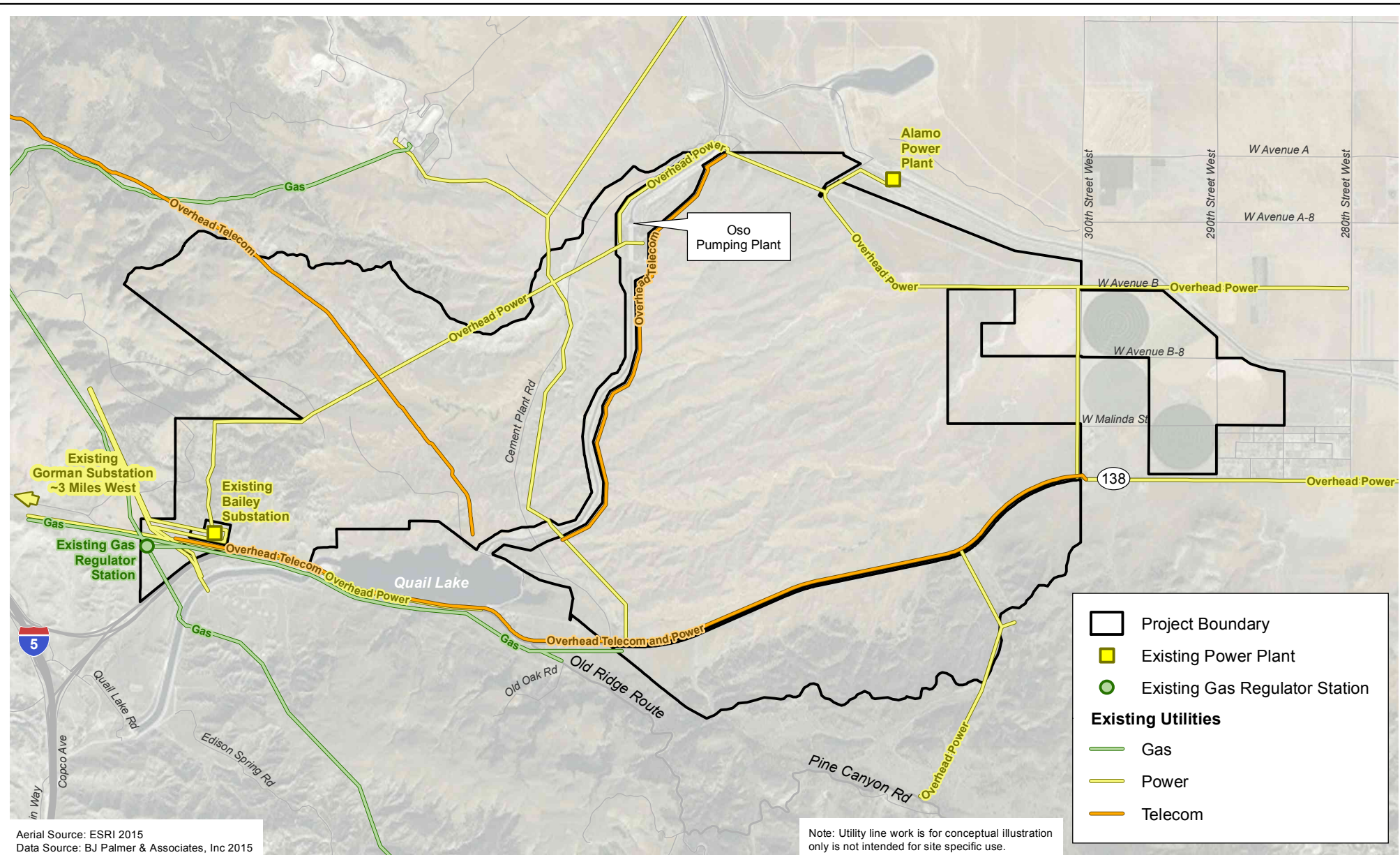
There are distribution lines that extend northeast from the existing Bailey Substation area to the Oso Pumping Plant and north from SR-138 along Cement Plant Road to the National Cement Plant. The existing lines to the Oso Pumping Plant run through the Open Space north of Oso Canyon (please refer to Exhibit 5.20-1).

In addition, in September 2016, the Los Angeles Department of Water and Power (LADWP) completed construction of the Barren Ridge Renewable Transmission Project (Barren Ridge Project) to tap into renewable energy sources in the Tehachapi Mountain and Mojave Desert areas of Southern California in the greater Project area (. The Barren Ridge Project utilizes existing and future renewable energy sources in this area. Barren Ridge will provide transmission access to approximately 1,000 megawatts (MW) of wind and solar power, which include 250 MW from Beacon, 60 MW from RE Cinco, 250 MW from Springbok 1 and 2, 143 MW from Pine Tree, as well as hundreds of megawatts from several of LADWP's hydroelectric plants from the north. The Barren Ridge Project spans a distance of 62 miles from the Barren Ridge Switching Station to the Haskell Canyon Switching Station (LADWP 2016). The entire route lies designated utility corridors and parallels existing transmission lines (LADWP 2015).

Existing land uses on the Project site are primarily ranching-related with other limited agricultural activities. The current demand for electricity is minimal and is accommodated by the existing facilities described above. These facilities not only serve the minimal on-site uses, but also nearby uses as the National Cement Plant and the Alamo Pumping Plant located



D:\Projects\CEN\Centennial\MXD\EIR\Ex\_utilities\_20150827.mxd



Aerial Source: ESRI 2015  
Data Source: BJ Palmer & Associates, Inc 2015

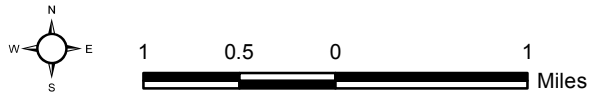
Note: Utility line work is for conceptual illustration only is not intended for site specific use.

	Project Boundary
	Existing Power Plant
	Existing Gas Regulator Station
<b>Existing Utilities</b>	
	Gas
	Power
	Telecom

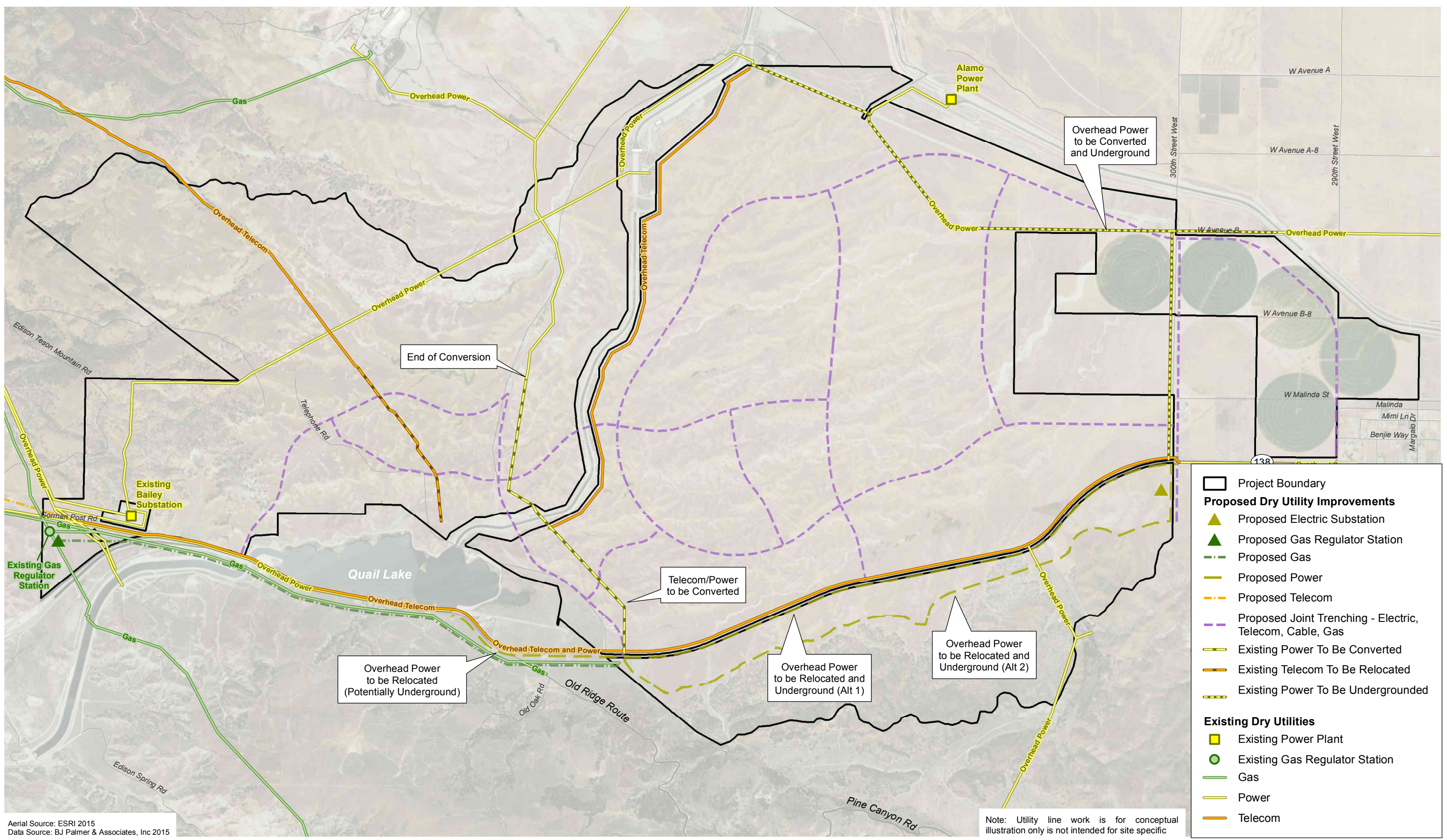
### Known Major Utilities in Project Area

### Exhibit 5.20-1

Centennial Project





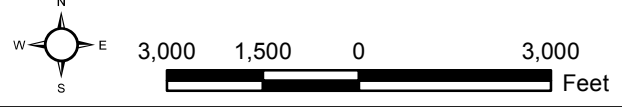


Aerial Source: ESRI 2015  
 Data Source: BJ Palmer & Associates, Inc 2015

Note: Utility line work is for conceptual illustration only is not intended for site specific

### Dry Utility Improvements

Centennial Project



### Exhibit 5.20-2

to the north of the Project site. Currently, approximately 300 dwelling units could be served by the existing overhead facilities associated with the Gorman Substation before a utility upgrade would be required (BJ Palmer 2015).

## Project Design Features

See the *Centennial Specific Plan's* Appendix 1-B, Green Development Program, and summary of corresponding Project Design Features in Section 5.21, Climate Change.

## Threshold Criteria

The following criterion from the County of Los Angeles Environmental Checklist is used to establish the threshold in order to determine the potential for significance. The Project would result in a significant impact to electrical facilities and services if it would:

**Threshold 20-1** Create energy utility (electricity, natural gas, propane) system capacity problems, or result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

## Environmental Impacts

**Threshold 20-1** **Would the project create electrical system capacity problems, or result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

### *On-Site Impacts*

The Project would place new demands on electrical service provided by SCE. Specifically, the Project would result in an increase in the amount of electricity consumed on the site for lighting and other uses, and it will create a need for new delivery infrastructure. The physical environmental impacts related to the implementation of necessary utility infrastructure are addressed as part of the Project analyzed throughout this EIR.

### Electrical Demand

Project construction would involve limited electricity demands for equipment such as temporary lighting fixtures and tools.

During operations, SCE estimates that buildout of all proposed land uses in the Project over a 20-year horizon would generate a peak increase in electricity demand of approximately 165 MW<sup>1</sup> at buildout (as shown in Table 5.20-1, Southern California Edison Estimate of the Centennial Peak Electrical Demand). The peak demand, rather than the total annual demand, is based on the type and quantity of land uses on the Project site which SCE determined would collectively generate the highest demand (i.e., peak) for electricity at one time (rather than the average demand of all types and quantities of the proposed land uses). The purpose

<sup>1</sup> A megawatt (MW) is one million watts

of the peak demand calculation is to provide a more conservative estimate as the basis of supply and infrastructure planning.

**TABLE 5.20-1  
SCE ESTIMATE OF  
CENTENNIAL PEAK ELECTRICAL DEMAND**

<b>Land Use Type<sup>a</sup></b>	<b>Quantity and Units<sup>a</sup></b>	<b>Demand Factor (watts per unit)</b>	<b>Peak Electrical Demand (MW)</b>
Single Family Residential	14,119 du	6,955	98
Condos/Townhomes	4,914 du	3,870	19
Multi-Family (Apartments)	300 du	5,000	2
Commercial	2.6 million sf	15	39
Schools	10 schools	700,000	7
<b>Total</b>			<b>165</b>
SCE: Southern California Edison; MW: megawatts; du: dwelling units; sf: square feet			
<sup>a</sup> Land use types and proportions were provided by SCE to reflect peak demand (i.e., collectively produce the maximum electrical demand at one time). The peak demand does not include all land uses as it represents the combination of land uses that would generate the highest demand at one time.			
Demand factors derived from usage letter submitted by SCE in 2007 based on project design at that time (SCE 2007b).			

It should be noted that this estimate of peak electrical demand is based on SCE's general-use demand factors and does not take into account the current code requirements and additional measures that would be implemented to increase energy efficiency (see Green Development Program). The Project would comply with all State Energy Efficiency Standards for Residential and Non-residential Buildings (Title 24; 24 CCR 6) and California Green Building Standards Code (CALGreen Code; 24 CCR Part 11) requirements in effect at the time building permit applications are submitted. These standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Title 24 covers the use of energy-saving appliances, conditioning systems, water heating, and lighting, among other issues. The CALGreen Code covers the use of water and energy, among other issues, and requires building commissioning to verify building systems are functioning and maximum efficiency.

SCE would serve the Project's demand for electrical service through the existing distribution facilities on the Project site and the utility improvements that are proposed as part of the Project, which are described below. SCE has indicated that, with implementation of required infrastructure improvements, there would be adequate electrical supplies to serve the Project (SCE 2007b). However, the realistic peak electric demand with planned energy efficiency features would be lower than the more conservative estimate of peak demand (i.e., 141 MW).



### Electrical Line Relocation

According to the Dry Utility Report (Appendix 5.20-A), Project implementation would necessitate the relocation and/or removal of existing SCE facilities along portions of SR-138 and Gorman Post Road, as well as within the Project site (BJ Palmer 2015). Exhibit 5.20-2, Centennial Project – Dry Utilities Improvements, shows the location of both existing and proposed newly upgraded and relocated electrical lines and illustrates the extent of anticipated line relocations. The existing 66-kV lines that extend from the Bailey Substation and run northwest through the Project site may be relocated or may be placed underground. Where relocated electricity lines would remain aboveground, all poles would be placed within the proposed SCE easement, and the specific type and spacing of any new poles would be determined by SCE. Continued coordination between the Project Applicant/Developer and SCE during site development, as required by Mitigation Measure (MM) 20.2-1 below, would prevent prolonged service disruptions that could be experienced by the surrounding electricity users, facilities along SR-138, and the Gorman Substation.

### SCE Easements

SCE has an existing right-of-way easement for their facilities within and surrounding the Project development area. Existing SCE electrical easements along SR-138 and Gorman Post Road will be affected by Project development. Some of these easements contain active facilities, while others do not. Upon development of the Project site and after coordination with and approval by SCE, those easements through the Project development area that do not contain active facilities would be quit-claimed to the Project Applicant/Developer. The location of new easements would be determined in coordination with SCE, as required by MM 20.2-1. The development of the Project area would dictate that existing facilities be removed or relocated as the Project progresses. New easements would be developed for those facilities relocated to a new location, consistent with Project improvements. As above, those improvements to be constructed along SR-138 and Gorman Post Road would not create any physical impacts beyond those addressed elsewhere in this document as part of Project development.

### SCE Infrastructure

SCE has also determined that full Project buildout would require a new substation, currently named the “Centennial Substation”. The Centennial Substation would be located in the vicinity of 300<sup>th</sup> to 310<sup>th</sup> Street West either north or south of SR-138. This necessary infrastructure would also be ensured via MM 20.2-2. Approximately 4.5 acres would be required for this substation site. The substation would convert the 66 kV voltage to 12 kV/9.5 kV for distribution to the various uses within this portion of the Project site. A detailed description of the proposed substation can be found in Section 4.5.10, Dry Utilities, of the Project Description (Section 4.0).

SCE has indicated that buildout of the western portion of the Project site would require additional capacity beyond the initial approximate 300-dwelling-unit existing capacity of the Gorman Substation. The Gorman Substation, located approximately 3.6 miles northwest of the site, is currently configured for distribution voltage. However, this substation would require the addition of one or more additional transformers within the footprint of the SCE-

owned parcel and reconstruction of the existing overhead power lines along Gorman Post Road within the SCE-owned easement from the substation to the Project site. Potential infrastructure improvements necessary to serve the western portion of the Project site are required by MM 20.2-2. In any event, the improvements implemented to serve the western portion of the Project site would occur entirely on lands owned by SCE, and therefore would not be on the Project site.

In addition to the expansion or upgrade of existing facilities and construction of a future substation for Project buildout, an electrical distribution system would be developed on the Project site to supplement and, in some cases, sell power back to the regional electrical grid. This distribution system would be included within the main utility corridors for dry utilities as shown on Exhibit 5.20-2, Centennial Project – Dry Utilities Improvements. The timing for construction of these facilities, as well as the specific facilities' locations and sizing, would be coordinated with SCE. The necessary facilities would be constructed in advance of the land uses that require the facilities in order to ensure that the Project's electrical needs are met as the site develops. The main utility corridors for dry utilities would be located underground within Parkways or Secondary Highways, as discussed in the Project's Mobility Plan (Section 3.2 of EIR Appendix 4.0-A).

All new and upgraded on-site facilities and infrastructure would be ensured via MM 20.2-2 and would be implemented as part of the Project within the public road system right-of-way. Those improvements to be constructed within the development area would not create any additional physical impacts beyond those addressed elsewhere in this EIR as part of the Project because implementation of electrical facilities would be concurrent with Project development.

As stated above, connection to these existing facilities and development of a new on-site electrical distribution system will occur as part of the Project. The only other existing off-site facilities that would require upgrades or retrofitting to provide adequate electrical service to the Project would be those discussed herein (i.e., the Gorman Substation and associated overhead lines and/or the Bailey Substation and other off-site electrical lines).

Continuing coordination between the Project Applicant/Developer and SCE, as required by MM 20.2-1, would ensure that the new system would accommodate the Project's requirements, including construction timing of these facilities and the specific facilities' locations and sizing.

#### Energy Conservation in the Project

The Project would be subject to Title 24 and CALGreen Code energy efficiency standards. However, as discussed in Section 5.21, Climate Change, the Project has committed to compliance with CALGreen voluntary measure A4.203.1.2.1 for low-rise residential buildings, resulting in buildings that would exceed 2013 Title 24 requirements by 15 percent (see PDF 11-3 in Section 5.11, Air Resources), and with CALGreen voluntary measure A5.203.1.2.1 for non-residential buildings and residential buildings taller than four stories, resulting in buildings that would exceed 2013 Title 24 requirements by 10 percent (PDF 11-2). Renewable energy produced on the Project site will be primarily rooftop solar, and at minimum 50 percent of the Project's anticipated electricity demand will be satisfied

from on-site renewable energy generation (PDF 21-3). The GHG emissions associated with energy use (electricity and natural gas) were estimated based on these assumptions. For the reasons discussed above, implementation of the Project would result in a less than significant impact to electrical services or facilities during construction or operation.

Through coordination with SCE, two options were developed for bringing the additional electrical capacity: (1) upgrading the existing Bailey Substation located on an SCE-owned parcel within the southwestern corner of the Project site (Exhibit 5.20-2, Centennial Project – Dry Utility Improvements) and/or (2) upgrading the Gorman Substation and retrofitting the associated existing overhead transmission lines between the Gorman Substation and the Project site to handle the higher load. Upgrade of the Bailey Substation is considered the more likely solution; however, both options would continue to remain open until later stages of the site development process. The timing of the upgrade to the Gorman Substation and associated overhead lines or the Bailey Substation would be determined through ongoing coordination between SCE and the Project Applicant/Developer. In either event, these improvements would occur entirely on lands and/or easements owned by SCE, and therefore would not be on the Project site. The option to upgrade the Bailey Substation (option 1) or Gorman Substation and overhead lines (option 2) to provide additional electrical capacity to the initial development of the entire Project is described in further detail below.

The Bailey Substation is a transmission relay substation, and is currently not configured for the distribution of voltage facilities that would be required to serve the Project. The site of the Bailey Substation is large enough (1.5 acres) to accommodate the required upgrade and it could be configured to serve the Project. The Bailey Substation upgrade would include the installation of a distribution transformer to carry sufficient load to the Project. Distribution voltage would then be extended to the Project on the existing overhead pole line along SR-138 or routed northerly overhead or underground around Quail Lake within the Project limits for the initial phases of development, then placed underground throughout the Project. This location, if upgraded as described, would provide sufficient electrical capacity to serve initial Project site development. The update of the Bailey Substation would not require retrofitting of any overhead lines. The upgrade of the Gorman Substation would require retrofitting of overhead lines as described further below.

The Gorman Substation, located approximately 3.6 miles northwest of the site, is currently configured for distribution voltage. However, this substation would require the addition of one or more additional transformers and the reconstruction of existing overhead power lines along Gorman Post Road from the substation to the Project. At a point just west of the Project boundary, the overhead facilities would take either direction along SR-138 or the northerly route around Quail Lake. It should be noted that, if the Bailey Substation upgrade were implemented, no upgrades to the Gorman Substation and its associated overhead lines or other off-site substation and overhead facilities would be necessary to serve any portion of the Project.

### ***Off-Site Impacts***

To provide adequate electricity for the Project, two options were developed for bringing the additional capacity to serve the western portion of the Project site: (1) upgrading the existing

Bailey Substation located on an SCE-owned parcel within the southwestern corner of, but not part of, the Project site or (2) upgrading the Gorman Substation and retrofitting existing overhead transmission lines to handle the higher load. At this time, upgrading the Bailey Substation is considered the more likely solution; however, both options will continue to remain viable until later stages of the site development process subsequent to the CEQA process. If the Bailey Substation is upgraded, no upgrades to the Gorman Substation or other off-site facilities will be necessary to serve the first phase of Project implementation.

Improvements to SCE facilities (including upgrading the existing Gorman Substation and associated overhead lines or upgrading the Bailey Substation) would occur entirely on SCE-owned lands and within existing development footprints. The inclusion of these electricity upgrades were included in the Project description and were included throughout the Project analysis. There would be a less than significant impact related to SCE (i.e., off-site) facilities and services.

Each of the proposed off-site well locations would be served by electricity to power the well pump and to control and monitor equipment. Electricity would be delivered to each well location through an underground or aboveground tie-in to the nearest electrical line from each well location. These lines would be near the proposed well locations, as CEW-3, CEW-4, and CEW-5 are located proximate to the existing Tejon Water Bank, all of which are, or will be, served by electricity. Collectively, the off-site wells would demand a minimal amount of electricity, particularly compared with the anticipated peak demand for buildout of the Project, which can adequately be served by SCE. Therefore, based on SCE's review and commitment to serve the Project, they would be able to serve the proposed off-site wells with electrical service without adversely affecting existing or planned service. There would be a less than significant impact and no mitigation is required.

***Impact Summary:*** The Project would result in less than significant impacts to electrical service and facilities with implementation of the Green Development Program as well as MM 20.2-1 and MM 20.2-2.

## **Mitigation Measures**

**MM 20.2-1** The Project Applicant/Developer shall coordinate with Southern California Edison (SCE) to ensure that there are no prolonged disruptions to the existing transmission lines that extend through the Project study area and to coordinate in the design and implementation of future electrical service and facilities (e.g., transmission lines, access road) in the Project study area. This will ensure that (1) no prolonged service disruptions during the extension and upgrading of these services would arise; (2) the nature, design, and timing of electrical system improvements are in accordance with all SCE requirements; and (3) the improvements are adequate to serve the proposed land uses and are available for the first occupied land uses.

**MM 20.2-2** The Project Applicant/Developer shall provide the County with plans and specifications that demonstrate a future substation shall be constructed in the eastern half of the Project site to serve Project development in the easterly



portion of the Project site. To provide adequate capacity for electrical services for the Project, SCE would select one of the following two options to implement: (1) reconfigure the Bailey Substation or (2) upgrade the Gorman Substation and retrofit the existing overhead power lines. An electrical generation and distribution system shall be constructed as part of the main utility corridors for dry utilities. The timing of construction, as well as specific facility location and sizing, shall be coordinated with SCE.

## **Level of Significance After Mitigation**

Impacts related to electrical services and facilities would be less than significant with implementation of the Green Development Program, MM 20.2-1 and MM 20.2-2.

### **5.20.3 FOSSIL FUELS (NATURAL GAS AND PETROLEUM)**

#### **Relevant Plans, Policies, and Regulations**

##### ***Federal***

##### Energy Independence and Security Act of 2007

See summary under Section 5.20.2, Electricity.

##### Corporate Average Fuel Efficiency Standards

In response to the U.S. Supreme Court ruling, the Bush Administration issued an Executive Order on May 14, 2007, directing the U.S. Environmental Protection Agency (USEPA), the Department of Transportation (DOT), and the Department of Energy (DOE) to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008. On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law, which requires an increased Corporate Average Fuel Economy (CAFE) standard of 35 miles per gallon for the combined fleet of cars and light trucks by model year 2020. The EISA requires establishment of interim standards (from 2011 to 2020) that will be the “maximum feasible average fuel economy” for each fleet. On October 10, 2008, the National Highway Traffic Safety Administration (NHTSA) released a final environmental impact statement analyzing proposed interim standards for passenger cars and light trucks in model years 2011 through 2015. The NHTSA issued a final rule for model year 2011 on March 23, 2009.

On May 19, 2009, President Obama announced a national policy for fuel efficiency and emissions standards in the U.S. auto industry. In September 2009, the DOT and the USEPA issued a proposed rule setting federal standards that apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles built in model years 2012 through 2016. On April 1, 2010, the DOT and the USEPA jointly established these new rules, which establish more stringent CAFE standards and impose GHG emission standards.

On June 30, 2009, the USEPA granted the waiver for California, discussed in more detail below, for its greenhouse gas emission standards for motor vehicles.

---

**State****Title 24 Energy Efficiency Standards**

See summary under Section 5.20.2, Electricity.

**Title 24 Green Building Standards**

See summary under Section 5.20.2, Electricity.

**Senate Bill 1368 (GHG Emissions Standard for Baseload Generation)**

See summary under Section 5.20.2, Electricity.

**Assembly Bill 1493 (Mobile Source Reductions)**

Assembly Bill (AB) 1493 required CARB to adopt regulations by January 1, 2005, to reduce GHG emissions from noncommercial passenger vehicles and light-duty trucks with a model year of 2009 and later. The bill required the CCAR to develop and adopt protocols for the reporting and certification of GHG emissions reductions from mobile sources for use by CARB in granting emission reduction credits. The bill also authorized CARB to grant emission reduction credits for reductions of GHG emissions prior to the date of the enforcement of regulations, using model year 2000 as the baseline for reduction.

In 2004, CARB applied to the USEPA for a waiver under the Federal Clean Air Act to authorize implementation of these regulations. The waiver request was formally denied by the USEPA in December 2007. In January 2008, the State Attorney General filed a lawsuit against the USEPA challenging the denial of California's request for a waiver to regulate and limit GHG emissions from these vehicles. In January 2009, President Barack Obama issued a directive to the USEPA to reconsider California's request for a waiver, which the USEPA granted on June 30, 2009. As part of this waiver, the USEPA specified that CARB may not hold a manufacturer liable or responsible for any noncompliance caused by emission debits generated by the manufacturer for the 2009 model year.

**County****Countywide Energy and Environmental Policy (January 2007)**

See summary under Section 5.20.2, Electricity.

**Los Angeles County General Plan and Antelope Valley Area Plan**

The *Los Angeles County General Plan* and the *Antelope Valley Area Plan (AVAP)*, part of the County General Plan, include goals and policies that address fossil fuel issues in the unincorporated County.

The AVAP goal and policy applicable to the analysis of fossil fuels with Project implementation are listed below. Section 5.8, Land Use, Entitlements, and Planning, presents a more in-depth analysis of the Project's consistency with relevant plans, policies and regulations.

**Goal ED 1:** A healthy and balanced economic base in the Antelope Valley that attracts a wide range of industries and businesses and provides high-paying jobs for local residents.

**Policy ED 1.14:** Promote appropriate types of residential development in the vicinity of existing communities and town centers that are in reach of existing infrastructure and utilities.

## Environmental Setting

As noted above, natural gas represents the largest source of electricity in California, and is the second-largest type of consumed fuel. Petroleum is the most-consumed source of energy in the state; the transportation sector consumes approximately 39 percent of the state's energy (USDOE 2016a). The state's natural gas comes from a variety of places, and approximately 90 percent of the natural gas supply is imported (CEC 2017). The crude oil consumed in California comes from both in-state and out-of-state sources. In 2014, approximately 37.8 percent came from California, 10.6 percent from Alaska, and 51.6 percent from foreign countries (CEC 2015b).

While residential natural gas consumption has increased, the average annual natural gas consumption per household has decreased, largely as a result of energy efficiency improvements. For example, although absolute consumption of natural gas has increased between 1970 and 2007, natural gas consumption per household dropped 36 percent. (CEC 2009). Similarly, the CEC projects that demand for gasoline may drop as a result of new energy efficiency requirements; regulations at the state and local levels; rising fuel prices; and increased popularity of fuel-efficient vehicles such as hybrid and light-duty diesel vehicles (CEC 2010).

The Southern California Gas Company (SoCalGas), also known as The Gas Company, provides natural gas service to much of the Southern California region, including the Project site. According to the SoCalGas website, the company has a service area of approximately 20,000 square miles and provides service to 21.4 million customers throughout Central and Southern California, from Visalia to the Mexican border (SoCalGas 2015). SoCalGas is regulated by the CPUC, and is required to provide service to existing and proposed future development in its service area.

There are existing SoCalGas gas lines within and near the Project site. There is one high-pressure gas main in the vicinity, and it is a 33-inch diameter, north-south-running gas transmission line (Line 225) within an SoCalGas-owned easement that originates at SR-138 just east of the Golden State Freeway (Interstate [I] 5). A six-inch high-pressure distribution line branches from Line 225 and travels east to serve the National Cement Plant north of the Project boundary. There is a medium-pressure gas distribution main in SR-138, which branches from Line 225 and travels east to the Quail Lake area (SoCalGas 2006). These facilities are shown on Exhibit 5.20-2, Centennial Project – Dry Utilities Improvements. Additional, various-sized, medium-pressure gas-distribution mains are located in and around SR-138 in the Project vicinity.

---

## Project Design Features

See the *Centennial Specific Plan's* Appendix 1-B, Green Development Program, and summary of corresponding Project Design Features in Section 5.21, Climate Change.

## Threshold Criteria

The following criterion from the County of Los Angeles Environmental Checklist is used to establish a threshold to determine the potential for significance. The Project would result in a significant impact to natural gas facilities and services if it would:

**Threshold 20-2** Create energy utility (electricity, natural gas, propane) system capacity problems, or result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

## Environmental Impacts

**Threshold 20-2** **Would the project create natural gas system capacity problems, or result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

### *On-Site Impacts*

The Project will increase demand for the SoCalGas-provided natural gas services and facilities.

The Project will also result in consumption of petroleum, primarily for transportation energy (i.e., gasoline and diesel). Natural gas and petroleum will be consumed throughout construction and operations of the Project. Energy will be required during construction for the transportation of building materials and construction of buildings and infrastructure. Natural gas consumption during construction will be minimal; gasoline and diesel use account for the vast majority of construction-period energy needs.

During operations, energy will be consumed for various purposes including, but not limited to, building heating and cooling, use of consumer products, lighting, stationary source operation, and motor vehicle use. Although motor vehicle use accounts for the majority of petroleum consumption associated with the Project, other Project activities that could result in petroleum consumption include propane used for barbeques, asphalt paving and industrial uses. The physical environmental impacts related to the implementation of necessary utility infrastructure are addressed as part of the entire Project analyzed throughout this EIR.

---

## Natural Gas

### *Natural Gas Demand*

To determine the estimated natural gas demand from operation of the Project site, the SoCalGas Engineering Department was consulted to determine the appropriate “rule of thumb” load estimates for the various land uses on the Project site. Using these factors, it is estimated that Centennial would demand approximately 30 million cubic feet (cf) per month of natural gas, as shown in Table 5.20-2, SoCalGas Estimate of Centennial’s Monthly Natural Gas Demand. This represents the total estimated demand per month from all types and quantities of proposed land uses that would utilize natural gas, rather than peak demand, which is used by SoCalGas as the basis of gas supply and infrastructure planning.

It should be noted that this estimate of natural gas demand is based on SoCalGas’ general-use demand factors and does not take into account the current code requirements and additional measures that would be implemented to increase energy efficiency (Green Development Program).

As part of their planning process, SoCalGas forecasts future demand inclusive of the Project and continues to provide the necessary energy resources for existing demands. Therefore, SoCalGas has indicated that current supplies of monthly natural gas are sufficient to supply the Project based on SoCalGas’ estimate of natural gas demand (SoCalGas 2006). However, the realistic natural gas demand with planned energy efficiency features would be lower than the appropriately conservative estimate prepared by SoCalGas as the basis of supply and infrastructure planning. The extension of the additional main from the 33-inch transmission main would parallel the existing medium-pressure main that exists within the right-of-way of Gorman Post Road and SR-138. This tap would require an additional pressure regulation station on an easement space (75 feet by 30 feet).

**TABLE 5.20-2  
SOCALGAS ESTIMATE OF CENTENNIAL'S MONTHLY NATURAL GAS DEMAND**

<b>Land Use Type</b>	<b>Land use Size</b>	<b>Demand Factor</b>	<b>Usage (cf/month)</b>
Single Family	14,600 du	6,665.0 cf/du/month	97,309,000
Multi-Family	4,800 du	4,011.5 cf/du/month	19,255,200
Commercial	4,138,200 sf	2.9 cf/sf/month	12,000,780
Employment	30,753,360 sf	2.0 cf/sf/month	61,506,720
School <sup>b</sup>	6,446,880 sf	2.0 cf/sf/month	12,893,760
Park <sup>a,b</sup>	7,100,280 sf	0.0 cf/sf/month	0
Commercial Recreation <sup>b</sup>	3,267,000 sf	2.0 cf/sf/month	6,534,000
Open Space <sup>a,b</sup>	257,308,920 sf	0.0 cf/sf/month	0
Utility <sup>b</sup>	8,319,960 sf	2.0 cf/sf/month	16,639,920
<b>Total</b>			<b>226,139,380</b>
<b>Total (in millions)</b>			<b>226</b>
SoCalGas: Southern California Gas Company; cf: cubic foot/feet; du: dwelling unit; sf: square foot/feet			
<sup>a</sup> Assumes that "Park" and "Open Space" land use types would not use natural gas. While some parks may contain scattered, small-scale, built facilities that may use natural gas and electricity, the extent of these facilities is unknown at this time. Regardless, the level of natural gas demand from such facilities would be nominal compared to the estimate of demand for the remainder of built land uses, which are based on conservative demand factors that do not account for the additional energy conservation features planned for the Project. Open space also includes greenways and landscape lots.			
<sup>b</sup> To utilize the SoCalGas-provided demand factors, the number of units was derived by converting the gross acres for each land use, except residential units, as presented in Centennial Project Statistical Table (Table 4-2 in Section 4.0, Project Description), to square feet (1 acre = 43,560 sf). Therefore, these numbers are greater than the actual land area that would be covered with structures for each land use, such as school buildings.			
Source of demand factors: SoCalGas 2008.			

### *Natural Gas Distribution Line Relocation*

SoCalGas' high-pressure natural gas facilities along the westerly boundary of the Project site may be affected by Project-related roadway improvements. Portions of the utilities within these easements may require adjustment or relocation. As with the electrical lines, there are approximately 29,000 feet of natural gas facilities along the SR-138 and along Gorman Post Road.

To prevent problems with providing other utility services, ongoing coordination between the Project Applicant/Developer and SoCalGas, as required by MM 20.3-1, would ensure that the new facilities would accommodate the Project's requirements. Coordination is typical between a project applicant and a utility provider to avoid any prolonged service disruptions during extension, relocation, and upgrade of services and facilities. This routine coordination ensures that the nature, design, and timing of natural gas system improvements are adequate to serve the Project. The timing for construction, as well as location and sizing, of these facilities will be coordinated with SoCalGas.

### *SoCalGas Infrastructure*

SoCalGas anticipates that either additional feeds from the existing distribution system in the Project vicinity or a new system would be necessary to serve the Project's projected demand. This will be determined in the future as part of the Project planning and implementation process. Regardless, MM 20.3-2 requires that the Project Applicant/Developer install, bond for, or otherwise provide on-site natural gas facilities in coordination with SoCalGas. To provide natural gas service to the Project, a series of transmission and distribution gas mains would be installed in the proposed roadways. An underground extension of gas facilities will need to be constructed east along Gorman Post Road from the proposed regulator station to the Project's westerly entrance, where it would follow the route along with electricity and telephone lines through the Project site around the north side of Quail Lake. The main could also be extended along the SR-138 roadway, just outside the road right-of-way, easterly to the initial construction phases of the Project. Due to gas line installation requirements, transmission main extensions would be in separate trenches within proposed roadways. Distribution main extensions would be installed in utility corridors (shown on Exhibit 5.20-2, Centennial Project – Dry Utility Improvements). Some of these transmission and distribution mains may parallel each other in the same roadway. It may be necessary to extend a high pressure line to and within the Project site for the placement of a series of future regulator stations. The initial distribution gas source is proposed to come from connecting, or “tapping” into an existing high pressure main west of the southwest corner of the site near Gorman Post Road, placing a regulator station (potential easement space needed of approximately 75 feet by 30 feet), and running distribution medium pressure and/or transmission high pressure to and through the Project site. Gas distribution efficiency and operating integrity require that the gas mains are looped. As the Project develops, the mains may be tied to each other for pressure stabilization. MM 20.3-3 requires that an additional regulator station be constructed in the future to loop the distribution system for increased reliability.

As discussed above, SoCalGas has stated that, with appropriate expansion of infrastructure, there are adequate natural gas supplies to serve the Project (SoCalGas 2006). All new and upgraded on-site facilities and infrastructure, including regulators and distribution facilities, would be implemented as part of site development and would be constructed within public rights-of-way. Therefore, these improvements would not create additional physical impacts beyond those addressed elsewhere in this EIR because natural gas facilities would be implemented within the footprint of the overall development Project.

### *Energy Conservation in the Project*

The Project would be subject to Title 24 and mandatory CALGreen Code energy efficiency standards. However, as discussed in the Green Development Program, the Project has committed to achieving CALGreen's voluntary Tier 1 status, including exceeding Title 24 requirements by 15 percent for low-rise buildings and by 10 percent for nonresidential, hotel, and high-rise residential buildings (PDFs 11-5 and 11-6, from Section 5.11, Air Resources). Also, a minimum of 50 percent of the Project's anticipated electrical energy demand would be satisfied from on-site renewable energy generation (PDF 21-3 from Section 5.21, Climate Change). The GHG emissions associated with energy use (electricity and natural gas) were estimated based on these assumptions. A description of the ways the

Project will satisfy CALGreen Tier 1 energy efficiency measures is provided in the Green Development Program, and summarized in PDF 21-3 in Section 5.21, Climate Change.

For the reasons discussed above, implementation of the Project would result in a less than significant impact to natural gas services or facilities during construction or operation.

### Petroleum

#### *Petroleum Demand*

Project construction and operations would result in consumption of petroleum. The majority of fuel consumption resulting from the Project would involve the use of motor vehicles. Petroleum fuel consumption associated with the Project is a function of the vehicle miles traveled (VMT) as a result of Project construction and operations. As discussed in Sections 5.10 (Traffic, Access, and Circulation), 5.11 (Air Resources) and 5.21 (Climate Change), the Project would result in an increase in VMT which, in turn, could result in additional fuel consumption and energy use associated with transportation.

It should, however, be noted that, as discussed above, as a result of anticipated fuel efficiency improvements, additional VMT will not necessarily result in a proportional increase in fuel consumption. Moreover, as discussed below, the Project incorporates a variety of features intended to reduce VMT associated with the Project.

#### *Transportation Facilities*

The Green Development Program summarized in Section 5.21, Climate Change, describes the Project features that would reduce petroleum consumption both through energy-efficient site planning and building design as well as transportation improvements and vehicle trip reductions. As discussed further in Section 5.10, Traffic, Access and Circulation, the Project will construct and/or provide funding for necessary traffic and transit improvements to ensure there are less than significant traffic impacts. Without these improvements, the Project-generated trips would otherwise result in increased gasoline usage and less efficient gasoline consumption due to traffic congestion. The Project also includes a Mobility Plan that addresses vehicle circulation and alternative transportation infrastructure, including local transit and pedestrian and bicycle routes. Finally, the Project proposes compact and efficient siting of residential and mixed-use neighborhoods as well as office and commercial space to maximize the use of existing infrastructure while providing for the Project's internal circulation needs.

#### *Vehicle Trip Reductions in the Centennial Project*

As discussed previously, the Project incorporates a number of ways to reduce energy use from motor vehicle use. These include the multi-modal circulation systems, efficient site planning and building design, transportation improvements, and other vehicle trip reducing design features such as the provision of internet infrastructure, which supports telecommuting as well as online shopping and research. For the reasons discussed above, transportation energy impacts from implementation of the Project would be less than significant.



## ***Off-Site Impacts***

### Natural Gas

To provide adequate natural gas for the Project, improvements to SoCalGas facilities would occur outside the Project site on lands owned by SoCalGas. Potential off-site impacts resulting from connections to the existing high-pressure main near the southwestern corner of the Project site and the construction of a gas regulator station at this location would be confined to existing SoCalGas easements and within the existing development footprint. The inclusion of these natural gas line upgrades was included in the Project description and throughout the Project analysis. There would be a less than significant impact related to SoCalGas facilities and services.

The proposed off-site wells would not include natural gas service. Therefore, there would be no impact to SoCalGas supplies or services, and no mitigation is required.

### Petroleum

VMT associated with off-site Project features is addressed in Section 5.10, Traffic, Access, and Circulation. Construction of off-site Project features would generate only minimal trips. As discussed in Section 5.10, long-term operation of the proposed off-site Project features would not result in substantive new vehicle trips, longer driving distances, or traffic congestion such that petroleum consumption could be significantly increased. The proposed utility improvements would not generate trips, and there would be no impact related to transportation energy.

As discussed in Section 5.10, Traffic, Access, and Circulation, the proposed off-site wells would cause essentially no increase in traffic. It is anticipated that one daily visit to each well location would be necessary for maintenance and monitoring purposes; however, this level of traffic would be nominal, particularly in comparison to the anticipated daily trips associated with the Centennial Project. Therefore, transportation energy impacts from implementation of the proposed off-site wells would be less than significant.

***Impact Summary:*** The Project would result in less than significant impacts to natural gas service and facilities and petroleum consumption with implementation of the Green Development Program, and MMs 20.3-1 through 20.3-3.

## **Mitigation Measures**

**MM 20.3-1** The Project Applicant/Developer shall coordinate with the Southern California Gas Company (SoCalGas) in the design and implementation of future natural gas service and facilities in the Project study area to ensure that (1) no prolonged service disruptions during the extension and upgrade of these services would arise; (2) the nature, design, and timing of natural gas system improvements are in accordance with SoCalGas requirements; and (3) the improvements are adequate to serve the Project, to be in place for the first occupied land uses.

- MM 20.3-2** The Project Applicant/Developer shall install, bond for, or otherwise provide on-site natural gas facilities in coordination with SoCalGas.
- MM 20.3-3** An additional regulator station shall be constructed by SoCalGas to loop the distribution system for increased reliability. The timing for development of this station shall be determined by SoCalGas through an assessment of the system's operational needs. The timing for construction of this facility, as well as the specific location and sizing, shall be coordinated with SoCalGas.

### **Level of Significance After Mitigation**

Impacts related to natural gas services and facilities and petroleum consumption would be less than significant with implementation of the Green Development Program, and MMs 20.3-1 through 20.3-3.

### **5.20.4 TELEPHONE SERVICE**

#### **Relevant Plans, Policies, and Regulations**

No pertinent federal, State, or local plans, policies, or regulations related to telephone service have been identified.

#### **Environmental Setting**

AT&T (formerly known as SBC)<sup>2</sup> is a national provider of voice and data telecommunications services, serving millions of customers. AT&T is regulated by the CPUC, whose focus is to develop and implement policies and procedures to facilitate competition in all telecommunications markets; to ensure reasonably priced essential services; and to provide consumer protection against abusive practices (AT&T 2015). Several other communications companies (such as MCI World Com, Rapid Cable, and Quest Communications) operate existing underground fiber optic systems adjacent to I-5 for regional services.

The AT&T Central Office responsible for providing service to the Project area is located north of the Project site in Lebec. Underground and overhead fiber optic (fiber) and twisted pair (copper) distribution facilities are located within the Project site. A Litespan 2000 unit is located on Gorman Post Road. This structure's usage is based on digital and Y2K compliance needs of the National Cement Plant and was installed in anticipation of future growth in the area (BJ Palmer 2015).

#### **Project Design Features**

- PDF 20.4-1** The telephone line extension that would be implemented for the Project would retrofit and/or replace the current overhead system.

---

<sup>2</sup> As of November 18, 2005, SBC was renamed AT&T.

---

## Threshold Criteria

The following criterion from the County of Los Angeles Environmental Checklist is used to establish a threshold to determine the potential for significance. The Project would result in a significant impact to telephone facilities and services if it would:

**Threshold 20-3** Create energy utility (electricity, natural gas, propane) system capacity problems, or result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

## Environmental Impacts

**Threshold 20-3** **Would the project create telephone service system capacity problems, or result in the construction of new facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

### *On-Site Impacts*

#### Telephone Service Demand

The Project would result in an increased demand for the number of telephone lines and would create the need for new telephone service infrastructure provided by AT&T. The physical environmental impacts related to the implementation of necessary utility infrastructure are addressed as part of the Project analyzed in this EIR.

AT&T currently designates two lines per customer for a typical single-family home. Using this assumption, the Project will require 38,666 telephone lines for residential uses. Telephone line sizes for commercial areas are planned for and sized based on the Project Applicant/Developer's proposed demand. AT&T has stated that the Project's demand for telephone service would be adequately served on a demand basis (Matthews 2006). This means that, as demand increases, service to the Project site and associated facilities would be improved or expanded to accommodate the demand. No impacts related to AT&T's ability to provide telephone service would occur; however, AT&T has stated that upgrading the Central Office in Lebec would be necessary and would involve internal upgrades to distribution facilities, which would expand the Central Office's service capacity and meet the overall Project demand. The upgrade would be performed in stages, based on the level of demand, as the Project progresses.

To extend telephone service to the Project, telephone fiber or cabling would be provided in the proposed utility corridors. The initial extension (overhead and/or underground) of telephone facilities will be constructed along Gorman Post Road in the current franchise area entering the Project site at the most westerly entrance, or continuing overhead along the pole line along SR-138 (PDF 20.4-1).

The Project would be developed as a "full fiber" project, with the extension of fiber lines (as opposed to cable lines) to all homes on the site. AT&T would plan for a substructure system

that would allow for this service. To support the development of the Project as “full fiber”, additional fiber from existing AT&T facilities would either be placed overhead on the existing pole line along SR-138 or on a temporary overhead/underground location within the Project limits line along the north side of Quail Lake, along with electrical facilities, to service the initial phases of development. Several telephone fiber pedestals would be placed throughout the Project site, allowing for a complete fiber system to be constructed to allow fiber to the home, including high speed service capabilities. These new fiber facilities would be in addition to existing copper/fiber facilities currently in place (BJ Palmer 2015). The determination of whether these additional facilities are needed, as well as the locations of the telephone fiber pedestals or other AT&T facilities, would be determined in the future as part of Project planning and implementation. However, these facilities, both aboveground and underground, would be within the Project boundaries and, therefore, any potential physical impacts from these facilities are addressed as part of the analysis provided throughout this EIR.

The cost associated with new facilities and the existing system retrofit would be the responsibility of AT&T. Extension of these facilities would be conducted by AT&T as well. New business telephone extensions within 200 feet of the Project boundary and within the Project site are also AT&T’s responsibility. Each year, AT&T budgets for capital improvements such as these for the upcoming year. AT&T manages the allocation of their funds based on a project’s estimated needs. Construction and activation of the improvements are then based on application and demand. Timeframes would be consistent with the Project’s progress. Once AT&T installs telephone lines, line extension fees would apply to individual homeowners. With additional cabinets, the existing AT&T Litespan 2000 unit would have sufficient capacity to serve the Project site (BJ Palmer 2015).

In addition, future Centennial residents would be expected to use cell phones with coverage provided by a variety of different providers. Construction of cell phone towers is managed by each individual provider as deemed necessary to support demand, and such a project would require preparation of its own CEQA documentation. As the location(s) of future cell phone towers, if deemed necessary, is unknown, consideration of the environmental impacts of these facilities would be speculative. Therefore, the environmental impacts of potential future cell phone towers are not addressed as part of the Project analysis within this EIR but, as stated above, would be addressed through the separate CEQA documentation to be required for each project by the individual cell phone service providers. However, the Project would also accommodate wireless communication facilities, including antennas (mounted on buildings or stand-alone structures) and equipment shelters. These facilities would be designed to blend with the surrounding environment. Using “stealth design” techniques, antennas can be mounted on buildings; placed within tall architectural features (such as a clock tower, steeple, or entry signage); or strategically placed among a cluster of trees of similar height to render them invisible to the casual observer. Standards for wireless equipment are outlined in Section 2.2.8(Q) of the *Centennial Specific Plan*, which is Appendix 4.0-A of this EIR. The environmental impacts of these facilities located within the Project’s development area are addressed as part of the Project analysis provided throughout this EIR.

### Disruption of Other Utility Services

Existing AT&T facilities within the Project site may be affected through Project development (Exhibit 5.20-2, Centennial Project – Dry Utility Improvements). Approximately 48,000 linear feet of phone lines run throughout the Project site, and access roads to these lines within the Project site would be within future development areas. As a result, these facilities could require relocation or removal. Project development may also necessitate the relocation and/or removal of existing off-site AT&T facilities. Approximately 29,000 linear feet of existing telephone trunk and distribution lines along SR-138 and Gorman Post Road could require relocation or removal. Relocation or conversion of these facilities would be the Project Applicant/Developer's responsibility. As part of coordination between the Project Applicant/Developer and AT&T, and as required by MM 20.4-1 described below, the alternative locations for these relocated/removed telephone lines would be planned to avoid service disruptions and to avoid Project-related impacts to these facilities.

As discussed above, development of the Project could also impact off-site fiber connections to the Litespan 2000 cabinet and require an upgrade of the existing Central Office facility in Lebec. AT&T's implementation of necessary expansion and upgrades that would support the Project would not create significant physical impacts since all such improvements would occur within existing facility structures.

Additionally, it may be necessary to construct temporary overhead and/or underground facilities to provide sources; change the direction of "feed" to accommodate improvement requirements; or remove other facilities (BJ Palmer 2015). The temporary facilities are constructed solely to facilitate installation of the permanent facilities and would be removed with installation of permanent facilities. The location and extent of these facilities is unknown at this time, and would be determined during installation of necessary AT&T infrastructure. However, such temporary AT&T facilities improvements would be constructed entirely within the development area and would therefore not create any physical impacts beyond those addressed elsewhere in this EIR as part of the Project.

AT&T has current easements, franchise rights, and/or prescriptive claims that cover all their existing facilities. AT&T would extend the facilities/lines within existing or proposed road right-of-way areas whenever possible. When not possible, easements would be obtained for facilities placed on private property within the Project site. Any permits or authorizations required for the extension of telephone service to the Project site would be the responsibility of AT&T.

With implementation of MM 20.4-1, there would be less than significant impacts to telephone services and facilities during construction or operation.

### ***Off-Site Impacts***

To provide adequate telephone service for the Project, improvements to AT&T's facilities would occur outside the Project site on lands owned by AT&T (PDF 20.4-1). Potential off-site impacts resulting from upgrades of the Central Office in Lebec would be confined to existing AT&T property within the existing development footprint. The inclusion of these telephone line upgrades were included in the Project description and were included throughout the

Project analysis. As discussed above, ongoing coordination between AT&T and the Project Applicant/Developer, via MM 20.4-1, would help ensure there are no prolonged service disruptions for existing telephone and data users and that relocation or improvement of AT&T facilities is performed in compliance with all AT&T requirements. Therefore, there would be a less than significant impact related to AT&T facilities and services.

The proposed off-site wells may utilize telephone lines. However, the Supervisory Control and Data Acquisition (SCADA) system may also be operated via radio or dedicated telemetry lines. Regardless, this negligible level of additional demand on AT&T services would not affect the ability to serve existing or future telephone demand. Therefore, there would be a less than significant impact to AT&T services, and no mitigation is required.

***Impact Summary:*** The Project would result in less than significant impacts to telephone service and facilities with implementation of PDF 20.4-1 and MM 20.4-1.

## **Mitigation Measures**

**MM 20.4-1** The Project Applicant/Developer shall coordinate with AT&T in the design and implementation of future telecommunications service and facilities within the Project study area to ensure that: (1) no prolonged service disruptions during the extension and upgrading of these services would arise; (2) the nature, design, and timing of telecommunications system improvements are in accordance with AT&T requirements; and (3) the improvements are adequate to serve the proposed land uses.

## **Level of Significance After Mitigation**

Impacts related to telephone service and facilities would be less than significant with implementation of PDF 20.4-1 and MM 20.4-1.

## **5.20.5 CABLE TELEVISION**

### **Relevant Plans, Policies, and Regulations**

No pertinent federal, State, or local plans or policies related to cable television (CATV) service have been identified.

### **Environmental Setting**

CATV service is a free-enterprise system and is open to competition. Local service providers in the vicinity of the Project site include CalNeva Broadband (formerly Rapid Cable) and Time Warner Cable. CalNeva Broadband is a national CATV provider that serves customers in California and throughout the country. CalNeva Broadband currently provides cable television to the Gorman area northwest of the Project site and has indicated a willingness to expand services onto the Project site (BJ Palmer 2015). Time Warner Cable's closest facility is in Castaic, and the company does not currently plan on extending service further

to the north. At this time, the cable provider may be CalNeva Broadband or some other provider.

There are no existing CalNeva Broadband or other CATV facilities located on the Project site. The closest existing trunk and/or distribution facilities are CalNeva Broadband facilities and are located in Gorman, approximately four miles northwest of the Project site. CalNeva Broadband's plant is located north of the Project site in Frazier Park, located approximately eight miles west-northwest of the western boundary of the Project site. CalNeva Broadband has stated they have the capability and capacity to serve the entire Project area and future proposed surrounding developments with video and high speed internet access. However, a Cable Provider has not yet been confirmed.

## Project Design Features

**PDF 20.5-1** According to the Project, cabling for Cable Television (CATV) services would be provided as part of the on-site main utility corridors for dry utilities. The extension of CATV lines would proceed from the nearest location of service from whichever provider is chosen.

## Threshold Criteria

The following criterion from the County of Los Angeles Environmental Checklist is used to establish a threshold to determine the potential for significance. The Project would result in a significant impact to CATV facilities and services if it would:

**Threshold 20-4** Create energy utility (electricity, natural gas, propane) system capacity problems, or result in the construction of new energy facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

## Environmental Impacts

**Threshold 20-4** **Would the project create cable services system capacity problems, or result in the construction of new facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?**

### *On-Site Impacts*

CATV service is not available in the immediate vicinity of the Project site. As such, the Project would place new demands on CATV service and require extension of facilities. Specifically, implementation of the Project would result in an increased demand for both the number of CATV lines and the need for new CATV service infrastructure. As described in PDF 20.5-1, cabling for CATV services would be provided as part of the on-site main utility corridors for dry utilities. The extension of CATV lines would proceed from the nearest location of service from whichever provider is chosen. As part of Project development, CATV service connections would be stubbed to each property line (MM 20.5-1). The physical

environmental impacts related to the implementation of necessary utility infrastructure are addressed as part of the entire Project analyzed in this EIR.

As discussed above, while CalNeva Broadband has the nearest CATV facilities to the Project site, no CATV Provider has been confirmed at this time. CalNeva Broadband has indicated that they have the capability to serve the Project with implementation of necessary infrastructure, including a fiber trunk system along Gorman Post Road in the current road right-of-way to the Project site (BJ Palmer 2015). Extension to the site would follow the route along with the electrical and telephone lines within the Project limits around the north side of Quail Lake. The facilities could also be extended along the SR-138 roadway overhead on the existing pole line, easterly to the initial construction phases of the Project. However, all options are being explored regarding potential CATV providers. Due to the magnitude of the Project's CATV demand, any company wishing to provide service to the Project site would need to provide sufficient evidence regarding their ability to serve the Project before that service provider would be selected. The CATV provider would need to extend fiber facilities providing phone, video, data, and high speed internet access. As a result, the Provider chosen will inherently be able to provide sufficient service and would be a less than significant impact to CATV service.

Coordination is typical between a Project Applicant/Developer and a Utility Provider (MM 20.5-1) in order to avoid any prolonged service disruptions during extension, relocation, and upgrade of services and facilities. This coordination also ensures that the nature, design, and timing of CATV system improvements are adequate to serve the Project's requirements. The construction timing, location, and sizing of these facilities would be coordinated with the CATV Provider, when selected.

There are no existing right-of-way conflicts because there are no CATV lines within the Project site. CATV lines would be extended within existing or proposed road right-of-way areas as part of the on-site main utility corridors for dry utilities, whenever possible, or within franchise areas. Any permits or authorizations required for the extension to the Project site would be applied for and obtained by the CATV Provider. Therefore, there would be less than significant impacts related to the provision of CATV services and facilities.

### ***Off-Site Impacts***

Development of the Project could impact off-site CATV lines near the Service Provider's plant or distribution facilities and may require an upgrade of existing facilities. The cost associated with any upgrade and/or retrofitting of the off-site fiber optic connections is typically the responsibility of the Service Provider, and extension of these facilities to the Project site would also be conducted by the Service Provider. Coordination between the Project Applicant/Developer and the Service Provider, in accordance with MM 20.5-1, and adherence to PDF 20.5-1 described above, would ensure that any impacts related to off-site Project features for CATV services and facilities would be less than significant.

The proposed off-site wells would not include CATV service. Therefore, there would be no impact to CATV services, and no mitigation is required.



**Impact Summary:** The Project would result in less than significant impacts to CATV service and facilities with implementation of PDF 20.5-1 and MM 20.5-1.

## Mitigation Measures

**MM 20.5-1** The Project Applicant/Developer shall coordinate with the Cable Television Service Provider in the design and implementation of future communication service and facilities within the Project study area to ensure that (1) no prolonged service disruptions during the extension and upgrading of these services would arise; (2) the nature, design, and timing of cable system improvements are in accordance with the Cable Service Provider's requirements; and (3) the improvements are adequate to serve the proposed land uses. The cable service connections shall be available at the property lines.

## Level of Significance After Mitigation

Impacts related to cable television service and facilities would be less than significant with implementation of PDF 20.5-1 and MM 20.5-1.

## 5.20.6 REFERENCES

AT&T. 2015. Company Overview. <http://www.att.com/gen/investor-relations?pid=5711>.

BJ Palmer & Associates, Inc. (BJ Palmer). 2015 (August). *Dry Utility Analysis: Centennial, Tejon Ranch Company*. San Juan Capistrano, CA: BJ Palmer (Appendix 5.20-A).

California Assembly. 2002 (July 22). Assembly Bill No. 1493 (Chapter 200): Vehicular emissions; greenhouse gases (Pavely). Sacramento, CA: the State of California.

California Building Standards Commission. 2017a (last access). *California Code of Regulations* (Title 24, Part 6, California Energy Code). Sacramento, CA: CBSC. <https://codes.iccsafe.org/public/document/details/toc/659>.

———. 2017b (last access). *California Code of Regulations* (Title 24, Part 11, California Green Building Standards Code). Sacramento, CA: CBSC. <https://codes.iccsafe.org/public/document/details/toc/657>.

California Energy Commission (CEC). 2017 (May 8, last accessed). Energy Almanac: Supply and Demand of Natural Gas in California. Sacramento, CA: CEC. [http://www.energy.ca.gov/almanac/naturalgas\\_data/overview.html](http://www.energy.ca.gov/almanac/naturalgas_data/overview.html).

———. 2016 (July 27, last update). Energy Almanac: California Electrical Energy Generation, Total Production, by Resource Type (Gigawatt Hours). Sacramento, CA: CEC. [http://www.energy.ca.gov/almanac/electricity\\_data/electricity\\_generation.html](http://www.energy.ca.gov/almanac/electricity_data/electricity_generation.html).

- 
- . 2015. 2014 Monthly Receipts of Crude Oil by Source. Sacramento, CA: CEC.  
[http://energy.ca.gov/almanac/petroleum\\_data/statistics/2014\\_monthly\\_oil\\_source.html](http://energy.ca.gov/almanac/petroleum_data/statistics/2014_monthly_oil_source.html).
- . 2010. *Transportation Energy Forecasts and Analyses for the 2009 Integrated Energy Policy Report* (CEC-600-2010-002-SF). Sacramento, CA: CEC.  
<http://www.energy.ca.gov/2010publications/CEC-600-2010-002/CEC-600-2010-002-SF.PDF>.
- . 2009 (December). *2009 Integrated Energy Policy Report* (Final Commission Report CEC-100-2009-003-CMF). Sacramento, CA: CEC.  
<http://www.energy.ca.gov/2009publications/CEC-100-2009-003/CEC-100-2009-003-CMF.PDF>.
- Los Angeles Department of Water and Power (LADWP). 2016 (September 28). Media Advisory: LADWP Completes Work on 62-Mile Barren Ridge Renewable Transmission Corridor. Los Angeles, CA: LADWP.  
<http://www.tellmeladwp.com/go/doc/1475/2887722/>.
- . 2015 (access date). Barren Ridge Renewable Transmission. Los Angeles, CA: LADWP. [https://ladwp.com/ladwp/faces/wcnav\\_externalId/a-p-brnrnridge-renw-transmsn?\\_adf.ctrl-state=ccrbnnk33\\_4&\\_afLoop=2549723004995](https://ladwp.com/ladwp/faces/wcnav_externalId/a-p-brnrnridge-renw-transmsn?_adf.ctrl-state=ccrbnnk33_4&_afLoop=2549723004995).
- Matthews, D.C. 2006 (December 13). Personal communication. Emails between D.C. Matthews, Senior Project Manager – Network Services (AT&T California) to H.R. Fong, Environmental Planner (BonTerra).
- Peterson, M. 2007 (January 17). Personal communication. Telephone conversation between M. Peterson, Field Engineer (SCE) and H. Fong, Environmental Planner (BonTerra).
- Southern California Edison (SCE). 2016 (access date). About SCE: Company Overview. Rosemead, CA: SCE. <http://www.sce.com/AboutSCE/CompanyOverview/>.
- . 2007b (January 9). Letter from M. Peterson, SCE Field Engineering to C. Estel, BJ Palmer & Associates entitled “Usage Demand for Centennial Development, VTPM #60022 County of Los Angeles”.
- Southern California Gas Company (SoCalGas). 2015 (access date). Company Profile. San Dimas, CA: SoCalGas. <http://www.socalgas.com/about-us/company-info.shtml>.
- . 2008 (July 16). Personal Communication. Email correspondence between J. Russo (Planning Associate, SoCalGas) and J. Neary (Environmental Planner, BonTerra Consulting).
- . 2006 (October 27). Letter from J. Russo, Planning Associate to BonTerra Consulting entitled “Proposed Centennial Specific Plan and Phase One Implementation Draft Environmental Impact Report”.

United States Department of Energy (USDOE). 2016a (June). State Energy Data System (SEDS): 1960 Through 2014 (Complete) (Table C1: Energy Consumption Overview: Estimates by Energy Source and End-Use Sector, 2014 (Trillion Btu). Washington D.C., DC: USDOE.

[http://www.eia.gov/state/seds/sep\\_sum/html/pdf/sum\\_btu\\_1.pdf](http://www.eia.gov/state/seds/sep_sum/html/pdf/sum_btu_1.pdf).

———. 2016b (June). State Energy Data System (SEDS): 1960 Through 2014(Complete) (Table C9: Energy Power Sector Consumption Estimates, 2014 (Trillion Btu). Washington D.C., DC: USDOE.

[http://www.eia.gov/state/seds/sep\\_sum/html/pdf/sum\\_btu\\_eu.pdf](http://www.eia.gov/state/seds/sep_sum/html/pdf/sum_btu_eu.pdf).

## 5.21 CLIMATE CHANGE

### 5.21.1 INTRODUCTION

#### Purpose

The County of Los Angeles Department of Regional Planning Environmental Checklist Form, which has been prepared pursuant to the California Environmental Quality Act (CEQA), requires that greenhouse gas (GHG) emissions issues be evaluated as part of the environmental documentation process. Because the effects of GHG emissions are considered in a global context, that is, global warming and climate change, GHG emissions are generally addressed as a cumulative issue. However, plan-level direct and indirect impacts are also addressed. Growth-inducing impacts and cumulative impacts are described in Sections 6.0 and 7.0 of this Environmental Impact Report (EIR), respectively. Because the topic of climate change is most appropriately considered on a cumulative level, the impact analysis in this EIR section is fundamentally a cumulative analysis. Therefore, the discussion in Section 7.0, Cumulative Impacts, presents a summary of the conclusions of this section.

#### Summary

The County acknowledges the consensus among leading scientists that without action to reduce GHG emissions, climate change due to global warming will pose a considerable threat to the environment and to human health and society (DRP 2015a). The *Final Unincorporated Los Angeles County Community Climate Action Plan 2020* (CCAP) is part of the County General Plan and was adopted along with the General Plan on October 6, 2015.

In accordance with CEQA Guidelines 15183.5(b), the CCAP provides that projects that “demonstrate consistency with applicable CCAP actions can be determined to have a less than significant cumulative impact on GHG emissions and climate change”. The Project’s design concepts are consistent with the CCAP, as summarized in Table 5.21-11, Centennial Project Compliance With Los Angeles County Community Climate Action Plan. The Project’s Green Development Program includes elements specifically created to reduce GHG emissions. These elements are delineated in the analysis below as project design features (PDFs). The analysis of Project consistency with each of the CCAP goals and policies shows that the Project is consistent with the CCAP.

Additional analysis under Threshold 21-1, and in Section 5.8, Land Use, Entitlements, and Planning, and in Table 5.8-1, shows that the Project would not conflict with applicable goals and policies of the Antelope Valley Area Plan (AVAP). Moreover, the analysis under Threshold 21-2 below shows that the Project would not conflict with the Southern California Association of Governments (SCAG) 2012–2035 Regional Transportation Plan Sustainable Communities Strategy (RTP/SCS) and 2016–2040 RTP/SCS.

The quantification of greenhouse gas emissions as calculated through the California Emissions Estimator Model (CalEEMod) Version 2016.3.1 estimates that the Project at buildout in 2035 would have GHG emissions of approximately 244,379 metric tons of carbon dioxide equivalent (MTCO<sub>2e</sub>) per year as shown in Table 5.21-1. Project GHG emissions as

shown in column 2 (Emissions MTCO<sub>2e</sub>) of Table 5.21-1 include quantified reductions from project design features and mitigation measures (e.g., mixed use development community design, solar electricity generation, etc.), as further discussed in Section 5.21.6, Environmental Impacts. This total includes amortized emissions from the construction period, the loss of carbon-sequestering vegetation, and the planting of carbon-sequestering trees.

**TABLE 5.21-1  
OPERATIONAL AND TOTAL GHG EMISSIONS**

<b>GHG Sources</b>	<b>Emissions MTCO<sub>2e</sub></b>	<b>Percent of Operational Emissions</b>
<i>Operational</i>	239,215	
Area	11,297	5%
Energy	49,414	21%
Mobile	160,904	67%
Solid waste	10,214	4%
Water	7,387	3%
<i>Construction</i>	4,490	
Vegetation loss	922	
New trees	-249	
<b>Total</b>	<b>244,379</b>	
<b>AVAQMD Project-Level CEQA Significance Threshold</b>	<b>100,000</b>	
Exceeds threshold?	Yes	
Service population (SP)	80,825	
<b>GHG Efficiency</b>	<b>3.02</b>	
<b>SCAQMD Plan-Level Staff-Proposed GHG Efficiency Threshold (MTCO<sub>2e</sub>/SP/Year)</b>	<b>4.1</b>	
Exceeds threshold?	No	
<b>SCAQMD Project-Level Staff-Proposed GHG Efficiency Threshold (MTCO<sub>2e</sub>/SP/Year)</b>	<b>3.0</b>	
Exceeds threshold?	Yes	
GHG: greenhouse gas; MTCO <sub>2e</sub> /yr: Metric tons of carbon dioxide equivalent per year; AVAQMD: Antelope Valley Air Quality Management District; CEQA: California Environmental Quality Act; SCAQMD: South Coast Air Quality Management District.		
Emissions calculations can be found in Appendix 5.11-A.		

As discussed further in Section 5.21.2, in 2016 the California Supreme Court reviewed a quantitative GHG significance threshold (29% below “Business as Usual”) in a CEQA lawsuit challenging the Newhall master planned community project, and determined that the state agency respondent’s reliance on this quantitative GHG threshold was not appropriate because it was a statewide GHG reduction threshold, and the record lacked substantial evidence in support of the use of this threshold for the particular land use project at issue in that lawsuit. The AVAQMD GHG threshold was adopted, and the SCAQMD GHG threshold

was proposed by staff but never adopted, prior to this Supreme Court decision; neither of these agencies included substantial evidence in the public record justifying the use of their respective quantitative thresholds for particular types of projects. However, for informational purposes, Table 5.21-1 also shows that Project GHG emissions would exceed the AVAQMD 100,000 MTCO<sub>2e</sub> per year project-level threshold. The Project's service population is estimated at 57,150 residents and 23,675 employees for a total of 80,825 at Project buildout. Also, for informational purposes, Table 5.21-1 shows that the Project's GHG efficiency would be 3.02, which would not exceed the SCAQMD-staff-proposed "plan-level" 4.1 GHG efficiency threshold, but would exceed the SCAQMD-staff-proposed "project-level" 3.0 GHG efficiency threshold.

The Project would be consistent with the CCAP, the SCAG 2012–2035 and 2016–2040 RTP/SCS, and regulatory measures designed to reduce GHG emissions. Additionally, the Project is consistent with the SCAQMD's staff's proposed draft efficiency threshold for the AVAP.

As discussed in detail in Section 5.21.6, based on the Project's consistency with the CCAP, the SCAG 2012–2035 and 2016–2040 RTP/SCS, and based on its compliance with applicable GHG-reducing regulatory measures, the Project could be found to have a less than significant impact on GHG. However, climate change is a global phenomenon and the significance of GHG emissions is most appropriately considered on a cumulative level. The Project would emit GHGs at an estimated rate of 244,379 metric tons per year and would contribute to the global inventory of GHGs.

To date, the vast majority of other States and nations have not followed California's lead in mandating GHG emission reductions across a broad spectrum of economic sectors and have not enacted regulations similar to those adopted in California, which already has nearly the lowest level of GHG per capita of any state. The County of Los Angeles has no jurisdictional control or responsibility for GHG reductions in other parts of California, and certainly not in the context of global action. Moreover, due to the County's limited jurisdiction over many GHG reduction measures required in both the CCAP and the RTP/SCS, and with respect to the many GHG-reducing regulatory programs implemented at the State level, the County lacks the requisite level of jurisdiction and control to ensure that all such measures and programs will be fully implemented as planned by third party agencies and private parties. Therefore, because of the global context of GHG emissions which are outside the County's jurisdiction and control, and because of the Project's forecasted GHG emission rate, the project's incremental contribution to the cumulative environmental impact related to GHG emissions is conservatively determined to be cumulatively considerable and this significant cumulative impact would be significant and unavoidable.

All reasonable and feasible measures to maximize project GHG emissions reduction to the greatest extent feasible are described in Section 5.21.7.

## **Section Format**

This section of environmental analysis includes a description of the state of the science of climate change; a discussion of the regulatory setting; a description of the related PDFs

incorporated into the Project to minimize Project impacts; identification of thresholds of significance (or lack thereof); the GHG inventory; and analysis of the Project's potential individual and cumulative effects and identification of significant impacts:

- Introduction
  - Purpose
  - Summary
  - Section Format
  - Global Climate Change
- Relevant Plans, Policies, and Regulations
- Environmental Setting
- Project Design Features
- Threshold Criteria
- Environmental Impacts—A separate analysis is provided for each of the following categories of potential impacts:
  - On-Site Impacts
  - Off-Site Impacts
- Mitigation Measures
- Level of Significance After Mitigation
- References

## **Global Climate Change**

Global climate change is a broad term used to describe any worldwide, long-term change in the Earth's climate. Global climate change refers to an increase in temperatures across the Earth due to human and industrial activity. Climate change, in addition to rising temperatures, can cause other climatic changes, such as a shift in the frequency and intensity of weather events such as rainfall or hurricanes, but it does not necessarily imply that all locations will be warmer. In fact, with global climate change, some locations will have climate patterns that may change in a way that makes the locations colder than average temperatures.

Climate change is a recorded change in the Earth's average weather measured by variables such as wind patterns, storms, precipitation, and temperature. Historical records show that global temperature changes have occurred naturally in the past, such as during previous ice ages. The year 2014 ranks as Earth's warmest year since 1880, and the 10 warmest years in the instrumental record, with the exception of 1998, have now occurred since 2000. The average global temperature has risen about 1.4 degrees Fahrenheit (°F) (0.8 degrees Celsius [°C]) since 1880 (NASA 2015).

The global atmospheric concentration of carbon dioxide (CO<sub>2</sub>), the most abundant GHG, has increased from a pre-industrial (roughly 1750) value of about 280 parts per million (ppm) to a seasonally-adjusted 405.75 ppm in February 2017, primarily due to fossil fuel use, with land use change providing a significant but smaller contribution. The annual CO<sub>2</sub> concentration growth rate during the ten-year period between 1995 and 2005 was larger

than the growth rate from the beginning of continuous direct measurements in 1960 to 2005 (ESRL 2017).

### ***Greenhouse Gases***

GHGs, as defined by the United States Environmental Protection Agency (USEPA) and California Air Resources Board (CARB), include CO<sub>2</sub>, methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>). GHGs are global pollutants and are therefore unlike criteria air pollutants such as ozone (O<sub>3</sub>), particulate matter (respirable particulate matter with a diameter of 10 microns or less [PM<sub>10</sub>] and fine particulate matter with a diameter of 2.5 microns or less [PM<sub>2.5</sub>]), and toxic air contaminants (TACs), which are pollutants of regional and local concern (see Section 5.11, Air Resources, of this EIR). While pollutants with localized air quality effects have relatively short atmospheric lifetimes (generally on the order of a few days), GHGs have relatively long atmospheric lifetimes, ranging from one year to several thousand years. Long atmospheric lifetimes allow for GHGs to disperse around the globe. Therefore, GHG effects are global, as opposed to the local and/or regional air quality effects of criteria air pollutant and TAC emissions.

Global warming potential (GWP) is a term used to indicate, on a pound for pound basis, how much a gas will contribute to global warming relative to how much warming would be caused by the same mass of CO<sub>2</sub>. As the baseline for measuring GWP, CO<sub>2</sub> is considered to have a GWP equal to one. CH<sub>4</sub> and N<sub>2</sub>O are substantially more potent than CO<sub>2</sub> with GWPs of 25 and 298, respectively. (Prior values of 21 and 310 were from the Intergovernmental Panel on Climate Change [IPCC] second assessment report; CARB has adopted the current values from the IPCC's fourth assessment report.) Carbon dioxide equivalent (CO<sub>2</sub>e) is a quantity that enables all GHG emissions to be considered as a group despite their varying GWP. The GWP of each GHG is multiplied by the quantity of that gas to produce CO<sub>2</sub>e.

### ***The Greenhouse Effect***

In a greenhouse, sunlight enters through the glass panels, and the heat from the sunlight is then trapped inside the structure. The Earth's atmosphere acts like a greenhouse by allowing sunlight in, but traps some of the heat that reaches the Earth's surface. When solar radiation from the sun reaches the Earth, much of it penetrates the atmosphere and ultimately reaches the Earth's surface. This solar radiation is absorbed by the Earth's surface and is then re-emitted as heat in the form of infrared radiation. Whereas the GHGs in the atmosphere let solar radiation through, GHGs trap infrared radiation, resulting in the overall warming of the Earth's surface.<sup>1</sup> This phenomenon is referred to as the "greenhouse effect".

Concentrations of major greenhouse gases, such as CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, and water vapor (H<sub>2</sub>O) have been naturally present for millennia at relatively stable levels in the atmosphere, and act to keep temperatures on Earth hospitable. Without these GHGs, the earth's temperature would be too cold for life to exist. With increased human industrial activity, concentrations of certain GHGs have grown dramatically. In the absence of major industrial human activity,

---

<sup>1</sup> Infrared radiation has longer wavelengths than does solar radiation. GHGs reflect radiation with longer wavelengths. As a result, instead of escaping back into space, GHGs reflect much infrared radiation (i.e., heat) back to Earth.



natural processes maintain atmospheric GHG concentrations at relatively stable levels, which have allowed global temperatures to remain at constant levels over the last several centuries. As the concentrations of GHGs have increased as a result of human industrial activity, the amount of infrared radiation that is trapped has increased, thereby increasing the Earth's average temperature.

### **5.21.2 RELEVANT PLANS, POLICIES, AND REGULATIONS**

Many legal requirements applicable to greenhouse gas and climate change continue to be expanded and modified. This subsection presents a summary of applicable international laws (national treaties followed by sub-national agreements), federal laws, regulations and other actions, state laws, regulations, and other actions, and then local (regional and County) laws, regulations and other actions. Many of these legal requirements emerged over time through a combination of executive or agency actions, court decisions, regulations, enacted statutes, and approved plans. This regulatory background discussion includes a broader range of legal authorities than is included in other topical sections; is focused on the most significant of these measures; and based on the continuing evolution of these requirements within each category, is generally organized chronologically from earliest to most recent.

#### **International**

##### ***International Treaties and Other Developments***

The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change. It was adopted in Kyoto, Japan, on December 11, 1997, and entered into force on February 16, 2005. The major feature of the Kyoto Protocol is that it sets binding targets for 37 industrialized countries and the European community for reducing GHG emissions. The targets amount to an average of five percent reduction against 1990 levels over the 2008–2012 five-year period. The major distinction between the Protocol and the Convention is that, while the Convention encouraged industrialized countries to stabilize GHG emissions, the Protocol commits them to do so. Recognizing that developed countries are principally responsible for the current high levels of GHG emissions in the atmosphere as a result of more than 150 years of industrial activity, the Protocol places a heavier burden on developed nations under the principle of “common but differentiated responsibilities” (UN 1997). The United States has not ratified the Kyoto Protocol. A  $\frac{2}{3}$  majority vote in the Senate is required for approval. As long as the United States has not ratified the treaty, it is not subject to its terms and obligations.

Negotiations after Kyoto have continued in an attempt to address the period after the first “commitment period” of the Kyoto Protocol, concluded at the end of 2012. In Durban, South Africa, in 2011, parties to the protocol agreed in principle to negotiate a new comprehensive and legally binding climate agreement by 2015 and to enter it into force for all parties starting from 2020. However, significant divisions remain in determining the parameters of any such new protocol, including its enforcement mechanisms and the degree to which developing economies will begin to be subject to binding emissions targets.

The 21<sup>st</sup> session of the Conference of Parties (COP21) took place from November 30, 2015 to December 11, 2015, in Paris, France. The session included representatives from 196 parties

to the United Nations Framework Convention on Climate Change. Outcomes from COP21 include, but are not limited to, limiting global temperature increase well below 2°C; establishing binding commitments by all parties to make Nationally Determined Contributions (NDC) and to pursue domestic policies aimed at achieving NDCs; and regular reporting by all countries on their emissions and progress made in implementing and achieving their NDCs (UN 2016). The continued commitment of the United States to the Paris Treaty was among the issues addressed in the 2016 Presidential election, with President Trump stating in some contexts his position that the United States should withdraw from the Paris treaty. No such withdrawal proposal has been made by the Trump administration, and a withdrawal request would trigger a multi-year process before taking effect. The timing, terms, and consequences of a full or partial withdrawal request remain speculative at this time.

## **Federal**

### ***Federal Action on Greenhouse Gas Emissions***

In 2002, President George W. Bush set a national policy goal of reducing the GHG emission intensity (tons of GHG emissions per million dollars of gross domestic product) of the U.S. economy by 18 percent by 2012 (NOAA 2002). The goal did not establish any binding reductions. Rather, the USEPA administers a variety of voluntary programs and partnerships with GHG emitters in which the USEPA partners with industries that produce and utilize synthetic gases to reduce emissions of particularly potent GHGs.

### ***April 2007 Supreme Court Ruling***

In *Massachusetts et al. vs. Environmental Protection Agency et al.* (April 2, 2007), the U.S. Supreme Court ruled that the USEPA was authorized by the Clean Air Act to regulate CO<sub>2</sub> emissions from new motor vehicles. The Court did not mandate that the USEPA enact regulations to reduce GHG emissions, but found that the only instances in which the USEPA could avoid taking action were if it found that GHGs do not contribute to climate change or if it offered a “reasonable explanation” for not determining that GHGs contribute to climate change. On December 7, 2009, the USEPA issued an “endangerment finding” under the Clean Air Act, concluding that GHGs threaten the public health and welfare of current and future generations and that motor vehicles contribute to GHG pollution (USEPA 2009a). These findings provide the basis for adopting new national regulations to mandate GHG emission reductions under the Federal Clean Air Act.

### ***Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards***

The USEPA and the Department of Transportation’s National Highway Traffic Safety Administration (NHTSA) have been working together on developing a National Program of regulations to reduce GHG emissions and to improve the fuel economy of light-duty vehicles. On April 1, 2010, the USEPA and NHTSA announced a joint Final Rulemaking establishing standards for 2012 through 2016 model year vehicles. On October 15, 2012, the agencies issued a Final Rulemaking with standards for model years 2017 through 2025. The rules require these vehicles to meet an estimated combined average emissions level of 295 grams

of CO<sub>2</sub> per mile by 2012, decreasing to 250 grams per mile by 2016, and finally to an average industry fleet-wide level of 163 grams per mile in model year 2025. The 2016 standard is equivalent to 35.5 miles per gallon (mpg) and the 2025 standard is equivalent to 54.5 mpg if the levels were achieved solely through improvements in fuel efficiency. The agencies expect, however, that a portion of these improvements will occur due to air conditioning technology improvements (i.e., they will leak less) and due to the use of alternative refrigerants, which would not contribute to fuel economy. These standards would cut GHG emissions by an estimated 2 billion metric tons and 4 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2017–2025). The combined USEPA GHG standards and NHTSA Corporate Average Fuel Economy (CAFE) standards resolve previously conflicting requirements under both federal programs and the standards of the State of California and other States that have adopted the California standards (USEPA 2010b; USEPA and NHTSA 2012).

### ***Heavy-Duty Engines and Vehicles Fuel Efficiency Standards***

In addition to the regulations applicable to cars and light-duty trucks, on August 9, 2011, the USEPA and the NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks, which applies to vehicles from model year 2014 to 2018 (USEPA 2011). USEPA and NHTSA have adopted standards for CO<sub>2</sub> emissions and fuel consumption, respectively, tailored to each of three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to the USEPA, this program will reduce GHG emissions and fuel consumption for affected vehicles between 9 percent to 23 percent.

### ***Additional Federal GHG Rules and Policies***

In addition to the rules and regulations developed with respect to stationary and mobile sources discussed above, various other federal developments have occurred that aim to reduce GHGs from other sources, including land use activities.

### **Energy Independence and Security Act**

On December 19, 2007, the Energy Independence and Security Act of 2007 was signed into law (EISA). Among other key measures, the EISA would do the following, which would aid in the reduction of national mobile and non-mobile GHG emissions:

1. Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard (RFS) requiring fuel producers to use at least 36 billion gallons of biofuel in 2022;
2. Prescribe or revise standards affecting regional efficiency for heating and cooling products, procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances; and
3. Set miles per gallon targets for cars and light trucks and directed the NHTSA to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks. (These were superseded by the NHTSA and USEPA actions discussed above.)

Additional provisions of the EISA address energy savings in government and public institutions, promoting research for alternative energy, additional research in carbon capture, international energy programs, and the creation of “green jobs”.

#### American Recovery and Reinvestment Act

On February 17, 2009, President Obama signed the American Recovery and Reinvestment Act of 2009 (ARRA). ARRA was passed in response to the economic crisis of the late 2000s, with the primary purpose to maintain existing jobs and create new jobs. Among the secondary objectives of ARRA was investment in “green” energy programs, including funding the following through grants, loans, or other funding; private companies developing renewable energy technologies; local and State governments implementing energy efficiency and clean energy programs; research in renewable energy, biofuels, and carbon capture; and development of high efficiency or electric vehicles.

#### ***Council on Environmental Quality National Environmental Policy Act Guidelines on Greenhouse Gases***

On February 18, 2010, the White House Council on Environmental Quality (CEQ) published draft guidance on the consideration of greenhouse gases and climate change for National Environmental Policy Act (NEPA) analyses (CEQ 2010). On December 18, 2014 CEQ released the *Revised Draft Guidance on the Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in NEPA Reviews* (CEQ 2014). Both documents recommend that proposed federal actions that are reasonably expected to directly emit 25,000 million metric tons of carbon dioxide equivalent per year (MMTCO<sub>2e</sub>/year) should prepare a quantitative and qualitative NEPA analysis of direct and indirect greenhouse gas emissions.

The draft guidance provides reporting tools and instructions on how to assess the effects of climate change. The draft guidance does not propose to regulate greenhouse gases. Although CEQ has not yet issued final guidance, various NEPA documents are beginning to incorporate the approach recommended in the draft guidance.

#### ***Voluntary Programs***

The USEPA administers a variety of voluntary programs and partnerships with GHG emitters in which the USEPA partners with industries that produce and utilize synthetic gases to reduce emissions of particularly potent GHGs. For example, the USEPA's National Clean Diesel Campaign (NCDC) promotes diesel emission reduction strategies. The NCDC works to reduce the pollution emitted from diesel engines across the country through the implementation of varied control strategies by working with manufacturers, fleet operators, air quality professionals, environmental and community organizations, and State and local officials to reduce diesel emissions. NCDC activities include: developing new emissions standards for locomotive and marine diesel engines; and promoting the reduction of emissions for existing diesel engines, including use of cleaner fuels, retrofitting and repairing existing fleets, idling reduction among others. The USEPA also administers the State and Local Climate and Energy Program that provides technical assistance, analytical tools, and outreach support to State, local, and tribal governments (USEPA 2017).

**Greenhouse Gas and Climate Policies of the Trump Administration.** President Trump and his senior advisors and appointees, including US Environmental Protection Agency Secretary Scott Pruitt, have stated their intent to halt various regulatory activities to reduce greenhouse gas emissions, including for example, the Climate Action Plan, the Clean Power Plan, and a waiver program allowing California to mandate more stringent emission standards for passenger cars and light duty trucks. Representatives from various states, including California's Governor and Legislative leaders, along with national environmental advocacy groups such as the Natural Resources Defense Council, have stated their intent to sue to block federal agency actions that would postpone or eliminate GHG reduction measures approved by former President Obama, and to consider expansions of state-level GHG reduction measures that are not dependent on federal action. The timing, emission consequences, litigation outcome, and implementation consequences of these types of federal GHG decisions, and the potential for and consequences of enhanced GHG reduction regulatory programs by other entities such as the state of California, remain speculative at this time.

## **Multi-State/Regional Area**

### ***Western Regional Climate Action Initiative***

The Western Regional Climate Action Initiative (WCI) is a partnership among seven States, including California, and four Canadian provinces to implement a regional, economy-wide cap-and-trade system to reduce global warming pollution. The WCI will cap GHG emissions from the region's electricity, industrial, and transportation sectors with the goal to reduce the heat trapping emissions that cause global warming to 15 percent below 2005 levels by 2020. When the WCI adopted this goal in 2007, it estimated that this would require 2007 levels to be reduced worldwide between 50 and 85 percent by 2050. California is working closely with the other States and provinces to design a regional GHG reduction program that includes a cap-and-trade approach. CARB's planned cap and-trade program, discussed below, is also intended to link California and the other member States and provinces. As of January 1, 2014, California's Cap-and-Trade program is linked to Quebec's pursuant to the Agreement Between the California Air Resources Board and the Gouvernement du Québec Concerning the Harmonization and Integration of Cap-and-Trade Programs Reducing Greenhouse Gas Emissions, in accordance with the direction in CARB Board Resolution 13-7 (CARB 2013).

### ***Pacific Coast Action Plan on Climate and Energy***

On October 28, 2013, the Governors of California, Oregon, and Washington and the Premier of British Columbia signed a clean energy pact, known as the Pacific Coast Action Plan on Climate and Energy (Pacific Coast Action Plan). Although the Action Plan does not impose legally enforceable obligations and lacks a specific schedule for implementation, the pact sets out a number of goals and aspirational measures. The Action Plan calls upon each of the parties to undertake a number of measures to address the use of carbon-based fuels in the transportation sector, including the adoption or maintenance of low-carbon fuel standards; the development of targets and action plans in order to encourage public and private investment in low-carbon commercial fleets that use alternative fields; and the expansion of

the sale of zero-emissions vehicles to a goal of ten percent of new vehicle purchases by 2016 (Pacific Coast Collaborative 2013).

## State

California has enacted a variety of legislation relating to climate change, much of which sets aggressive goals for GHG emissions reductions within the state. However, none of this legislation provides definitive direction regarding the treatment of climate change in environmental review documents prepared under CEQA. In particular, the amendments to the State CEQA Guidelines do not require or suggest specific methodologies for performing an assessment or thresholds of significance, and do not specify greenhouse gas reduction mitigation measures. Instead, the CEQA amendments continue to rely on lead agencies to choose methodologies and make significance determinations based on substantial evidence, as discussed in further detail below (CNRA 2009b). Consequently, no State agency has promulgated binding regulations for analyzing GHG emissions, determining their significance, or mitigating any significant effects in CEQA documents. The discussion below provides a brief overview of the Governor's, CARB and California Office of Planning and Research (OPR) policies, of court decisions, and of the legislation that relates to climate change that may affect the emissions associated with the proposed Project.

### ***California Supreme Court Ruling in Center for Biological Diversity v. Department of Fish and Wildlife***

In its recent decision, *Center for Biological Diversity v. Department of Fish and Wildlife*, S217763 (*Newhall*), the Court evaluated the California Department of Fish and Wildlife's (CDFW) analysis of potential impacts caused by GHG emissions contained in the EIR for the proposed land development called Newhall Ranch (California 2015a). In the EIR, the CDFW analyzed GHG emissions under Assembly Bill (AB) 32, using the business-as-usual (BAU) comparison as its sole criterion of significance.

In *Newhall*, the California Supreme Court concluded that a finding of consistency with meeting statewide emission reduction goals is a legally permissible criterion of significance when analyzing potential impacts of GHG emissions under CEQA. However, the Court found that the EIR's conclusion that the project's emissions would be less than significant under that criterion was not supported by substantial evidence, and remanded back to the appellate court the narrow issue of whether substantial evidence supported the application of AB 32 statewide GHG reduction goal of 29 percent to new land use projects.

The Court then identified "potential options" for lead agencies evaluating cumulative significance of a proposed land use development's GHG emissions in future CEQA documents, but the Court was careful to note that there was no "guarantee" that any of these would be sufficient:

We do not, of course, guarantee that any of these approaches will be found to satisfy CEQA's demands as to any particular project; what follows is merely a description of potential pathways to compliance, depending on the circumstances of a given project.

The “potential pathways to compliance” suggested by the Court are as follows:

1. **Business As Usual (BAU) Model:** While the Court cautioned that the Scoping Plan may not be appropriate at the project-level, the BAU model might be used to determine what level of reduction from business as usual a new land use development at the proposed location must contribute in order to comply with statewide goals pursuant to AB 32. The Court specifically directed that reliance on this type of quantitative threshold must be supported by substantial evidence in the record that links the statewide GHG reduction standard to the appropriate GHG reduction standard for the specific type of project under consideration.
2. **Compliance With Regulatory Programs Designed To Reduce Greenhouse Gas Emissions:** The Court suggests that a lead agency could rely on a showing of compliance with regulatory programs designed to reduce greenhouse gas emissions in order to demonstrate consistency with AB 32’s goals. The Court clarifies that a significance analysis based on compliance with such statewide regulations only goes to impacts within the area governed by the regulations.
3. **Local Climate Action Plan Or Other “Geographically Specific Greenhouse Gas Emission Reduction Plans”:** The Court points out that these plans may provide a basis for the tiering or streamlining of project-level CEQA analysis, so long as the plan is “sufficiently detailed and adequately supported.”
4. **Regional Sustainable Community Strategy (SCS):** The Court also articulates that a lead agency need not additionally analyze greenhouse gas emissions from cars and light trucks in CEQA documents for certain residential, mixed use and transit priority projects that are consistent with an applicable SCS adopted pursuant to SB [Senate Bill] 375.
5. **Numerical GHG Significance Thresholds:** Although noting that use of such thresholds are not required, the Court favorably cited to the BAAQMD GHG significance thresholds, based on compliance with AB 32, which use a “service population” GHG ratio threshold for land use projects and a 10,000 ton annual GHG emission threshold for industrial projects. The Court remanded for further consideration the application of the 29 percent overall Scoping Plan metric, which is used by several Air Districts and, like the favorably-cited BAAQMD [Bay Area Air Quality Management District] metric, is based on AB 32.
6. **Executive Order Nos. S-3-05 and B-30-15:** Citing to Executive Order Nos. S-3-05 and B-30-15, the Court cautioned that those EIRs taking a goal-consistency approach to CEQA significance may “in the near future” need to consider the project’s effects on meeting emissions reduction targets beyond 2020.

Following the Supreme Court’s decision in *Newhall*, the EIR at issue in that case was set aside on remand by the lower court. On November 2016, the CDFW released a draft Additional

Environmental Analysis (AEA) intended to address the agency's CEQA compliance obligations (CDFW 2016). The AEA does not respond to the Supreme Court's direction to provide substantial evidence supporting the 29% BAU statutory GHG reduction threshold relied upon by the *Newhall* EIR. The AEA also does not include an assessment of the *Newhall* project's consistency with any of the Court's suggested GHG CEQA compliance pathways, although referenced documentation in the *Newhall* administrative record do include and confirm compliance with each pathway. Instead, as described in the AEA, the *Newhall* project applicant (Five Point LLC) voluntarily modified its project and proposed to achieve "net zero" GHG emissions for the project with the implementation of the project applicant's "zero net emission" proposal, which was made enforceable by the addition of 13 mitigation measures that correspond to the applicant's proposal, as further described in the AEA. The AEA states that the adoption and implementation of the 13 mitigation measures would reduce mobile source, electricity, natural gas, vegetation removal, and construction-related emissions by the amount of emissions estimated for the project and result in no net contributions of GHG emissions from the project, or "zero net emissions." The AEA further concludes that because the project would result in no net increase of GHG emissions after implementation of the mitigation measures, there would be no contribution of GHG emissions to cumulative GHG emissions influencing global climate change and the *Newhall* project would not conflict with any plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs. Consequently, the AEA concludes that project GHG and climate change impacts would be less than significant. (CDFW 2016, pp. 1-18).

### ***Executive Order S-3-05 (Statewide GHG Targets)***

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05, which proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce snowpack in the Sierra Nevada Mountains; could further exacerbate California's air quality problems; and could potentially cause a rise in sea levels. In an effort to avoid or reduce the impacts of climate change, Executive Order S-3-05 calls for a reduction in GHG emissions to the year 2000 level by 2010, to year 1990 levels by 2020, and to 80 percent below 1990 levels by 2050.

Executive orders do not have the same status as a law because in California's constitutional system, it is the Legislature, not the Governor, who is entrusted with the role of making statewide laws (California 1997 [p. 836], 1990). The Legislature declined to include the Executive Order's 2050 goal in AB 32 (discussed below), and again declined to use the EO's 2050 goal in adopting Senate Bill (SB) 375 (discussed below), nor has it incorporated it in any implementing legislation or applicable plans. Additionally, although CARB has the requisite authority to adopt whatever regulations are necessary beyond the AB 32 horizon year 2020 to meet the target set forth in S-3-05, the agency has not done so. Since the Legislature has never enacted EO S-3-05's 2050 target, and no expert agency has interpreted CEQA to require it, the 2050 target has only the force and effect of an executive order issued by a former Governor. There is no authority that suggests that the constitutional authority to establish CEQA significance thresholds resides in the Governor. CEQA is a statute, and the authority to amend and revise its requirements falls first to the Legislature. The Legislature alone has the authority to enact, amend, or revise legislation, absent some express delegation of authority to the Governor or an executive branch agency through statutory enactments



(California 2010 [p. 1015]). If the Legislature has delegated any of its authority to define CEQA's requirements, it delegated that authority to OPR and not to the Governor's office.

Moreover, CARB's Scoping Plan to implement AB 32 looked beyond 2020 to assess whether implementing the Scoping Plan would achieve the State's long-term climate goals and determined that it would do the following (CARB 2008a [p. 117]):

Climate scientists tell us that the 2050 target represents the level of greenhouse gas emissions that advanced economies must reach if the climate is to be stabilized in the latter half of the 21st century. Full implementation of the Scoping Plan will put California on a path toward these required long-term reductions. Just as importantly, it will put into place many of the measures needed to keep us on that path.

The 2014 Scoping Plan Update confirms that "California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32" and it recognizes the potential for California to "reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80 percent below 1990 levels by 2050" (CARB 2014b, p. 2).

However, the 2014 Scoping Plan Update also concludes that additional actions will be needed to continue reducing emissions and meet the 2050 goals in the face of anticipated population and economic growth (CARB 2014b). In fact, significant technological innovation, well beyond the scope of an individual development project, are absolutely necessary components of any plausible path to achieving the EO S-3-05's 2050 target. For example, CARB has concluded that "California must transition to zero and near-zero emission transportation and freight movement technologies" which require expedited completing of "promising new heavy-duty vehicle technologies," and to "encourage additional needed technology innovation" CARB proposes to amend some of its regulatory requirements. [<https://www.arb.ca.gov/msprog/itr/itr.htm>] Similarly, in one of several reports CARB's Advanced Technology to Meet California's Climate Goals: Opportunities, Barriers & Policy Solutions (CARB, 2009) concludes that "(m)eeting California's long-term GHG goals will require the development and deployment of low and zero GHG advanced technologies in addition to the accelerated diffusion of currently available technologies."

These new technology innovations to change transportation engine and fuel technology, and energy generation and storage technology are generally outside the jurisdiction and control of the local government agency such as the County. Achieving these goals will require wholesale shifts in fuel and energy technology, neither of which are currently available, rendering any further analysis of a given development project's impacts relative to the 2050 target too speculative for purposes of determining CEQA significance.

The Court in the *Newhall* decision noted that an analysis of goals beyond 2020 may be necessary for new development; however, Court noted that the target set by EO S-3-05 and the interim goal set in EO B-30-15 (discussed below) were not required significance criteria in analyzing impacts related to GHG emissions and climate change under CEQA for the abovementioned reasons.

### ***Executive Order B-30-15 (Statewide Interim GHG Targets)***

California EO B-30-15 (April 29, 2015) set an “interim” statewide emission target to reduce GHG emissions to 40 percent below 1990 levels by 2030, and directed State agencies with jurisdiction over greenhouse gas emissions to implement measures pursuant to statutory authority to achieve this 2030 target and the 2050 target of 80 percent below 1990 levels. Specifically, the Executive Order directed CARB to update the Scoping Plan to express this 2030 target in metric tons. This new Executive Order is subject to all the same limitations as discussed above for EO S-03-05. However, EO B-30-15 is more specific in its direction to State agencies so it remains to be seen how it will be implemented, and like EO S-3-05, neither CARB nor the legislature have incorporated the target set forth in B-30-15 in any implementing legislation or applicable plans. However, SB 350 was signed into law and (discussed below) it requires the state to double energy efficiency savings in electricity and natural gas by retail customers by 2030 and raises the Renewable Portfolio Standard (RPS) so that half of the state’s electricity must be procured from renewable sources by 2030.

### ***Assembly Bill 32 (Statewide GHG Reductions)***

The California Global Warming Solutions Act of 2006 (AB 32) was signed into law in September 2006 after considerable study and expert testimony before the Legislature (California 2006a). The law instructs CARB to develop and enforce regulations for the reporting and verifying of statewide GHG emissions. The Act directed CARB to set a GHG emission limit based on 1990 levels, to be achieved by 2020. The bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

The heart of the bill is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020. Based on CARB’s calculation of 1990 baseline emissions levels, California must reduce GHG emissions by approximately 28.5 percent below “business-as-usual” predictions of year 2020 GHG emissions to achieve this goal. The bill requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions. Key AB 32 milestones for CARB’s actions include the following:

- **June 30, 2007.** Identification of discrete early action GHG emissions reduction measures. On June 21, 2007, CARB satisfied this requirement by approving three early action measures (CARB 2007a). These were later supplemented by adding six other discrete early action measures (CARB 2007b).
- **January 1, 2008.** Identification of the 1990 baseline GHG emissions level; approval of a statewide limit equivalent to that level; and adoption of reporting and verification requirements concerning GHG emissions. On December 6, 2007, CARB approved a statewide limit on GHG emissions levels for the year 2020 consistent with the determined 1990 baseline (CARB 2007c).
- **January 1, 2009.** Adoption of the Scoping Plan for achieving GHG emission reductions. On December 11, 2008, CARB adopted *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan), discussed in more detail below (CARB 2008a).

- **January 1, 2010.** Adoption and enforcement of regulations to implement the “discrete” actions. Several early action measures have been adopted and became effective on January 1, 2010 (CARB 2007a, 2007b).
- **January 1, 2011.** Adoption of GHG emissions limits and reduction measures by regulation. On October 28, 2010, CARB released its proposed cap-and-trade regulations, which would cover sources of approximately 85 percent of California’s GHG emissions. On October 20, 2011, the Board adopted the final cap-and-trade regulation. The final rulemaking package was approved by the Office of Administrative Law (OAL) on December 14, 2011, with an effective date of January 1, 2012 (CARB 2011a).
- **January 1, 2015.** Cap-and-trade compliance obligations were phased in for suppliers of natural gas, reformulated gasoline blendstock for oxygenate blending (RBOB), distillate fuel oils, and liquefied petroleum gas, with emissions that meet or exceed specified emissions thresholds. Emission offsets are allowed for up to eight percent of a facility’s compliance obligation. According to the 2016 California Climate Investments Annual Report, \$2.6 billion from the Greenhouse Gas Reduction Fund has been appropriated to State agencies, and \$1.7 billion has been awarded to projects (CARB 2016a). CARB has confirmed that the Cap-and-Trade program will continue to be administered after 2020.

As noted above, on December 11, 2008, CARB adopted the Scoping Plan to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California’s GHG emissions. CARB determined that achieving the 1990 emission level would require a reduction of GHG emissions of approximately 28.5 percent below what would otherwise occur in 2020 in the absence of new laws and regulations (referred to as “business as usual”). The Scoping Plan evaluates opportunities for sector-specific reductions; integrates all CARB and Climate Action Team early actions and additional GHG reduction measures by both entities; identifies additional measures to be pursued as regulations; and outlines the role of a cap-and-trade program. The key elements of the Scoping Plan (CARB 2008a) include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85 percent of California’s GHG emissions;
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, including California’s clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State of California’s long-term commitment to AB 32 implementation.

In 2009, a coalition of environmental groups brought a challenge to the Scoping Plan alleging that it violated AB 32 and that the environmental review document (called a “Functional Equivalent Document” [FED]) violated CEQA by failing to appropriately analyze alternatives to the proposed cap-and-trade program. On May 20, 2011, the San Francisco Superior Court entered a final judgment in favor of the coalition and ordered that CARB take no further action with respect to cap-and-trade rulemaking until it complies with CEQA by properly analyzing alternatives in its FED to cap and trade (California 2011). CARB appealed the decision on May 23, 2011 (CARB 2011b). The Appellate Court stayed the Superior Court’s injunction on June 3, 2011. The portions of the Scoping Plan that do not relate to cap and trade remain valid under the Court’s judgment. On June 19, 2012, the California First District Court of Appeal upheld the Scoping Plan and affirmed CARB’s approval of the Scoping Plan as in compliance with AB 32.

In connection with preparation of the supplement to the Functional Equivalent Document, CARB released revised estimates of the expected 2020 emission reductions in consideration of the economic recession and the availability of updated information from development of measure-specific regulations. Consideration of the economic recession and the effectiveness of adopted regulation reduced the projected 2020 BAU emissions from 596 MMTCO<sub>2e</sub> to 545 MMTCO<sub>2e</sub> (CARB 2011c). With the revised 2020 BAU projection, achieving the 1990 emissions level would require a reduction of GHG emissions of 118 MMTCO<sub>2e</sub>, or 21.7 percent (down from 28.5 percent), to achieve in 2020 emissions levels in the BAU condition. CARB also updated its BAU evaluation to account for new laws and regulations mandating GHG reductions that had been implemented subsequent to the original Scoping Plan, such as the cleaner car mandates required by Pavley (vehicle model-years 2009–2016) and the renewable portfolio standard (12 percent–20 percent). Inclusion of these new GHG mandates further reduced the 2020 projected estimate of GHG emissions to 507 MMTCO<sub>2e</sub>. As a result, based on both the economic recession and new GHG reduction implementation mandates, CARB determined in 2011 that achieving the 1990 emission level (and 2020 emissions limit of 427 MMTCO<sub>2e</sub>) would require a reduction of GHG emissions of 80 MMTCO<sub>2e</sub>, or a reduction by approximately 15.8 percent (down from 28.5 percent, but not directly comparable because of the change in methodology) to achieve in 2020 emissions levels in the “business as usual” or NAT condition (CARB 2011d).

CARB approved the final “First Update to the Climate Change Scoping Plan” on May 22, 2014. The first update describes California’s progress towards AB 32 goals, stating that “California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32”. Specifically, “if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts [MW] of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80 percent below 1990 levels by 2050” (CARB 2014b). This first update retains from the October 2013 draft the recalculated 1990 GHG emissions level of 431 MMTCO<sub>2e</sub>, as well as the 509 MMTCO<sub>2e</sub> 2020 “business as usual” or NAT condition (CARB 2014b). Thus, under CARB’s most current document, reducing the “business as usual” or NAT condition of 509 MMTCO<sub>2e</sub> to the 1990 emissions level of 431 MMTCO<sub>2e</sub> will require a reduction of 78 MMTCO<sub>2e</sub>, or approximately a 15.3 percent reduction (compared to a

28.5 percent reduction as set forth in the original Scoping Plan but not directly comparable because of the change in methodology).

CARB is moving forward with a second update to the Scoping Plan to reflect the 2030 target established in Executive Order B-30-15 (CARB 2015a) and in Senate Bill 32 (discussed below).

On January 20, 2017, CARB completed a draft 2030 Target Scoping Plan Update for which an extended public comment process is scheduled for completion in April 2016 (CARB 2016b). CARB estimates that adoption of the final 2030 Target Scoping Plan Update will be considered for approval by the CARB board at a public hearing conducted in Summer 2017. The 2030 Target Scoping Plan Update includes the new statutory GHG reduction requirements that were not included in the current Scoping Plan, including for example Senate Bill 32 (discussed below) which sets a 40% GHG reduction target below 1990 GHG levels to be achieved by 2030, SB 350 (which sets a 50% reduction in GHG emissions from electricity generation and other energy uses in existing structures, and a 50% renewable energy portfolio requirement), and SB 650 (which establishes priority GHG reduction targets for designated types of greenhouse gases such as methane). The key elements of the draft Scoping Plan proposal call for further GHG reductions from the refinery sector specifically, further reductions from other stationary sources through either a renewed and expanded cap and trade or carbon tax program, further reductions from other sectors such as transportation technologies and services, water and solid waste conservation and management, and land uses in both open space and urban areas. The additional state statutory requirements addressed by the draft 2030 Target Scoping Plan Update are described below. Ongoing statutory proposals (e.g., to increase the renewable portfolio standard to 100% instead of 50%, and to adopt and expand cap and trade as a tax rather than fee program), and uncertainties regarding the greenhouse gas reductions requiring federal concurrence or support, may result in modifications to the 2030 Target Scoping Plan Update which are unknown at this time.

### ***Senate Bill 32***

SB 32, signed into law on September 8, 2016, requires CARB to ensure that statewide greenhouse gas emissions are reduced to at least 40 percent below the 1990 statewide greenhouse gas level no later than December 31, 2030. Per SB 32, CARB is to achieve this 2030 GHG reduction target by “adopting rules and regulations to achieve the maximum technologically feasible and cost-effective greenhouse gas emissions reductions[.]” See Health & Safety Code Section 38566. The new SB 32 GHG reduction mandate is the same as the GHG reduction included in Executive Order B-30-15 of 40 percent below 1990 levels by 2030. As discussed above, CARB is the process of preparing the 2030 Target Scoping Plan Update, which is intended to build upon and leverage the framework for achieving California’s GHG reduction mandate established in the initial Scoping Plan and its first update, and to define the state’s climate change priorities for the next 14 years and beyond.

### ***Assembly Bill 197***

AB 197 is a companion to, and was enacted on the same day as, SB 32 (i.e., September 8, 2016). AB 197 adds two non-voting members to the CARB board, establishes certain

qualifications for CARB board membership, and creates a six member Joint Legislative Committee on Climate Change Policies to determine facts and make recommendations to the Legislature regarding California climate change policy. Under AB 197, the CARB Chair is required to appear before this committee on an annual basis and present annual information regarding GHG emissions, toxic air contaminants, and criteria pollutants generated by all economic sectors covered by the Scoping Plan. AB 197 further authorizes the committee to establish an expert panel to independently analyze the State's climate change policies. In addition, AB 197 requires CARB to make available on its website, and updated annually, all GHG emissions, criteria pollutants, and toxic air contaminant information broken down to a local level for stationary sources and sub-county level for mobile sources. AB 197 also obligates CARB, when adopting rules and regulations that achieve emission reductions beyond statewide GHG emission limits to consider "social costs" and to prioritize (a) emissions reductions from large stationary sources of GHG emissions, and (b) direct emission reductions from mobile sources. For purposes of AB 197, "social costs" is defined to mean "an estimate of the economic damages, including, but not limited to, changes in net agricultural productivity; impacts to public health; climate adaptation impacts, such a property damages from increased flood risk; and changes in energy system costs, per metric ton of greenhouse gas emissions per year." Finally, AB 197 requires each Scoping Plan update to identify for each of its emission reduction measures (i) the range of air pollution reductions and GHG emissions reductions projected to result from each measure, and (ii) the cost-effectiveness, including avoided social costs, of each measure.

### ***Senate Bill 375 (Land Use Planning)***

SB 375 became law on (date) and it provides for a new planning process to coordinate land use planning, regional transportation plans, and funding priorities in order to help California meet the GHG reduction goals established in AB 32 (California 2008b). SB 375 requires Metropolitan Planning Organizations (MPOs) relevant to the project area (including SCAG) to incorporate a "sustainable communities strategy" (SCS) in their regional transportation plans (RTPs) that will achieve GHG emission reduction targets set by CARB. SB 375 also includes provisions for streamlined CEQA review for some infill projects such as transit-oriented development. SB 375 will be implemented over the next several years.

SB 375 is similar to the Regional Blueprint Planning Program, established by the California Department of Transportation, which provides discretionary grants to fund regional transportation and land use plans voluntarily developed by MPOs working in cooperation with Councils of Governments. On April 22, 2009, the Metropolitan Transportation Commission (MTC) adopted the 2009 Regional Transit Plan (RTP) with AB 32 goals in mind. The 2012 RTP was SCAG's first plan subject to SB 375. The Scoping Plan, adopted by CARB in December of 2008, relies on the requirements of SB 375 to implement the carbon emissions reductions anticipated from land use decisions.

SB 375 also required CARB to appoint a Regional Targets Advisory Committee (RTAC) to recommend factors for CARB to consider and methodologies for it to use in setting GHG emission reduction targets for each region. The RTAC must include representation from the League of California Cities, the California State Association of Counties, MPOs, developers, planning organizations, and other stakeholders. In January 2009, CARB appointed 21

members to the RTAC. On September 29, 2009, the RTAC released its recommendations to CARB, representing a key step in the establishment of regional targets for inclusion in sustainable community strategies (RTAC 2009). The RTAC recommendations focus largely on the manner in which CARB staff should interact with various stakeholders during the target-setting process, and how staff should use empirical studies and modeling in establishing regional GHG targets.

Following the release of RTAC's recommendations, CARB began the process of developing regional GHG reduction targets (Regional Targets) for the State's MPOs. On September 23, 2010, CARB adopted Regional Targets applying to the years 2020 and 2035 (CARB 2011e). For the area under SCAG's jurisdiction—including the Project area—CARB adopted Regional Targets of 8 percent for 2020 and 13 percent for 2035. On February 15, 2011, the CARB's Executive Officer approved the final targets (CARB 2011f). CARB filed a Notice of Decision two days later on February 17, 2011 (CARB 2011e). CARB is considering further changes to the SB 375 MPO GHG reduction targets, with workshops scheduled in March of 2017 and new targets to be set following CARB approval of the 2030 Scoping Plan Target Update. The new targets will take effect as of the next MPO approval cycle for the Regional Transportation Plan/Sustainable Communities Strategy, which for SCAG will occur in 2020.

### ***Senate Bill 605 and the Short-Lived Climate Pollutant Reduction Strategy***

On September 21, 2014, Governor Jerry Brown signed Senate Bill 605 (SB 605), which requires CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state no later than January 1, 2016. As defined in the statute, short-lived climate pollutant means "an agent that has a relatively short lifetime in the atmosphere, from a few days to a few decades, and a warming influence on the climate that is more potent than that of carbon dioxide." SB 605, however, does not prescribe specific compounds as short-lived climate pollutants or add to the list of GHGs regulated under AB 32. In developing the strategy, CARB must complete an inventory of sources and emissions of short-lived climate pollutants in the state based on available data, identify research needs to address any data gaps, identify existing and potential new control measures to reduce emissions, and prioritize the development of new measures for short-lived climate pollutants that offer co-benefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities. The draft strategy released by CARB in September 2015 focuses on methane, black carbon, and fluorinated gases, particularly hydrofluorocarbons, as important short-lived climate pollutants. The draft strategy recognizes emission reduction efforts implemented under AB 32 (e.g., refrigerant management programs) and other regulatory programs (e.g., in-use diesel engines, solid waste diversion) along with additional measures to be developed. On November 28, 2016, CARB released for 45-day public review and comment its Revised Proposed Short-Lived Climate Pollutant Reduction Strategy and the CARB board will consider its adoption at a public hearing scheduled for March 23 and 24, 2017 (CARB 2016d).

### ***Senate Bills 1078, 107, and SBX1-2 (Renewable Portfolio Standards)***

Established in 2002 under SB 1078 (California 2002b), and accelerated in 2006 under SB 107 (California 2006c) and again in 2011 under SBX1-2 (California 2011b), California's Renewable Portfolio Standard (RPS) requires retail sellers of electric services to increase

procurement from eligible renewable energy resources to 33 percent of total retail sales by 2020. The 33 percent standard is consistent with the RPS goal established in the Scoping Plan (CARB 2008a). As interim measures, the Renewable Portfolio Standards require 20 percent of retail sales to be sourced from renewable energy by 2013 and 25 percent by 2016. Initially, the Renewable Portfolio Standard provisions applied to investor-owned utilities, community choice aggregators, and electric service providers. SBX1-2 added, for the first time, publicly owned utilities to the entities subject to RPS (California 2011b).

### ***Senate Bill 1***

Senate Bill 1 of 2006 (SB 1) established the statewide California Solar Initiative, also required the California Energy Commission (CEC) to implement regulations that require sellers of production homes to offer a solar energy system option to all prospective homebuyers. Besides offering solar as an option to prospective homebuyers, sellers of homes constructed on land for which an application for a tentative subdivision map has been deemed complete on or after January 1, 2011, must disclose to the prospective homebuyer the total installed cost of the solar option, the estimated cost savings associated with the solar energy system option, information about California solar energy system incentives, and information about the Go Solar California website. Sellers of production homes affected by this law may opt for the solar offset program rather than offer solar as an option to prospective homebuyers. The solar offset program requires sellers to install a solar system elsewhere which is equivalent to the aggregate capacity of solar that would have been installed in an affected subdivision if 20 percent of the buyers had opted for the solar option (California 2006d).

### ***Assembly Bill 1109***

Assembly Bill 1109 (AB 1109), the Lighting Efficiency and Toxic Reduction Act, requires the establishment of minimum energy efficiency standards for all general purpose lights. The standards are structured to reduce average statewide electrical energy consumption by not less than 50 percent from the 2007 levels for indoor residential lighting and not less than 25 percent from the 2007 levels for indoor commercial and outdoor lighting by 2018 (California 2007b).

### ***Senate Bill 350***

Senate Bill (SB) 350. Signed October 7, 2015, is the *Clean Energy and Pollution Reduction Act of 2015*. SB 350 is the implementation of some of the goals of EO B-30-15. The objectives of SB 350 are

- (1) To increase from 33 percent to 50 percent, the procurement of our electricity from renewable sources.
- (2) To double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation (California 2015b).

### ***Title 24 Energy Efficiency Standards***

The Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6 of the *California Code of Regulations* [CCR]) were established in 1978 in response to a



legislative mandate to reduce California's energy consumption. The CEC adopted the 2008 changes to the Building Energy Efficiency Standards in order to (1) "Provide California with an adequate, reasonably-priced, and environmentally-sound supply of energy" and (2) "Respond to Assembly Bill 32, the Global Warming Solutions Act of 2006, which mandates that California must reduce its greenhouse gas emissions to 1990 levels by 2020". The current applicable standards are the 2013 Standards, effective July 1, 2014. The 2016 Code went into effect on January 1, 2017 (CBSC 2015). The 2016 code is at least 28 percent more efficient for than the 2013 Code (CEC 2015a). The requirements of the energy efficiency standards result in the reduction of natural gas and electricity consumption. Both natural gas use and electricity generation result in GHG emissions.

### ***Title 24 Green Building Standards***

The 2013 California Green Building Standards Code (24 CCR, Part 11), also known as the CALGreen code, contains mandatory requirements and voluntary measures for new residential and nonresidential buildings (including buildings for retail, office, public schools and hospitals) throughout California (CBSC 2014). The development of the CALGreen Code is intended to (1) cause a reduction in greenhouse gas (GHG) emissions from buildings; (2) promote environmentally responsible, cost effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, the code is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction.

The CALGreen Code contains requirements for construction site selection, storm water control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for the verification that all building systems, such as heating and cooling equipment and lighting systems, are functioning at their maximum efficiency.

The CALGreen Code provides standards for bicycle parking, carpool/vanpool/electric vehicle spaces, light and glare reduction, grading and paving, energy efficient appliances, renewable energy, graywater systems, water efficient plumbing fixtures, recycling and recycled materials, pollutant controls (including moisture control and indoor air quality), acoustical controls, storm water management, building design, insulation, flooring, and framing, among others.

Beyond the mandatory standards, optional Tier 1 status can be achieved by complying with voluntary measures for energy and water efficiency, material conservation, and other design features. An example of a Tier 1 requirement is 12 percent less indoor water use in nonresidential construction. Tier 2 status can be achieved by complying with additional voluntary measures; an example requirement is 20 percent less indoor water use in nonresidential construction.

---

***Executive Order S-01-07 and the Low Carbon Fuel Standard***

Executive Order S-01-07 (January 18, 2007) requires a ten percent or greater reduction (from current transportation fuels) in the average fuel carbon intensity for CARB-regulated transportation fuels in California (California 2007a). CARB identifies the Low Carbon Fuel Standard (LCFS) as a Discrete Early Action item under AB 32.

In 2009, CARB approved for adoption the LCFS regulation, which became fully effective in April 2010 and is codified in the *California Code of Regulations* (CCR, specifically Title 17, Sections 95480–95490). The LCFS will reduce greenhouse gas emissions by reducing the carbon intensity of transportation fuels used in California by at least 10 percent by 2020. Carbon intensity is a measure of the GHG emissions associated with the various production, distribution, and use steps in the "lifecycle" of a transportation fuel. Following a federal lawsuit challenging the LCFS, on September 25, 2015, CARB re-adopted the LCFS regulation (CARB 2015b).

***Assembly Bill 1493 (Mobile Source Reductions)***

Assembly Bill (AB) 1493 required CARB to adopt regulations by January 1, 2005, to reduce GHG emissions from noncommercial passenger vehicles and light-duty trucks of model year 2009 and after (California 2002a). The bill required the California Climate Action Registry (CCAR) to develop and adopt protocols for the reporting and certification of GHG emissions reductions from mobile sources for use by CARB in granting emission reduction credits. The bill authorized CARB to grant emission reduction credits for reductions of GHG emissions prior to the date of the enforcement of regulations, using model year 2000 as the baseline for reduction.

In 2004, CARB applied to the USEPA for a waiver under the Federal Clean Air Act to authorize implementation of these regulations. The waiver request was formally denied by the USEPA in December 2007. In January 2008, the State Attorney General filed a lawsuit against the USEPA challenging the denial of California's request for a waiver to regulate and limit GHG emissions from these vehicles. In January 2009, President Barack Obama issued a directive to the USEPA to reconsider California's request for a waiver, which the USEPA granted on June 30, 2009, as discussed further below (USEPA 2009b). As part of this waiver, the USEPA specified that CARB may not hold a manufacturer liable or responsible for any noncompliance caused by emission debits generated by the manufacturer for the 2009 model year. The emission standards become increasingly more stringent through the 2016 model year. Regulations to make California emissions standards for model year 2017 and beyond consistent with federal standards were adopted in 2012 and are discussed further below.

***CARB's Advanced Clean Cars Program***

In January 2012, CARB approved the Advanced Clean Cars Program, a new emissions-control program for model year 2017 through 2025. The program combines the control of smog, soot and GHGs with requirements for greater numbers of zero-emission vehicles. By 2025, when the rules will be fully implemented, the new automobiles will emit 34 percent fewer global warming gases and 75 percent fewer smog-forming emissions. The program also

requires car manufacturers to offer for sale an increasing number of zero-emission vehicles (ZEVs) each year, including battery electric, fuel cell, and plug-in hybrid electric vehicles.

In December 2012, CARB adopted regulations allowing car manufacturers to comply with California's GHG emissions requirements for model years 2017–2025 through compliance with the EPA GHG requirements for those same model years (CARB 2012).

### **Cap and Trade**

Pursuant to AB 32, CARB was allowed, but not required, to include among mechanisms intended to reduce GHG emissions a "system of market-based declining annual aggregate emission limits". As noted above, CARB developed a Scoping Plan that directed CARB staff to develop, among other programs, a cap-and-trade mechanism that would apply a declining aggregate cap on GHG emissions and provide a flexible compliance system using tradable instruments. On October 20, 2011, CARB adopted the final cap-and-trade regulation (17 CCR Subchapter 10, Article 5). The program imposes a "cap" on the total GHG emissions from covered entities in the state, and the quantity of emissions allowed under the cap will decrease each year, ultimately reaching the goal of returning statewide GHG emissions to 1990 levels by 2020. The quantity of allowed emissions actually increased between 2014 and 2015, but that is to account for the addition of the fuel importers and distributors and additional electricity importers to the program as discussed below. The net effect is to reduce overall GHG emissions.

The cap-and-trade program started on January 1, 2012, and will proceed in "compliance phases", the first of which began on January 1, 2013. In the first phase, the program applies to electric utilities, importers of electricity, and specified industries, including refineries. Approximately 350 electric utilities and approximately 600 industrial facilities were included in the initial phase of the program. On January 1, 2015, cap-and-trade compliance obligations were phased in for suppliers of natural gas, reformulated gasoline blendstock for oxygenate blending (RBOB), distillate fuel oils, and liquefied petroleum gas that meet or exceed specified emissions thresholds. The threshold that triggers a cap-and-trade compliance obligation for a fuel supplier is 25,000 metric tons or more of CO<sub>2e</sub> annually from the GHG emissions that would result from full combustion or oxidation of quantities of fuels (including natural gas, RBOB, distillate fuel oil, liquefied petroleum gas, and blended fuels that contain these fuels) imported and/or delivered to California. Phasing in of cap-and-trade compliance obligations for transportation fuel providers further reduces GHG emissions attributable to mobile sources, beyond the GHG emissions reductions achieved by the Pavley Standard, LCFS, and Advanced Clean Cars Program discussed above. This analysis does not incorporate GHG emissions reductions based on cap-and-trade compliance obligations applicable to transportation fuel suppliers.

### **California Integrated Waste Management Act of 1989**

The California Integrated Waste Management Act of 1989 (*California Public Resources Code*, Sections 40000 et seq.) requires each jurisdiction's source reduction and recycling element to include an implementation schedule that shows (1) diversion of 25 percent of all solid waste by January 1, 1995, through source reduction, recycling, and composting activities and (2) diversion of 50 percent of all solid waste on and after January 1, 2000, through source

reduction, recycling, and composting facilities. Additionally, jurisdictions are not prohibited from implementing source reduction, recycling, and composting activities designed to exceed these requirements.

### ***Assembly Bill 341***

Assembly Bill 341 amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is a policy goal of the State that not less than 75 percent of solid waste generated be source reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the State's policy goal. CalRecycle conducted several stakeholder workshops and published a discussion document in May 2012 titled *California's New Goal: 75 Percent Recycling*, which identifies concepts that CalRecycle believes would assist the State in reaching the 75 percent goal by 2020 (CalRecycle 2016a).

### ***Assembly Bill 1826***

In October 2014 Governor Brown signed AB 1826 Chesbro (Chapter 727, Statutes of 2014), requiring businesses to recycle their organic waste on and after April 1, 2016, depending on the amount of waste they generate per week. This law also requires that on and after January 1, 2016, local jurisdictions across the state implement an organic waste recycling program to divert organic waste generated by businesses, including multifamily residential dwellings that consist of five or more units (however, multifamily dwellings are not required to have a food waste diversion program). Organic waste (also referred to as organics) means food waste, green waste, landscape and pruning waste, nonhazardous wood waste, and food-soiled paper waste that is mixed in with food waste. This law phases in the mandatory recycling of commercial organics over time. In particular, the minimum threshold of organic waste generation by businesses decreases over time, which means an increasingly greater proportion of the commercial sector will be required to comply (CalRecycle 2016b).

### ***California Water Code***

Sections 10910 through 10915 of the *California Water Code* require preparation of a project-specific Water Supply Assessment for developments consisting of 500 or more dwelling units. Sections 10610.4, 10617, and 10620 of the *California Water Code* require urban water suppliers to develop water management plans to actively pursue the efficient use of available supplies.

### ***State Model Water Efficient Landscape Ordinance (MWELO) and Executive Order B-29-15***

The MWELO (23 CCR Division 2, Chapter 2.7) establishes an outdoor water budget for new landscaped areas that are 500 square feet or larger, and rehabilitated landscaped areas that are 2,500 square feet or larger (DWR 2015). Executive Order (EO) B-29-15 called for revisions to the MWELO in order to increase water efficiency standards for new and rehabilitated landscapes through more efficient irrigation systems, greywater usage, on-site storm water capture, and by limiting the portion of landscapes that can be covered in turf. It also established a goal of achieving a statewide reduction in potable urban water usage of

25 percent relative to water use in 2013 (California 2015b). The California Department of Water Resources (DWR) updated the MWEL0 in December 2015 to incorporate these elements and the emergency drought regulations set forth by EO B-29-15, which establish improved efficiency standards for water appliances.

### ***Senate Bill X7-7 (Water Conservation Act of 2009)***

The Water Conservation Act of 2009 sets an overall goal of reducing per-capita urban water use by 20 percent by December 31, 2020. The State is required to make incremental progress toward this goal by reducing per-capita water use by at least 10 percent by December 31, 2015. This is an implementation measure of the Water Sector of the AB 32 Scoping Plan. Reduction in water consumption directly reduces the energy necessary and the associated emissions to convey, treat, and distribute the water; it also reduces emissions from wastewater treatment.

The DWR adopted a regulation on February 16, 2011, that sets forth criteria and methods for exclusion of industrial process water from the calculation of gross water use for purposes of urban water management planning. The regulation would apply to all urban retail water suppliers required to submit an Urban Water Management Plan, as set forth in the *California Water Code* (specifically, Division 6, Part 2.6, Sections 10617 and 10620).

### ***CARB Airborne Toxic Control Measures and Emission Standards***

CARB adopted an airborne toxic control measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter (PM) and other toxic air contaminants, and promulgated emission standards for off-road diesel construction equipment such as bulldozers, loaders, backhoes, and forklifts, as well as many other self-propelled off-road diesel vehicles.

### ***Senate Bill 97 (State CEQA Guidelines)***

SB 97 required OPR to prepare amended the State CEQA Guidelines for submission to the California Natural Resources Agency (CNRA) regarding GHG analysis and feasible mitigation of the effects of GHG emissions as required by CEQA. These amendments became effective as of March 18, 2010. The adoption of SB 97 and subsequent CEQA amendments are widely recognized as confirmation that lead agencies are required to include an analysis of climate change impacts in CEQA documents.

### ***CEQA Amendments***

Pursuant to SB 97, OPR developed proposed amendments to the State CEQA Guidelines (CEQA Amendments) for the feasible mitigation of GHG emissions and their effects, which it first submitted to the Secretary of the CNRA on April 13, 2009. After a public review and comment period, on December 30, 2009, the CNRA adopted the CEQA Amendments, which became effective on March 18, 2010.

The CEQA Amendments for Greenhouse Gas Emissions state in Section 15064.4(a) that lead agencies should “make a good faith effort, to the extent possible on scientific and factual data, to describe, calculate or estimate” GHG emissions. The CEQA Amendments note that an

agency may identify emissions by either selecting a “model or methodology” to quantify the emissions or by relying on “qualitative analysis or other performance based standards” (CNRA 2009b). Section 15064.4(b) provides that the lead agency should consider the following when assessing the significance of impacts from GHG emissions on the environment (CNRA 2009b):

- The extent a project may increase or reduce GHG emissions as compared to the environmental setting.
- Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
- The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

In addition, Section 15064.7(c) of the CEQA Amendments specifies that “[w]hen adopting thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence” (CNRA 2009b). Similarly, the revisions to Appendix G, Environmental Checklist Form, which is often used as a basis for lead agencies’ selection of significance thresholds, does not prescribe specific thresholds. Rather, Appendix G asks whether the project would conflict with a plan, policy or regulation adopted to reduce GHG emissions or would generate GHG emissions that would significantly affect the environment, indicating that the determination of what is a significant effect on the environment should be left to the lead agency.

Accordingly, the CEQA Amendments do not prescribe specific methodologies for performing an assessment; they do not establish specific thresholds of significance; and they do not mandate specific mitigation measures. Rather, the CEQA Amendments emphasize the lead agency’s discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA (CNRA 2009b).

The CEQA Amendments indicate that lead agencies should consider all feasible means, supported by substantial evidence and subject to monitoring and reporting, of mitigating the significant effects of GHG emissions. As pertinent to the Project, these potential mitigation measures, set forth in Section 15126.4(c), may include (1) measures in an existing plan or mitigation program for the reduction of GHG emissions that are required as part of the lead agency’s decision; (2) reductions in GHG emissions resulting from a project through implementation of project design features; (3) off-site measures, including offsets, to mitigate a project’s emissions; and (4) carbon sequestration measures (CNRA 2009b).

Among other things, the CNRA noted in its Public Notice for these changes that impacts of GHG emissions should focus on the cumulative impact on climate change. The Public Notice states (CNRA 2009c):

While the Proposed Amendments do not foreclose the possibility that a single project may result in greenhouse gas emissions with a direct impact on the environment, the evidence before [CNRA] indicates that in most cases, the impact will be cumulative. Therefore, the Proposed Amendments emphasize that the analysis of greenhouse gas emissions should center on whether a project's incremental contribution of greenhouse gas emissions is cumulatively considerable.

Thus the CEQA Amendments continue to make clear that the significance of greenhouse gas emissions is most appropriately considered on a cumulative level.

## **Other Potentially Applicable State Regulations or Policies**

### ***Executive Order S-13-08***

On November 14, 2008, Governor Schwarzenegger issued Executive Order S-13-08 instructing California agencies to assess and prepare for the impacts of rising sea level associated with climate change (California 2008c).

The resulting 2009 California Climate Adaptation Strategy (CAS) report was developed by the CNRA in coordination with the Climate Action Team (CAT). The report presents the best available science relevant to climate impacts in California and proposes a set of recommendations for California decision-makers to assess vulnerability and promote resiliency in order to reduce California's vulnerability to climate change. Guidance regarding adaptation strategies is general in nature and emphasizes incorporation of strategies into existing planning policies and processes.

In addition to requiring the CAT to create a Climate Adaptation Strategy, Executive Order S-13-08 ordered the creation of a comprehensive Sea Level Rise Assessment Report. The report, published in June 2012, indicates that the sea level along most of California's coast is expected to rise about one meter over the next century and is likely to increase the risk of damage in the form of flooding, coastal erosion, and wetland loss due to storm surges and high waves. The sea level increase is slightly higher than projected for global sea levels (National Research Council 2012).

Executive Order S-13-08 also called for the California Ocean Protection Council (OPC) to work with the other CAT State agencies to develop interim guidance for assessing the potential impacts of sea level rise due to climate change in California. In coordination with National Academy of Sciences (NAS) efforts, the OPC drafted interim guidance recommending that State agencies consider a range of sea level rise scenarios for the years 2050 and 2100 in order to assess project vulnerability, reduce expected risks, and increase resiliency to sea level rise. The draft resolution and interim guidance document is consistent with the Ocean Protection Act (*California Public Resource Code*, Division 26.5, Section 35615[a][1]), which specifically directs the OPC to coordinate activities of State agencies to improve the effectiveness of State efforts to protect ocean resources (CNRA 2014; Sea Level Rise Task Force 2010). An update to the 2009 CAS report, the final "Safeguarding California Plan", was published in July 2014.

***Assembly Bill 1613 (Waste Heat and Carbon Emissions Reduction Act)***

AB 1613 directed the CEC, the California Public Utilities Commission (CPUC), and CARB to implement the Waste Heat and Carbon Emissions Reduction Act, which is designed to encourage development of new combined heat and power (CHP) systems in California with a generating capacity of not more than 20 megawatts. In June 2010 and updated in 2015, the CEC published modified final guidelines establishing technical criteria for eligibility of CHP systems for programs to be developed by the CPUC and publicly owned utilities (CEC 2015b). Section 2840 of the Act provides that the CEC's guidelines require that CHP systems:

- Be designed to reduce waste energy;
- Have a minimum efficiency of 60 percent;
- Have nitrogen oxides (NO<sub>x</sub>) emissions of no more than 0.07 pound per megawatt-hour;
- Be sized to meet the eligible customer generation thermal load;
- Operate continuously in a manner that meets the expected thermal load and optimizes the efficient use of waste heat; and
- Be cost-effective, technologically feasible, and environmentally beneficial.

As directed by AB 1613, the CPUC also established (1) a standard tariff for the sale of electricity to electricity corporations for delivery to the electrical grid and (2) a "pay as you save" pilot program requiring electricity corporations to finance the installation of qualifying CHP systems by non-profit and government entities. A January 2011 decision by an administrative law judge determined that the pilot program will not be established due to lack of customer interest and difficulties in instituting a program that meets California Department of Corporations requirements (Decision 11-01-010 Before the Public Utilities Commission of the State of California 2011).

***Executive Order B-16-12***

On March 23, 2012, Governor Brown issued EO-B-16-12, which orders CARB, the CEC, the CPUC, and other relevant agencies to facilitate the rapid commercialization of zero-emission vehicles (ZEVs), and sets a target for the number of ZEVs in California at 1.5 million by 2025. The Executive Order also directs that the California's state vehicle fleet increase the number of its ZEVs through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles be zero-emission by 2015 and at least 25 percent by 2020. Further, the Executive Order also sets a target for a reduction of GHG emissions from the transportation sector equaling 80 percent less than 1990 levels by 2050.

***Senate Bill 391 and California Transportation Plan 2040***

On October 11, 2009, Governor Brown signed into law SB 391, which directs the California Department of Transportation (Caltrans) to update the California Transportation Plan to address how the state will achieve maximum feasible emissions reductions in order to attain



a statewide reduction of GHG emissions to 1990 levels by 2020 and 80 percent below 1990 levels by 2050. Per SB 391, the California Transportation Plan update must be adopted by December 31, 2015 and updated every five years thereafter. Pursuant to SB 391, in June 2016, Caltrans adopted California Transportation Plan 2040 (CTP 2040), which provides a long-range policy framework to meet future statewide mobility needs and reduce greenhouse gas emissions for the transportation sector. (Caltrans 2016a) The CTP 2040 outlines goals and recommendations to achieve a safe, sustainable, accessible, and competitive transportation system that provides reliable mobility while meeting the state's GHG reduction goals over a 20 year planning horizon. Per SB 391, the CTP 2040 is scheduled to be updated every five years, starting in 2021.

### ***Executive Order B-32-15 and the California Sustainable Freight Action Plan***

Executive Order B-32-15 (July 17, 2015) requires the California State Transportation Agency, the California Environmental Protection Agency, the California Natural Resources Agency, CARB, Caltrans, the California Energy Commission, and the Governor's Office of Business and Economic Development to develop an integrated action plan by July 2016 to establish clear targets to improve freight efficiency and transition to zero-emission technologies, and to identify state policies, programs, and investments to meet these targets. Pursuant to Executive Order B-32-15, in July 2016, the participating agencies published the California Sustainable Freight Action Plan (Freight Action Plan) (CARB 2016b). The Freight Action Plan recommends a high-level vision for a sustainable freight transportation system and 11 guiding principles for state agencies to utilize when developing specific policies, investments, and programs related to the California freight transportation system. The Freight Action Plan also establishes targets to (i) improve freight system efficiency 25 percent by increasing the value of goods and services produced from the freight sector relative to amount of carbon that it produces by 2030, and (ii) deploy over 100,000 freight vehicles and equipment capable of zero emission operation and to maximize near-zero emission freight vehicles and equipment powered by renewable energy by 2030. Per the Freight Action Plan, its targets are not mandates, but rather aspirational measures of progress toward sustainability for the State to meet and try to exceed; under the plan, state agencies will measure and report progress on the statewide Freight Action Plan targets, and evaluate the targets to determine necessary adjustments.

### ***California 2016 Mobile Source Strategy***

On May 16, 2016, CARB published the updated Mobile Source Strategy 2016, which establishes a comprehensive statewide strategy to reduce emissions from mobile sources to meet climate change and air quality goals over a fifteen year planning horizon. (CARB 2016c) The Mobile Source Strategy sets forth several measures CARB is proposing to achieve its mobile source emission reduction goals, including a heavy-duty low NOx engine standards and a "last-mile" delivery regulation that would require the use of low-NOx engines as a stepping stone to zero-emission trucks. The Mobile Source Strategy also provides a framework to inform updates to the State Implementation Plan strategy, the California Sustainable Freight Action Plan, and the Short-Lived Climate Pollution Reduction Strategy, and revises the Advance Clean Transit strategy to include low-NOx engines to transit busses. Additional mobile source emission reduction measures described in the Mobile Source

Strategy include: expanding the requirements for cleaner low carbon fuels; incentives for the turnover of equipment and fleets to the cleanest technologies; pilot studies to demonstrate new clean technologies; programs to ensure that emission control systems remain durable over vehicle lifetimes.

### ***California New Residential Zero Net Energy Action Plan***

In June 2015, the California Energy Commission and the California Public Utilities Commission jointly published the *California New Residential Zero Net Energy Action Plan 2015-2020* (ZNE Plan) (CEC 2015c). The ZNE Plan is designed to operationalize the State's goal to have 100% of new homes achieve zero net energy (ZNE) by establishing guiding principles for establishing a regulatory framework achieving that goal by 2020 (CEC 2015c). Starting in 2008, the Title 24 energy efficiency requirements for residential homes have been periodically ratcheted up with the objective of eventually achieving the ZNE goal, with updates adopted in 2013 (effective 2014) and 2016 (effective 2017). With each update, the Title 24 standards efficiency requirements have increased at a rate of 12-15% in each cycle. The 2016 standards that went into effect on January 1, 2017 get still closer to ZNE by requiring, for example, high efficiency lighting, high efficiency walls and attics with increased continuous insulation, and high efficiency water heating systems. According to the ZNE Plan, the 2019 update to Title 24 (effective 2020) will require full ZNE for all new residential construction.

## **Regional**

### ***Antelope Valley Air Quality Management District***

The AVAQMD has adopted GHG emissions requirements into the appropriate Rules and Regulations. The AVAQMD's *CEQA and Federal Conformity Guidelines* (2011) establishes a CEQA significance threshold of 100,000 tons (90,718 metric tons) of CO<sub>2e</sub> per year for GHG emissions, as discussed in Section 5.21.6, Environmental Impacts.

### ***South Coast Air Quality Management District***

On December 5, 2008, the SCAQMD Governing Board adopted its staff proposal for an interim CEQA GHG significance threshold for projects where the SCAQMD is the lead agency (SCAQMD 2008). Currently, the SCAQMD Governing Board has only adopted thresholds relevant to industrial (stationary source) projects. To achieve a policy objective of capturing 90 percent of GHG emissions from new residential/commercial development projects and implement a "fair share" approach to reducing emission increases from each sector, SCAQMD staff have proposed as a draft approach combining performance standards and screening thresholds. At this time, the SCAQMD has not adopted any significance thresholds for new residential, commercial, or mixed use development projects, but has proposed several draft thresholds over the last few years. The SCAQMD's latest iteration of proposed thresholds, as introduced in September 2010 (SCAQMD 2010), are discussed in Section 5.21.6, Environmental Impacts.

Since sharing the proposed approach to CEQA significance at its GHG CEQA Significance Threshold Stakeholder Working Group meeting in September 2010, the SCAQMD has

cancelled all subsequent meetings and no schedule has been issued for how or when thresholds will be established. The Working Group has not convened since the fall of 2010. As of the preparation of this Draft EIR, the proposal has not been considered or approved for use by the SCAQMD Board.

### ***Southern California Association of Governments***

As described above, SB 375 requires the MPOs to prepare a Sustainable Communities Strategy (SCS) in their regional transportation plan. SCAG's SCS is included in the SCAG 2012–2035 Regional Transportation Plan Sustainable Communities Strategy (RTP/SCS) (SCAG 2012a). The document was adopted by SCAG in April 2012. The goals and policies of the RTP/SCS that reduce vehicle miles traveled (VMT) focus on transportation and land use planning that include building infill projects, locating residents closer to where they work and play and designing communities so there is access to high quality transit service. The 2012–2035 RTP/SCS is expected to reduce per capita transportation emissions of 9 percent by 2020 and 16 percent by 2035. In June of 2012, CARB accepted SCAG's determination that the Final RTP/SCS would meet the region's GHG reduction target.

SCAG's SCS is now included in its 2016–2040 RTP/SCS. The document was adopted by SCAG on April 7, 2016. The 2016–2040 RTP/SCS is expected to reduce per capita transportation emissions by 8 percent by 2020 and by 18 percent by 2035 (SCAG 2016a).

### ***Metro Countywide Sustainability Planning Policy and Implementation Plan***

The *Metro Countywide Sustainability Planning Policy and Implementation Plan*, approved in December 2012, builds upon existing federal, State, regional, and local sustainability policies and plans. This policy serves as a guidance and implementation tool to increase coordination and collaboration across transportation modes, planning disciplines, and government agencies. The main goals of this policy are to improve air quality and increase transportation choices in Los Angeles County (Metro 2012).

### ***Metro Complete Streets Policy***

The *Metro Complete Streets Policy* was developed by the Los Angeles County Metropolitan Transportation Authority (Metro) in October 2014, and serves as a standard for comprehensive, multimodal transportation system design in Los Angeles County. This policy uses the existing policies established by the *Metro Countywide Sustainability Planning Policy and Implementation Plan* and builds upon them by clarifying and adding goals. These goals further encourage a multimodal transportation system by promoting active transportation, and add goals similar to those of the CTP 2040 by encouraging safety and healthy, equitable communities (Metro 2014).

## **Local – Los Angeles County**

### ***Countywide Energy and Environmental Policy***

The Countywide Energy and Environmental Policy (Policy) was adopted by the Los Angeles County Board of Supervisors on January 16, 2007, to provide guidelines for the development and enhancement of energy conservation and environmental programs within County

departments. The Policy was also the County's response for the need for energy conservation and reduction in GHG emissions. It directs the County to track its GHG emissions with the California Climate Action Registry, and to reduce its facilities' energy consumption by 20 percent by the year 2015. Under this policy, the Los Angeles County Energy Program (LACEP) provides financing for energy efficiency or solar improvements, and the County's Capital Project Program requires all new County buildings (i.e., greater than 10,000 square feet) to be Leadership in Energy and Environmental Design (LEED™) Certified at the Silver Level (CCAR 2009a).

Revisions to the Policy, adopted on June 30, 2015, enhance the County's existing and future policies programs, and reporting with regard to environmental sustainability. Further, the 2015 revisions established a County Sustainability Council with responsibilities that include, but are not limited to, developing consistent approaches and metrics to provide County services in an environmentally sustainable manner and leading efforts to acquire funding for countywide or regional sustainability programs (LACISD 2015).

Additionally, the County has pledged to be a "Cool County" by establishing a GHG emissions footprint; developing a GHG mitigation plan; working with local entities to reduce regional GHGs by 80 percent by 2050; and supporting federal legislation to raise CAFE standards. In addition, the County has implemented various internal programs on energy conservation; water conservation; waste reduction and recycling; green purchasing and contracting; and alternative fuel vehicle purchasing. On January 13, 2009, the County created an action plan for developing a Comprehensive Renewable Energy Program to develop renewable energy projects on existing County facilities and properties.

In 2009, the Los Angeles County Board of Supervisors directed the Chief Executive Officer (CEO) to take actions toward the use of renewable energy. The actions focused upon cost-benefit analyses. The CEO was directed to examine the practicality of Los Angeles County offsetting between 10 percent and 100 percent of current electrical needs through the use of renewable energy, including the purchase of renewable energy credits. The CEO was also instructed to compare costs and benefits of purchasing electricity from renewable energy sources to the costs and benefits of investing money in improving the energy efficiency of the County's operations.

The CEO provided a report to the County with a proposal to include (1) a cost analysis feasibility assessment; (2) recommendations regarding constituent-focused initiatives to be included in the Program; (3) an analysis of community choice aggregation, home energy audits, financing of residential renewable energy products, and other initiatives as deemed appropriate. The May 5, 2014 Energy & Environmental Policy Report #9 updated the accomplishments and activities of the County Office of Sustainability. The Report identified the creation of the Los Angeles County Energy Program, which is a comprehensive home energy retrofit program, and staff training sessions to promote sustainable construction and building operations (LACISD 2014).

### ***Los Angeles County General Plan***

The Los Angeles County 2035 General Plan and Programmatic EIR were adopted by the Los Angeles County Board of Supervisors on October 6, 2015. There are five Guiding Principles

that serve as the foundation of the General Plan and all future growth within the County. The Guiding Principles are to (1) employ smart growth; (2) ensure community services and infrastructure are sufficient to accommodate growth; (3) provide the foundation for a strong and diverse economy; (4) promote excellence in environmental resource management; and (5) provide healthy, livable, and equitable communities (DRP 2015b). In addition to the Guiding Principles, the General Plan provides the policy framework for how and where the unincorporated County will grow through the year 2035, while recognizing and celebrating the County's wide diversity of cultures, abundant natural resources, and status as an international economic center. The Los Angeles County 2035 General Plan accommodates new housing and jobs within the unincorporated areas in anticipation of population growth in the County and the region (DRP 2014). The Final EIR addresses the environmental effects associated with the implementation on the Los Angeles County 2035 General Plan. The FEIR finds that Greenhouse Gas Emissions Impacts would be significant and unavoidable without the implementation of Community Climate Action Plan (DRP 2014).

### ***Los Angeles County Community Climate Action Plan***

The *Final Unincorporated Los Angeles County Community Climate Action Plan 2020* (CCAP) is part of the County General Plan under the Air Quality Element and was adopted along with the General Plan on October 6, 2015. The County acknowledges the consensus among leading scientists that without action to reduce GHG emissions, climate change due to global warming will pose a considerable threat to the environment and to human health and society (DRP 2015a).

The CCAP is being implemented by the County to mitigate and avoid GHG emissions associated with community activities in unincorporated Los Angeles County. The CCAP addresses emissions from building energy, land use and transportation, water consumption, and waste generation. The measures and actions outlined in the CCAP tie together with the County's climate change initiatives and provides a blueprint for a more sustainable future. To reduce the impacts of climate change, the County has set a target to reduce GHG emissions from community activities in the unincorporated areas of Los Angeles County by at least 11 percent below 2010 levels by 2020, which is consistent with AB 32 targets. The CCAP describes the County's plan for achieving this goal, including specific strategy areas for each of the major emissions sectors, and provides details on the 2010 and projected 2020 emissions in the unincorporated areas.

The actions in the CCAP are priority actions and intended for near-term implementation such that the County can achieve its GHG reduction goal for 2020 for the unincorporated areas of Los Angeles County. The County has designated a CCAP Implementation Team (CIT) to lead and coordinate the County's efforts on CCAP implementation, monitoring, and plan updates. The following is a list of general implementation steps that the County will undertake to implement each CCAP local action.

- Develop implementation plans for each CCAP action
- Estimate project-specific costs
- Adopt or update ordinances and/or codes

- Establish partnerships
- Pursue funding sources
- Create monitoring/tracking processes and indicators
- Engage the community and stakeholders in CCAP action implementation

The environmental impacts associated with implementation of the CCAP were analyzed in the *Los Angeles County General Plan Update Environmental Impact Report* (SCH# 2011081042) certified by the County on October 6, 2015.

### ***Los Angeles County General Plan and Antelope Valley Area Plan***

The *Los Angeles County General Plan* and the *Antelope Valley Area Plan* (AVAP) include goals and policies that address greenhouse gases in the unincorporated County. The AVAP goals and policies applicable to the analysis of greenhouse gas emissions with Project implementation are listed below.

**Goal LU 5:** A land use pattern that decreases greenhouse gas emissions.

**Policy LU 5.1:** Ensure that development is consistent with the Sustainable Communities Strategy adopted in 2012, an element of the Regional Transportation Plan developed by the Southern California Association of Governments.

**Policy LU 5.2:** Encourage the continued development of rural town centers that provide for the daily needs of surrounding residents, reducing the number of vehicle trips and providing local employment opportunities.

**Policy LU 5.3:** Preserve open space areas to provide large contiguous carbon sequestering basins.

**Policy LU 5.4:** Ensure that there is an appropriate balance of residential uses and employment opportunities within close proximity of each other.

**Goal COS 17:** Buildings are sustainable, conserving energy, water, and other resources, and limiting greenhouse gas emissions.

**Policy COS 17.1:** Promote green building techniques for the construction and operation of public and private buildings in the unincorporated Antelope Valley.

**Policy COS 17.2:** Require that new buildings be sited and designed in a manner that maximizes efficient use of natural resources, such as air and light, to reduce energy consumption, heat profiles, and greenhouse gas emissions.

**Policy COS 17.4:** Promote the use of individual renewable energy systems and require appropriate development standards for such systems to minimize potential impacts to surrounding properties. Simplify the permitting process for individual renewable energy systems that meet these development standards.

**Policy COS 17.5:** Protect active and passive solar design elements and systems from shading by neighboring structures and trees through appropriate development standards.

**Policy COS 17.6:** Require new landscaping to comply with applicable water efficiency requirements in the County Code.

**Policy COS 17.7:** Require low-flow plumbing fixtures in all new developments.

**Policy COS 17.9:** Require reduction, reuse, and recycling of construction and demolition debris.

### ***Los Angeles County Green Building Standards Code (Title 31)***

In November 2013, the Board of Supervisors adopted the Los Angeles County Green Building Standards Code (Title 31) in response to the mandates set forth in the CALGreen Code (2010 Green Building Standards Code) (CBSC 2014). Title 31 became effective on January 1, 2014. Title 22 (Planning and Zoning Code) Green Building and Drought Tolerant Landscaping requirements are now found in Title 31. The purpose of Title 31 is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts that have a reduced negative impact or positive environmental impact and that encourage sustainable construction practices in planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental air quality (Title 31 of the Los Angeles County Code). Notably, Title 31 requires nonresidential buildings that are equal to or greater than 25,000 square feet (sf) to comply with the CALGreen Code (specifically, Section A5.601.2.4, Voluntary measures for CALGreen Tier 1). These measures include, but are not limited to, requirements for energy efficiency, parking for fuel-efficient vehicles, cool roofs, reduction of indoor potable water use, recycled content of construction materials, reduction in construction and demolition waste, and thermal insulation (Los Angeles County 2016).

The County's drought-tolerant landscaping requirements establish minimum standards for the design and installation of landscaping using drought-tolerant plants and native plants that require minimal use of water. These requirements include the following: (1) a minimum of 75 percent of total landscaped area must utilize non-invasive drought-tolerant plant and tree species appropriate for the climate zone region; (2) a maximum of 25 percent of landscaped areas may be turf grass; and (3) hydrozoning irrigation techniques shall be incorporated into the landscape design. Title 31 also establishes low-impact development (LID) standards for new construction that would conserve water, energy, and natural resources; divert waste from landfills; minimize impacts to existing infrastructure; and promote a healthier environment (County of Los Angeles 2016a).

### ***Los Angeles County Tree Planting Ordinance (Title 22)***

On March 29, 2016, the Board of Supervisors adopted the Tree Planting Ordinance that does the following (DRP 2016b):

- Amended Title 22 (Planning and Zoning) of the Los Angeles County Code ("County Code") to establish tree planting requirements for new projects and

- Amended Title 21 (Subdivisions) and Title 22 (Planning and Zoning) of the County Code to repeal drought tolerant landscaping and green building requirements that are now found in Title 31.

The Tree Planting Ordinance, effective April 28, 2016, includes the following requirements:

- a. For projects that are primarily residential with 3 or fewer units per lot, a minimum of 2 trees shall be planted on each lot.
- b. For projects that are primarily residential with 4 or more units per lot, a minimum of 1 tree shall be planted for every 5,000 square feet of building footprint per lot.
- c. For projects that are nonresidential or mixed-use, a minimum of 3 trees shall be planted for every 10,000 square feet of developed lot area.

Trees planted must (1) provide adequate shade; (2) be resistant to local pests and diseases; (3) be non-invasive species; and (4) be appropriate for the planting location (DRP 2016b) pursuant to Section 22.56.2100.

### ***Los Angeles County Roadmap for a Sustainable Waste Management Future.***

On April 22, 2014, the Board of Supervisors adopted a motion directing the development of a Roadmap to achieve a Sustainable Waste Management Future for the County unincorporated communities. Accordingly, the Sustainable Waste Management Future Working Group was formed to collectively develop the Roadmap. The intent of the Roadmap is to guide the County in implementing the four strategies identified by the Working Group, which are as follows: (1) Programs and Services, (2) Measuring Results, (3) Facilities and Infrastructure, and (4) Outreach and Education. By implementing these strategies the Roadmap sets to achieve 80 percent diversion from landfills by 2025; 90 percent diversion from landfills by 2035; and 95 percent (or higher) diversion from landfills by 2045. To accomplish these goals, the Working Group identified specific recommended initiatives, which will be expanded in detailed implementation plans. Although the Roadmap does not contain currently enforceable regulations, development under the *Centennial Specific Plan* will comply with any implementation plans once adopted.

### **5.21.3 ENVIRONMENTAL SETTING**

#### ***Global, National, State, and Regional Contributions to GHG Emissions***

Table 5.21-2 compares the magnitude of GHG emissions on the global, national, State, and regional (i.e., Los Angeles County) scales.



**TABLE 5.21-2  
COMPARISON OF WORLDWIDE GHG EMISSIONS**

Area and Data Year	Annual GHG Emissions (MMTCO <sub>2e</sub> )
World (2012)	46,049
United States (2014)	6,870
California (2013)	459
Los Angeles County, Unincorporated (2010)	8.0
MMTCO <sub>2e</sub> : million metric tons of carbon dioxide equivalent Source: WRI 2016; USEPA 2016; CARB 2015c; DRP 2015a.	

The U.S. contributes approximately 14.7 percent of worldwide GHG emissions per year; California contributes approximately 1.0 percent; and the unincorporated portion of the County contributes approximately 0.02 percent. CO<sub>2</sub> constitutes approximately 84 to 85 percent of all GHG emissions in the U.S. and California. The primary contributors to California GHG emissions are (1) transportation; (2) electric power production from both in-state and out-of-state sources; and (3) industrial uses. The primary contributors to unincorporated County GHG emissions are (1) building energy (49 percent) and (2) transportation (42 percent). The CCAP forecasts that unincorporated County GHG emissions will increase from 7.98 MMTCO<sub>2e</sub> per year in 2010 to 9.06 MMTCO<sub>2e</sub> per year in 2020 (DRP 2015a).

California GHG emissions have fallen from about 1.36% of the global total in 1990 to about 0.98% in 2011 (WRI 2016). The annual amount of global CO<sub>2e</sub> emissions increased by 12,936 MtCO<sub>2e</sub> from 1990 to 2011, or by more than 40% since 1990. For the same period, California's CO<sub>2e</sub> emissions increased by only 8.3 MTCO<sub>2e</sub> (2%), and declined by approximately 10.7% from 2007 to 2011. Overall, California accounted for only 0.065% of the net global CO<sub>2e</sub> emissions increase between 1990 and 2011. Moreover, California emits approximately 50% less CO<sub>2e</sub> per capita than the rest of the United States, and far less than locations such as Texas or Canada. In 2011, California emitted 11.4 metric tons CO<sub>2e</sub> per capita, whereas the US, Texas, and Canada emitted 22.3, 30.9, and 20.9 metric tons CO<sub>2e</sub> per capita, respectively. Indeed, California's 2011 per capita GHG emission rate was on par with Germany (10.8 MTCO<sub>2e</sub> per capita), a country widely regarded as a world leader in the development of zero-emission energy sources (WRI 2016).

### ***Project Site GHG Emissions***

The Project site is currently undeveloped and used primarily for livestock grazing. Of the 12,323 acres of land comprising the Project site, approximately 10,950 acres (89 percent) are currently used for cattle grazing. Existing GHG emissions from the Project site occur from enteric fermentation (cattle digestive processes), which primarily produces CH<sub>4</sub>, and from vehicles used on the property for grazing management. The extensive vegetation on the Project site sequesters CO<sub>2</sub>, thereby reducing GHG emissions attributed to the existing condition. A portion of State Route (SR) 138 extends through the Project site, and vehicles traveling that roadway do emit GHGs. However, for the purposes of this analysis, it is

assumed that the existing emissions are not quantified, as they are not associated with activities at the site.

### **Local Climate Change Effects**

The following descriptions of potential adverse effects are taken from the CCAP.

Large increases in global GHG concentrations could have substantial adverse effects on natural and human environments in the unincorporated areas. Current research efforts coordinated through the CARB and other State agencies examine the specific changes to California's climate that will occur as Earth's surface warms. California's *2012 Vulnerability and Adaptation Study*, the State's third major assessment on climate change, examines local and statewide vulnerabilities to climate change and includes new data and projections on climate changes in California. Dr. Alex Hall, from the University of California, Los Angeles (UCLA), in partnership with the Los Angeles Regional Collaborative for Climate Action and Sustainability (LARC), recently published several studies that develop climate change predictions that are specific to the greater Los Angeles area. These studies indicate that if GHG emissions continue to increase globally based on current trends, climate change could impact the natural environment in the following ways:

**Increases in Ambient Temperatures:** On average, the Los Angeles region is expected to warm 4 to 5°F over land by mid-century. The coasts and oceans will likely warm the slowest, whereas the mountains and deserts will experience more rapid warming. Warming across the region will be greatest in the summer and fall. For the unincorporated areas in particular, UCLA's high emissions modeling scenario predicts that mountain and inland areas may warm up to or greater than 4.5°F, and coastal and valley/urban areas warming up to 3.7 to 3.9°F.

**Increases in Extreme Heat Conditions:** Heat waves and very high temperatures could last longer and become more frequent. The number of extreme heat days is expected to triple in the coastal and central areas; the San Fernando Valley and San Gabriel Valley will witness almost a quadrupling of heat days. The number of extreme heat days in the desert and mountain areas will increase five to six times relative to the current amounts. For the unincorporated areas in particular, UCLA's high emissions modeling scenario predicts a nearly 12-fold increase in the number of heat days.

**Decreased Snowfall and Winter Snowpack:** The region's mountains could see a 42 percent reduction in annual snowfall by mid-century. The winter snowpack is also expected to melt 16 days earlier as a result of rising temperatures. As of March 2014, California is facing a severe drought and the snowpack in the Sierra Nevada is 12 percent of the annual average (DWR 2014). Changes in snowfall could exacerbate drought-like conditions, reducing water supplies and water security for all end users throughout the County.

**Increased Frequency, Intensity, and Duration of Extreme Storms:** Changes in storm events could create conditions that are conducive to air pollution formation, which further exacerbates air quality issues. Increased winter storm events could also affect peak stream flows and flooding as well as landslides.

**Changes in Growing Season and Species Distribution:** Changes in growing season conditions could cause variations in crop quality and yield. Plant and wildlife distributions may also be affected by changes in temperature, competition from colonizing species, regional hydrology, sea level, and other climate-related effects.

**Rising Sea Levels:** Sea levels are expected to steadily rise by mid-century, which could inundate portions of the coastline.

#### 5.21.4 PROJECT DESIGN FEATURES

##### Green Development Program

The Project would implement a Green Development Program, included as Appendix 1-B to the *Centennial Specific Plan*. The Green Development Program includes but is not limited to:

- Project features that comply with and implement the CCAP and
- Additional Project features that comply with and implement State and federal GHG reduction mandates and goals.

The Project first applies land use planning principles to create a balanced master-planned community that includes mixed-use neighborhoods where residential, commercial, and other employment-generating uses and institutional/public uses are proximate to each other and connected by a network of pathways to reduce reliance on automobile use and off-site commuting. The bicycle and pedestrian trail system connects community uses such as neighborhood parks, elementary schools, and neighborhood-scale retail to reduce single-occupancy automobile travel for these neighborhood-scale destinations.

The Project then applies infrastructure and building design standards to reduce GHG emissions through energy and water conservation measures. The Project's integrated water resources management approach would (1) minimize water use and maximize water reuse through development of two wastewater reclamation facilities (WRF) that will produce recycled water for landscape irrigation use throughout the Project site and (2) incorporate a variety of water supply sources including State Water Project (SWP) water, banked water, groundwater, and other non-SWP supplies to reduce the GHG emissions associated with water supply delivery.

The Project includes components (e.g., the Mobility Plan, Green Development Program) to conserve and enhance open space, promote transit, and reduce waste. Development within established Significant Ecological Areas would be entirely avoided, thereby minimizing disturbance of high-value biological resources and preserving open space areas that sequester CO<sub>2</sub>. As part of the Green Program the Project incorporates a comprehensive waste diversion and recycling program. In order to promote the use of alternative forms of transportation, the Project includes a Transportation Management Association (TMA) that develops strategic linkages with other Antelope Valley/Santa Clarita Valley TMAs or similar organizations in order to maximize transit efficiencies and services. The TMA's purpose is to coordinate and facilitate transit and rideshare usage to serve as many riders as possible thereby reducing GHG emissions from mobile sources.

Elements of the Green Development Program that would reduce GHG are stated in the project design features (PDF) listed below. The emissions reductions for some PDFs are quantifiable; others are not, but would reduce GHG emissions from the quantified levels and reduce associated GHG emissions impacts. PDFs that demonstrate quantifiable GHG emissions reductions are also stated as Mitigation Measures.

### ***Operational – Energy Efficiency***

- PDF 21-1** The Green Development Program requires compliance with CALGreen voluntary measure A4.203.1.2.1 for low-rise residential buildings. Therefore, the energy efficiency of these buildings would exceed 2016 Title 24 requirements by 15 percent. Low-rise residential buildings are three stories or less.
- PDF 21-2** The Green Development Program requires compliance with CALGreen voluntary measure A5.203.1.2.1 for nonresidential buildings. Therefore, the energy efficiency of nonresidential, hotel, and high-rise residential buildings would exceed 2016 Title 24 requirements by 10 percent. High-rise residential buildings are four stories or more.
- PDF 21-3** The Green Development Program requires a minimum of 50 percent of the Project's anticipated electrical energy demand at buildout (i.e. household, business, civic/institutional, recreational, and public facilities) shall be satisfied from on-site renewable energy generation. "Anticipated electrical energy demand" shall be determined on the basis of the anticipated loads for each building as shown in the reports submitted at the time of building permit application pursuant to the Building Energy Efficiency Standards of Title 24 or equivalent. "On-site renewable energy generation" includes, but is not limited to, solar, wind, geothermal, biofuel and hydroelectric systems. These systems shall be installed in connection with the development of one or more of the following: residential units, nonresidential buildings, public buildings, or Specific Plan utility facilities located either within the Specific Plan area or within its immediate vicinity.
- PDF 21-4** The Green Development Program requires that a minimum of 70 percent of public and community pools and spas would be equipped with active solar heating systems where heating is necessary or desired. The applicant for a pool permit shall provide the proposed plan for compliance with this provision prior to obtaining a permit for the pool.
- PDF 21-5** The Green Development Program requires that deeds, CC&Rs (Covenants, Conditions and Restrictions), or similar legal documents contain the following requirement: The owners of all single-family and multi-family residential units shall be required, upon resale, to present to the buyer a written energy audit checklist prepared by a qualified third party at the time the seller provides the buyer with the Real Estate Transfer Disclosure Statement required by Section 1102 et seq. of the *California Civil Code*. The energy audit checklist shall certify that all heating, ventilation, and air conditioning (HVAC) systems,

thermostats, appliances, windows and swimming pools (if applicable) are the same as those originally installed or, if changed, otherwise comply with Centennial's Green Development Program. The CC&Rs of the master homeowners association or other applicable association shall require compliance with the provisions of this measure and shall provide notice to individual owners of the resale energy audit checklist requirement. The master homeowners association or other applicable association shall monitor compliance and provide the County with an annual report of compliance with this measure.

- PDF 21-6** The Green Development Program requires that deeds, CC&Rs, or similar legal documents contain the following requirement: For nonresidential buildings, within 90 days after the end of the first full calendar year following the issuance of the certificate of occupancy and within 90 days after each 5-year period thereafter, the owner or tenant in possession thereof shall submit to the master commercial owners association or other applicable association a report prepared by the owner or a qualified, independent third party that evaluates whether all major building systems such as heat furnace, air conditioner, and other mechanical fixtures are working within the design standards established for each system. The master commercial owners association or other applicable association shall monitor compliance and provide the County with an annual report of compliance with this measure.
- PDF 21-7** The Green Development Program requires builders to install energy efficient major appliances and HVAC systems which meet the more stringent of applicable California Energy Commission (CEC) requirements or ENERGY STAR requirements. Major appliances subject to this requirement include dishwashers, clothes washers, refrigerators, and room air conditioners.
- PDF 21-8** The Green Development Program requires that the Project's wastewater reclamation facilities (WRF) will include equipment to capture and reuse biogas for energy production.

***Operational – Vehicle Trip and Vehicle Miles Traveled Reductions***

- PDF 21-9** The Green Development Program requires that the Project establish a Transportation Management Association (TMA) that develops strategic linkages with other Antelope Valley/Santa Clarita Valley TMAs or like organizations in order to maximize transit efficiencies and services. The TMA's purposes are to coordinate and facilitate transit and rideshare usage to serve as many riders as possible; to promote multi-modal transportation services and options; and to reduce resident and employee use of single-occupancy automobiles for off-site commuting, and for internal travel within the Specific Plan. PDF 21-9 is required for implementation through MM 10-1, detailed in Section 5.10, Traffic, Access, and Circulation.
- PDF 21-10** The Centennial Affordable Housing Implementation Plan (see Appendix 3-H of the Centennial Specific Plan, which is in Appendix 4.0-A of the EIR) will be

adopted in conjunction with the Specific Plan, which includes dedication of a minimum of ten percent of all homes in Centennial communities that permit housing, with the exception of the lowest density area (Community 8-2) will be affordable. The California Air Pollution Control Officers Association's (CAPCOA's) 2010 document entitled *Quantifying Greenhouse Gas Mitigation Measures* identifies affordable housing as a quantifiable measure for reducing GHG emissions as it allows lower income families to live closer to jobs centers.

**PDF 21-11** The Centennial Specific Plan's Green Development Program requires the installation of one 208/240 volts of alternating current (VAC) receptacle that may be used for charging electric vehicles in each detached and attached single-family residence. The installation shall comply with requirements of Section 4.106.4.1 of the 2016 CALGreen Code, or the most applicable code at the time of construction.

**PDF 21-12** The *Centennial Specific Plan's* Green Development Program requires each applicant for an applicable construction permit to install "alternative energy fueling stations" as listed below. An "alternative energy vehicle fueling station" is a 208/240 VAC electrical vehicle charging station (allowing simultaneous charging of two or more vehicles) or a station providing another new or improved technology (e.g. compressed natural gas [CNG] and hydrogen fuel cell) that provides refueling for vehicles that do not use fossil fuel.

- Business Park and Institutional land use designations shall provide a minimum of one alternative energy vehicle fueling station on site for the first 50,000 square feet of usable floor space and additional alternative energy vehicle fueling stations for each additional 50,000 square feet of usable floor space thereafter.
- Multi-family residential buildings of at least 20 residential units shall provide a minimum of one alternative energy vehicle fueling station for the first 20 residential units and an additional alternative energy vehicle fueling station for each additional 20 residential units thereafter.
- The Town Center and each Village Center shall provide a minimum of one alternative energy vehicle charging station.
- Designated Transit Hubs shall provide a minimum of one alternative energy vehicle charging station.

**PDF 21-13** The Green Development Program requires that, prior to the issuance of each nonresidential construction permit, the Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the building designs:

- Bicycle parking spaces at a rate of 5 percent of minimum required vehicle parking spaces for nonresidential land uses or as required by Section 22.52.1225B of the County Code, whichever is more stringent

- For new nonresidential buildings with over 10 tenant-occupants, provide secure bicycle parking spaces at a rate of 5 percent of tenant parking being added, with a minimum of 1 space. Acceptable parking facilities shall be conveniently reached from the street and may include, but not be limited to:
  - Covered, lockable enclosures with permanently anchored racks for bicycles.
  - Lockable bicycle rooms with permanently anchored racks.
  - Lockable, permanently anchored bicycle lockers.

**PDF 21-14** The Green Development Program requires that prior to the issuance of an applicable construction permit for each residential building permit, the Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the building designs or specifications.

- Visitor parking shall include preferentially located parking spaces for alternative-fueled vehicles.
- Bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen Code or as required by Section 22.52.1225B of the County Code, whichever is more stringent.

**PDF 21-15** The Green Development Program requires that prior to issuance of an applicable construction permit for each parking structure and parking lots with 20 or more parking spaces, the Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the parking facility:

- The parking facility shall include a minimum of five percent preferentially located parking spaces for alternative-fueled (electric, natural gas, or similar low-emitting technology) vehicles.
- The parking facility shall include at least one electric vehicle charging station. Electrical lines shall be designed and sized to add additional charging stations for up to three percent of the total parking spaces when a demand is demonstrated. The design and installation shall be consistent with Section A4.106.8.2, Residential Voluntary Measures, of the CALGreen Code.

**PDF 21-16** The Green Development Program requires that the Project Applicant/Developer provide:

- Internet infrastructure and high-speed broadband access to facilitate telecommuting.

- A community intranet (or similar) with access for homeowners associations; interest groups; local event scheduling; schools, library, carpool and transit services; and other on-site entertainment and amenities reduce the need for people to use automobile travel to obtain the information that is provided.

Compliance shall be required prior to the issuance of building permit for the 1,000<sup>th</sup> residential unit.

***Operational – Water Conservation to Reduce Emissions Associated with Water Supply, Treatment, and Distribution***

**PDF 21-17** The Green Development Program requires each applicant for an applicable construction permit for a nonresidential or multi-family building to install recycled water infrastructure to serve common areas for these facilities, except where prohibited by law. To the extent recycled water is produced within the Project and available, recycled water shall be used for landscape irrigation within those common areas. Compliance with these measures shall be established prior to the issuance of a building permit for nonresidential and multi-family facilities and at the time of County approval of final landscaping plans submitted by the applicant after final map recordation for homeowners association common areas. Covenants, conditions and restrictions shall require the owners of such common areas to maintain, repair and replace irrigation systems and plantings in accordance with County approved plans.

**PDF 21-18** The Green Development Program requires each applicant for an applicable construction permit for a nonresidential building to install indoor plumbing fixtures and fixture fittings that would reduce the overall use of potable water within the building by 12 percent, consistent with 2016 CALGreen Tier 1 nonresidential voluntary measures as prescribed in Section A5.303.2.3.1 of the code.

**PDF 21-19** The Green Development Program requires each applicant for an applicable construction permit for a single or multi-family residential building to install kitchen faucets and appliances that comply with 2016 CALGreen code residential voluntary measures specified in Sections A4.303.1 and A4.303.3 of the code.

**PDF 21-20** Implement MM 18-1, which requires water rates to be based on the assigned water budget for each parcel, to assure that outdoor landscaped areas for single-family and multi-family homes do not exceed the assigned outdoor water budget for the parcel through excessive watering or excessive turf planting.

***Construction – Vehicle Emissions Reduction***

**PDF 21-21** The Green Development Program requires that, prior to the issuance of each construction permit, the Project Applicant/Developer shall require in contract



specifications that contractors set goals to limit unnecessary construction equipment idling to three minutes and provide a program to encourage equipment operators to achieve the three-minute goal. This requirement exceeds State regulations (*California Code of Regulations* [CCR], Title 13, 2449[d][2]) that limit idling to five minutes.

## 5.21.5 THRESHOLD CRITERIA

### CEQA Thresholds

The following significance threshold criteria are derived from the County of Los Angeles Environmental Checklist and track the thresholds recommended in the State CEQA Guidelines as amended by the California Natural Resources Agency (CNRA) (CNRA 2009a). The Project would result in a significant impact if it would:

- Threshold 21-1**      Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- Threshold 21-2**      Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Neither the County's Environmental Checklist nor the State CEQA Guidelines prescribe specific methodologies and significance criteria for determining the significance of GHG emissions impacts. The State CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate thresholds consistent with the manner in which other impact areas are handled in CEQA. CEQA cases have upheld local agencies discretion to determine the significance of GHG emissions.

As with all determinations made in preparing an EIR, pursuant to Section 15064.7(b) of the State CEQA Guidelines, even without the express discretion as is the case for GHG, the substantial evidence standard applies to an agency's determination of the significance of an impact. Under Section 15384, substantial evidence is defined as "facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts". Under the substantial evidence standard, even if there is other information that supports a contrary conclusion, or a disagreement among experts as to the methodology or significance criteria, so long as the agency decision is supported by substantial evidence, it will be upheld even if there is other substantial evidence or expert opinions to the contrary (California 1988, p. 407). As such, an agency determination of significance is upheld so long as it is based on substantial evidence.

Determining how to analyze the significance of a project's climate change impacts poses a difficulty for lead agencies. The science in this area is evolving constantly. At the same time, local agencies do not specialize in this area, and there are currently no local, regional, or statewide significance criteria for determining whether a mixed-use residential development in the County of Los Angeles has a "significant" impact on climate change. Although the CNRA has adopted the CEQA Amendments developed by OPR pursuant to SB 97, as discussed above, the CEQA Amendments pose two questions that agencies should

evaluate, they leave considerable discretion to lead agencies to develop appropriate methodologies and significance criteria in evaluating these questions. As such, the County's analysis of GHG significance is a good faith effort to consider all potential significance criteria under the current state of the guidance, policy, and regulation.

Under Threshold 21-1, this impact analysis evaluates consistency with regulatory programs designed to reduce GHG emissions and that contribute to the achievement of AB 32's goals as the primary significance criterion. In addition, for informational purposes, this impact analysis also evaluates the Project's estimated emissions as compared to the Antelope Valley Air Quality Management District (AVAQMD) significance thresholds for impacts related to GHG emissions, as well as certain significance thresholds for impacts related to GHG emissions proposed by staff of South Coast Air Quality Management District (SCAQMD), but not adopted by SCAQMD Board.

Under Threshold 21-2, this impact analysis evaluates consistency with the Los Angeles County Community Climate Action Plan (CCAP) and consistency with SCAG's RTP/SCS as primary significance criteria. For informational purposes, this impact analysis also evaluates consistency with the GHG emissions-related goals and policies of the *Antelope Valley Area Plan* (AVAP).

Therefore, this impact analysis utilizes the "potential compliance pathways" described by the Court in the *Newhall* decision, namely compliance with a local climate action plan and/or other geographically specific GHG emission reduction plans (i.e., the CCAP, the SCAG RTP/SCS, and, for informational purposes, the AVAP); compliance with regulatory programs designed to reduce GHG emissions and that contribute to the achievement of AB 32's goals; and, for informational purposes, consistency with numerical GHG significance thresholds (AVAQMD and staff-proposed SCAQMD significance thresholds).

As discussed in Section 5.21.5, following the Supreme Court's decision in *Newhall*, on November 2016, the CDFW released a draft Additional Environmental Analysis (AEA) intended to address that agency's CEQA compliance obligations at issue in that case. (CDFW 2016) As described in the AEA, the *Newhall* project applicant (Five Point LLC) voluntarily modified its project and proposed to achieve "net zero" GHG emissions for the project with the implementation of 13 mitigation measures described in the AEA. On that basis, the AEA concludes that, since the *Newhall* project will result in no net increase in GHG emissions, it would not contribute to cumulative GHG emissions influencing global climate change and thus would not conflict with any plan, policy, or regulation adopted for the purpose of reducing the emission of GHGs. Consequently, the AEA concludes that project GHG and climate change impacts would be less than significant (CDFW 2016, pp. 1-18).

It is important to note that the *Newhall* AEA does not establish a new significance criteria of any kind, much less a "net zero" GHG threshold under CEQA. In fact, agencies that have considered a zero threshold approach have rejected it. For example, despite having been urged to propose a zero-emissions CEQA threshold in its proposed amendments to the CEQA guidelines regarding the analysis of GHG emissions released in April 2009 (Proposed Guidelines), the state Office of Planning and Research (OPR) responded in its *Initial Statement of Reasons for Regulatory Action: Proposed Amendments to the State CEQA*

*Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB 97* that Section 15064.4(b)(1) of the Proposed Guidelines is not intended to suggest a zero emission threshold, as CEQA does not include a “one molecule” rule. (CRNA 2009a, p. 20; *see also*, SJVAPCD 2009b, p. 34 [explaining that OPR’s Proposed Guidelines confirm that a lead agency is not responsible for wholly eliminating all GHG emissions from a project]). In addition, in its report to the Ventura County Air Pollution Control Board on GHG significance thresholds, staff reported that “[n]ot a single California air pollution agency is considering either of the first two approaches for GHG significance thresholds [a “no threshold approach” or a “zero threshold approach”].

Moreover, with respect to the *Newhall* AEA, the applicant imposed a “net zero emissions” program for GHG; it was not imposed under CEQA by the State of California, which is acting as the lead agency, and unlike a local city or county has direct statutory and regulatory authority to reduce GHG emissions from all sectors of the California economy, including most notably the major sectors producing GHG emissions (electricity production, transportation fuels, and large-scale industrial facilities such as refineries and cement plants). In the *Newhall* AEA, for example, CARB and Cal/EPA were directly involved in – and contemporaneously produced a letter affirming the achievement of – the *Newhall* applicant’s “net zero” voluntary proposal. With respect to the project analyzed in this EIR, the County’s land use jurisdiction does not extend to having jurisdiction or control over the vast majority of GHG emissions within the state. With respect to consideration of land use project, particularly large-scale projects, this EIR considers – and the Project complies with – SB 375, which is the state’s statutory program for ensuring GHG reductions from land use and transportation projects, as discussed in Section 5.21.6.

## 5.21.6 ENVIRONMENTAL IMPACTS

### On-Site Impacts

**Threshold 21-1**      **Would the proposed project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?**

#### ***Compliance with Regulatory Programs Designed to Reduce GHG Emissions and Project GHG Emissions***

In addition to complying with the policies and regulations of the CCAP (discussed in Table 5.21-11 below), the Project will incorporate the project design features and comply with applicable regulations designed to reduce GHG emissions, thus contributing to the achievement of AB 32’s goals. Some regulatory measures were promulgated prior to or independently of AB 32, and others were identified in CARB’s 2008 Climate Change Scoping Plan and promulgated subsequent to approval of the Scoping Plan. A full list and description of these project design features and regulatory programs are presented in detail above in Sections 5.21.4 and 5.21.2, respectively. Following the *Newhall* Court’s direction, the following highlight key project design features and regulatory programs, organized by emission source category, in order to clarify which measures apply to each emission source, thus contributing to the reduction of GHG emissions associated with that source. After a brief

discussion of the methodology used to calculate the Project's GHG emissions, this analysis is organized by the following emissions source categories:

- Construction emissions
- Vegetation changes
- Annual operational emissions
  - Area sources (lawn mowers; natural gas fire places)
  - Energy use
  - Water supply, treatment, and distribution
  - Solid waste
  - Mobile source

### Calculation Methodology

GHG emissions were calculated by using the California Emissions Estimator Model (CalEEMod) Version 2016.3.1 as described in Section 5.11, Air Resources. In addition to the construction and operational inputs described in Section 5.11, Air Resources, the GHG emissions analysis includes the following input data or estimates:

- Electrical energy use
- Water use – indoor and outdoor, potable and recycled
- Solid waste generation
- Carbon sequestration loss from vegetation removal and gain from planting of trees
- Renewable generation of 50 percent of the Project's electrical energy use as specified in PDF 21-3, as implemented by MM 21-1.
- For the calculation of GHG emissions for the electrical energy used by the Project, including direct Project consumption of electricity and the electricity used to supply, distribute, and treat water used by the Project, it was assumed that Southern California Edison (SCE) would achieve the 50 percent renewable energy goal for 2030 established by EO B-30-15 and SB 350. It was not assumed that renewable energy would exceed 50 percent by 2035. (Note that under the modeling methodology, this 50 percent renewable energy assumption was made only for electricity consumption, and did not extend to transportation, etc.)
- Energy efficiency was assumed to exceed the 2016 code requirements as specified in PDF 21-1 and PDF 21-2, as implemented by MM 21-2 and 21-3, respectively. No credit was taken for additional energy efficiency that may be required by the 2019 and subsequent codes.

---

## One-Time Emissions

### *Construction Emissions*

The major construction phases included in this analysis are as follows:

- **Demolition** involves tearing down of buildings or structures and removal of asphalt and concrete parking areas and walkways.
- **Site Preparation** involves clearing vegetation (grubbing and tree/stump removal) and stones prior to grading.
- **Grading** involves cut and fill of land to ensure the proper base and slope for the construction foundation.
- **Building Construction** is the construction of structures and buildings.
- **Architectural Coating** is the application of coatings to both the interior and exterior of buildings or structures
- **Paving** is the laying of concrete or asphalt such as in parking lots or roads.

These phases would occur in connection with anticipated construction at the Project site and related off-site Project impact areas, as described in Section 4.0, Project Description. GHG emissions from these construction phases are largely attributable to fuel use from construction equipment and worker commuting. Additional indirect GHG emissions would result from the supply and delivery of water used during site grading.

Construction GHG emissions were calculated by using CalEEMod Version 2016.3.1 as described in Section 5.11, Air Resources. Specific inputs to CalEEMod include but are not limited to the start and finish dates of construction phases; inventories of construction equipment to be used during each phase; areas to be paved; and areas to be painted. Output emissions data are provided for off-road equipment and on-road vehicles.

Once construction begins (in Year 1), it will proceed continuously for approximately 20 years, with full buildout completed after 20 years. Construction emissions are calculated for the following construction activities: grading, building, paving, and architectural coating (painting).<sup>2</sup> The rate of construction would vary with a variety of factors including, but not limited to, market demand, weather, and as-found site conditions. The estimation of the quantities of grading, building, paving, and painting on a year-by-year basis for a 20-year project would be highly speculative. Therefore, the construction effort is initially evaluated assuming that each construction activity would be spread equally over the applicable years. Additionally, as further explained below, construction emissions are evaluated for a peak grading year.

Grading would occur from Year 1 through Year 18. Preliminary grading engineering design indicates that approximately 127 million cubic yards (mcy) of earth would be moved for the total Project. Based on the preliminary grading estimates, the average daily grading quantity

---

<sup>2</sup> Emissions modeling often includes demolition and site preparation (clearing and grubbing) activities. Demolition required for the proposed Project would be negligible. Clearing and grubbing would be predominantly grassland, and would occur concurrently with grading.

over the 18 years of grading would be approximately 26,500 to 36,500 cubic yards (cy), depending on the number of days of grading. For a conservative estimate, it is assumed that grading would be limited by weather and other factors to 200 days per year, and the average daily grading quantity would be 36,500 cy. Cut and fill would be balanced on the Project site and no off-site export or import is anticipated. Soil movement within the site would be by scraper. Equipment used for the average year grading analysis is shown in Table 5.21-3. Further below in Table 5.21-10, all summary of all Project-related GHG emissions are presented.

**TABLE 5.21-3  
GRADING, BUILDING, PAVING, AND ARCHITECTURAL COATING EQUIPMENT FOR  
AVERAGE YEAR EMISSIONS ESTIMATES**

Equipment Type	Number of Equipment
<b>Grading</b>	
Scrapers	10
Dozers	7
Compactors	2
Water trucks	2
Graders	1
<b>Building</b>	
Cranes	4
Forklifts	12
Tractor/Loader/Backhoes	12
Welders	4
Generator Sets	4
<b>Paving</b>	
Paving Machine	1
Roller	3
<b>Architectural Coating</b>	
Compressors	4

For the purposes of the GHG modeling assumptions, the Project construction is assumed to begin in 2016, with buildout complete in 2035, although the actual start of construction and buildout are likely to occur later than 2016 and 2035, respectively. The 2035 buildout date is consistent with the Project traffic impact analysis (see Section 5.10, Traffic, Access, and Circulation) and also with the CalEEMod model, which does not include on-road emissions factors beyond 2035. This is a conservative approach; if the actual start of construction occurs later than 2016 and buildout occurs later than 2035, both the construction equipment fleet and on-road vehicles are assumed to be “cleaner” than would be the case if construction starts in 2016 and buildout occurs in 2035, as described CARB’s 2016 Mobile Source Strategy. This is so because such later model vehicles will be subject to more stringent emission controls and fuel standards and thus generate less unit emissions with each future

year. As such, assuming development of the Project site occurs sooner than is likely to occur provides a more conservative assessment of construction GHG emissions.

It is estimated that construction grading would use 9,744 acre-feet (3,176 million gallons) of water for dust control during the estimated 20-year construction period. This estimation accounts for climatic conditions (i.e., dry and windy conditions) in the Project area. The water would come from previously imported water, banked, and stored north of the Project site. GHG emissions associated with this water use were calculated using energy data from CAPCOA's 2010 publication, *Quantifying Greenhouse Gas Mitigation Measures* and the SCE GHG intensity factor for 2025 (CAPCOA 2010).

The estimated Project construction GHG emissions for the Project's 20-year construction period are estimated at 134,692 MTCO<sub>2e</sub>. CalEEMod data for construction emissions are included in Appendix 5.11-A.

### **Regulatory Requirements**

**SCAQMD Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Thresholds.** Because construction activity impacts are relatively short in duration, they contribute a relatively small portion of the total lifetime GHG emissions of a project. In addition, GHG emissions-reduction measures for construction equipment are relatively limited. Therefore, in its *Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Thresholds*, the SCAQMD recommends that construction emissions be amortized over a 30-year project lifetime so that GHG reduction measures will address construction GHG emissions as part of the operational GHG reduction strategies (SCAQMD 2008). That method is used in this analysis. Emissions generated during the operational phase of the Project are considered in addition to the amortized construction phase emissions.

**USEPA and NHTSA CO<sub>2</sub> Standards.** The USEPA and NHTSA have adopted standards for CO<sub>2</sub> emissions and fuel consumption, respectively, tailored to each of three main vehicle categories: combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles. According to USEPA, this program will reduce GHG emissions and fuel consumption for affected vehicles by 6 percent to 23 percent.

**CARB Airborne Toxic Control Measures and Emission Standards.** CARB adopted an airborne toxic control measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel PM and other toxic air contaminants. The measure applies to diesel-fueled commercial vehicles with gross vehicle weight ratings greater than 10,000 pounds that are licensed to operate on highways. This measure also does not allow diesel-fueled commercial vehicles to idle for more than five minutes at any given time. In addition to limiting exhaust from idling trucks, CARB promulgated emission standards for off-road diesel construction equipment such as bulldozers, loaders, backhoes, and forklifts, as well as many other self-propelled off-road diesel vehicles. This regulation aims to reduce emissions through installation of diesel particulate filters and encouraging the replacement of older, dirtier engines with newer emission-controlled models. Implementation is staggered based on fleet size, with the largest operators beginning compliance in 2014.

**Title 24 Green Building Standards Code.** The 2013 California Green Building Standards Code (24 CCR Par 11), also known as the CALGreen Code, contains mandatory requirements aimed to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impact during and after construction. For example, projects must recycle and/or salvage for reuse a minimum of 50 percent of nonhazardous construction and demolition debris or meet local ordinance, whichever is more stringent (Section 5.408.3). In addition, 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled (Section 5.408.4).

**Los Angeles Green Building Standards Code.** Title 31 of the Los Angeles County Code of Ordinances was adopting in 2013 in response to the mandates set forth in the CALGreen Code. The purpose of Title 31 is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact, or positive environmental impact, and encouraging sustainable construction practices in planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental air quality.

**Antelope Valley Area Plan (AVAP).** Policy COS 17.1 promotes green building techniques for the construction and operation of public and private buildings in the unincorporated Antelope Valley. Policy COS 17.9 requires reduction, reuse, and recycling of construction and demolition debris.

### ***Project Design Features***

**PDF 17-2.** PDF 17-2 of Section 5.17, Other Services, states that the Project has committed to diverting from landfill disposal 100 percent of soil during grading activities, and at least 70 percent of nonhazardous construction and demolition waste, which exceeds the 65 percent diversion requirement with the Tier I voluntary measure in Section A5.408.3.1 of the California Green Building Standards Code. This goal also exceeds the 50 percent reduction required by Section 20.87.040 of the County Code and Sections 4.408.5/5.408.1.4 of the CALGreen Code. PDF 17-2 is required for implementation through MM 17-9.

**PDF 21-21.** The Green Development Program requires that, prior to the issuance of each construction permit, the Project Applicant/Developer shall require in contract specifications, that contractors set goals to limit unnecessary construction equipment idling to three minutes and include a program to encourage equipment operators to achieve the three-minute goal.

As the Project will incorporate these project design features and must comply with these applicable regulations imposed by law, the Project would contribute to the achievement for AB 32's goals related to construction emissions.

PDF 21-21 is required for implementation through MM 21-4.



### Vegetation Changes

Permanent vegetation changes that would occur as a result of Project development constitute a change in the carbon sequestration capacity of the Project site.

The loss of vegetation would occur concurrently with construction. Therefore, the increase in GHG emissions attributable to the loss of carbon sequestration is also amortized over 30 years. However, the reduction in GHG emissions resulting from the planting of new trees would occur more slowly and this reduction is conservatively amortized over 100 years in accordance with IPCC recommendations.

The removal of an estimated 6,416 acres of grassland and other vegetative covers on the Project site during construction would result in an estimated reduction in current levels of sequestration of 27,653 MTCO<sub>2</sub> as shown in Table 5.21-4. The planting of an estimated 35,123 new trees, as required by the adopted County Tree Planting Ordinance would result in an estimated long-term sequestration of 24,867 MTCO<sub>2</sub>e. Therefore, in total the Project would result in an overall reduction in the amount of carbon sequestration on the Project site, resulting in an overall increase in GHG emissions of 2,786 MTCO<sub>2</sub> (27,653–24,867 MTCO<sub>2</sub>). A summary of all Project-related greenhouse gas emissions is presented in Table 5.21-10 later in this section.

**TABLE 5.21-4  
VEGETATION CHANGE GREENHOUSE GAS EMISSIONS**

Type of Vegetation	Acres in Current Condition	Acres in Buildout Condition	Net Change	GHG Emissions MTCO <sub>2</sub>
Grassland	6,416 <sup>a</sup>	0	-6,416 acres	+ 27,653
<b>Annual Increase in CO<sub>2</sub> over 30 year Amortization</b>				<b>+922</b>
Type of Tree	Replacement Trees in Current Condition	Replacement Trees in Buildout Condition	Net Change	
Miscellaneous	0	35,123	+35,123 trees	-24,867
<b>Annual Decrease in CO<sub>2</sub> over 100 year Amortization</b>				<b>-249</b>
GHG: greenhouse gas; MTCO <sub>2</sub> e: metric tons of carbon dioxide				

### Regulatory Requirement

**Los Angeles County Tree Planning Ordinance.** On March 29, 2016, the Board of Supervisors adopted the Tree Planting Ordinance, effective April 28, 2016, includes the following requirements:

- a. For projects that are primarily residential with 3 or fewer units per lot, a minimum of 2 trees shall be planted on each lot.
- b. For projects that are primarily residential with 4 or more units per lot, a minimum of 1 tree shall be planted for every 5,000 square feet of building footprint per lot.

- c. For projects that are nonresidential or mixed-use, a minimum of 3 trees shall be planted for every 10,000 square feet of developed lot area.

Trees planted must (1) provide adequate shade; (2) be resistant to local pests and diseases; (3) be non-invasive species; and (4) be appropriate for the planting location (DRP 2016b).

#### Annual Operational Emissions

Emissions from mobile and area sources and indirect emissions from energy and water use, wastewater, and waste management, would occur every year after buildout. This section identifies operational GHG emissions.

The proposed Project incorporates elements that reduce Project-generated emissions during operation. In addition, the Project would be required to comply with applicable federal, State, and local rules and regulations to further reduce long-term operational emissions. A wide range of regulatory measures have been enacted through legislation or promulgation of regulations (see Section 5.21.2) that would assist with the reduction of GHG emissions associated with the proposed Project, both directly and indirectly. Some measures were promulgated prior to or independently of AB 32, and others were identified in CARB's 2008 Climate Change Scoping Plan and promulgated subsequent to approval of the Scoping Plan. These measures were evaluated and re-emphasized in the First Update to the Scoping Plan. Project elements have been incorporated to further reduce GHG emissions associated with operation. A discussion of the regulatory measures and Project elements to reduce Project-generated GHG emissions follows under each emissions source.

#### *Area Sources*

The area source GHG emissions included in this analysis result primarily from natural gas fireplaces with additional emissions from landscaping-related fuel combustion sources, such as lawn mowers. GHG emissions due to natural gas combustion in buildings other than from fireplaces are excluded from area sources since they are included in the emissions associated with building energy use. Emissions were calculated with CalEEMod. The input for fireplace emissions is specified in PDF 11-2 in Section 5.11, Air Resources, which limits fireplaces to a maximum of 13,954 natural gas fireplaces and no wood-burning fireplaces. Landscape maintenance emissions are based on Project land use data. The Project's area source GHG emissions are estimated at 11,297 MTCO<sub>2e</sub> per year, as shown in Table 5.21-5. Further below in Table 5.21-10, all summary of all Project-related greenhouse gas emissions are presented.

**TABLE 5.21-5  
AREA SOURCE GREENHOUSE GAS EMISSIONS**

Source	Emissions (MTCO <sub>2</sub> e/yr)
Fireplaces (Hearth)	11,056
Landscape maintenance	240
<b>Total</b>	<b>11,297</b>
MTCO <sub>2</sub> e/yr: Metric tons of carbon dioxide equivalent per year	
Total does not add due to rounding	
Emissions calculations can be found in Appendix 5.11-A.	

### ***Regulatory Requirements***

**SCAQMD Rule 445.** SCAQMD Rule 445 requires the use of natural gas to power all cooking stoves and fireplaces.

As the Project must comply with this applicable regulation imposed by law, the Project would contribute to the achievement for AB 32's goals related to area sources.

### ***Energy Use***

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO<sub>2</sub> and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. The CalEEMod default natural gas use and emissions calculations are modified by application of the 2016 State Energy Efficiency Standards for Residential and Nonresidential Buildings, PDF 21-1 and PDF 21-2. PDF 21-1, and PDF 21-2 commit the Project to comply with CALGreen voluntary Tier 1 measures to exceed the 2016 code for residential and nonresidential buildings, respectively. The combined effect is a 32.4 percent reduction from the CalEEMod base data for Title 24 natural gas and electricity uses. The SCE GHG intensity factor for 2030 was used based on the SB 350 requirement for 50 percent renewable power by 2030. The carbon intensity factor was not extrapolated to 2035. Therefore, if SCE power content is greater than 50 percent in 2035, the Project's GHG emissions would be less than calculated. The Project's estimated 2035 GHG emissions from the direct burning of natural gas and the indirect generation of electricity are 49,412 MTCO<sub>2</sub>e per year as shown in Table 5.21-6. Further below, in Table 5.21-9, a summary of all Project-related greenhouse gas emissions is presented.

**TABLE 5.21-6  
ENERGY USE AND GREENHOUSE GAS EMISSIONS**

Land Use*	Energy Use		GHG Emissions (MTCO <sub>2e</sub> /yr)		
	Electricity (MWh/yr)	Natural Gas (MBTU/yr)	from Electricity Use	from Natural Gas Use	Total
Elementary School	1,834	4,958	312	266	578
General Light Industry	1,007	2,620	171	141	312
Government (Civic Center)	9,219	11,280	1,566	606	2,172
Health Club	689	1,792	117	96	213
High School	1,273	3,442	216	185	401
Office Park	46,430	49,430	7,888	2,654	10,542
Regional Shopping Center	6,465	1,318	1,098	71	1,169
Single-Family Housing	59,030	340,900	10,028	18,300	28,328
Apartments Mid Rise	11,060	71,130	1,879	3,818	5,697
<b>Total</b>	<b>137,007</b>	<b>486,870</b>	<b>23,275</b>	<b>26,137</b>	<b>49,412</b>

MTCO<sub>2e</sub>/yr: Metric tons of carbon dioxide equivalent per year; MWh/yr: megawatt hours per year; MBTU/yr: million British thermal units per year

\* Land use categories shown are CalEEMod standard names. "Health Club" is Project "Recreation/Entertainment"

Some totals do not add due to rounding.

Emissions calculations can be found in Appendix 5.11-A.

### **Regulatory Requirements**

**Title 24 Energy Efficiency Standards.** Title 24 (Part 11) serves to enhance and regulate California's building standards. Single-family homes built to the 2016 standards will use about 22 percent less energy for lighting, heating, cooling, ventilation and water heating compared to those built pursuant to the standards adopted in 2013. According to the ZNE Plan, the 2019 update to Title 24 (effective 2020) will require all new residential construction to be zero net energy (CEC 2015c).

**SB X1 2 and SB 350.** SB X1 2 established a use target of 33 percent for renewable energy sources for all electricity providers in California by 2020. SB 350 provides for further development of renewable energy with a target of a 50 percent generation rate by 2030. Conservatively, the estimates below do not include the higher renewable energy target established by SB 350. However, as disclosed previously, a Project design feature requires Project buildings to be 35 percent more energy efficient than 2008 standards, that 60 percent of the commercial building roofs have solar panels and that residences have energy friendly radiant roofs that are "Solar Ready". As the Project will comply with or exceed the applicable regulatory measures, the Project is consistent with the energy related regulatory programs designed to achieve AB 32's goals.

**Countywide Energy and Environmental Policy.** The Countywide Energy and Environmental Policy (Policy) was adopted by the Los Angeles County Board of Supervisors

on January 16, 2007, to provide guidelines for the development and enhancement of energy conservation and environmental programs within County departments. The Policy was also the County's response for the need for energy conservation and reduction in GHG emissions. It directs the County to track its GHG emissions with the California Climate Action Registry, and to reduce its facilities' energy consumption by 20 percent by the year 2015. Under this policy, the Los Angeles County Energy Program (LACEP) provides financing for energy efficiency or solar improvements. Revisions to the Policy, adopted on June 30, 2015, enhance the County's existing and future policies programs, and reporting with regard to environmental sustainability.

**Los Angeles Green Building Standards Code.** Title 31 of the Los Angeles County Code of Ordinances was adopted in 2013 in response to the mandates set forth in the CALGreen Code. The purpose of Title 31 is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact, or positive environmental impact, and encouraging sustainable construction practices in planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental air quality. Title 31 includes such measures as requirements for energy efficiency, parking for fuel-efficient vehicles, cool roofs, reduction of indoor potable water use, recycled content of construction materials, reduction in construction and demolition waste, and thermal insulation. Title 31 was updated in April 2016 to relocate drought tolerant landscaping and green building requirements from Titles 21 and 22 to Title 31 (DRP 2016a).

**Antelope Valley Area Plan (AVAP).** AVAP Policy COS 17.2 requires that new buildings be sited and designed in a manner that maximizes efficient use of natural resources, such as air and light, to reduce energy consumption, heat profiles, and GHG emissions. Policy COS 17.4 promotes the use of individual renewable energy systems, by directing the County to require appropriate development standards for individual renewable energy systems to minimize potential impacts and to simplify the permitting process for such systems that meet these development standards. Policy 17.5 calls for the County to protect active and passive solar design elements and systems from shading by neighboring structures and trees through appropriate development standards.

### ***Project Design Features***

**PDF 21-1.** The Green Development Program requires compliance with CALGreen voluntary measure A4.203.1.2.1 for low-rise residential buildings. Therefore, the energy efficiency of these buildings would exceed 2016 Title 24 requirements by 15 percent. PDF 21-1 is required for implementation through MM 21-2.

**PDF 21-2.** The Green Development Program requires compliance with CALGreen voluntary measure A5.203.1.2.1 for nonresidential buildings. Therefore, the energy efficiency of nonresidential, hotel, and high-rise residential buildings would exceed 2016 Title 24 requirements by 10 percent. PDF 21-2 is required for implementation through MM 21-3.

**PDF 21-3.** The Green Development Program requires a minimum of 50 percent of the Project's anticipated electrical energy demand at buildout must be satisfied from on-site renewable energy generation. "Anticipated electrical energy demand" shall be determined

on the basis of the anticipated loads for each building as shown in the reports submitted at the time of building permit application pursuant to the Building Energy Efficiency Standards of Title 24. "On-site renewable energy generation" includes, but is not limited to, solar, wind, geothermal, biofuel and hydroelectric systems. PDF 21-3 is required for implementation through MM 21-1.

**PDF 21-4.** The Green Development Program requires that a minimum of 70 percent of public and community pools and spas would be equipped with active solar heating systems where heating is necessary or desired. The applicant for a pool permit shall provide the proposed plan for compliance with this provision prior to obtaining a permit for the pool. PDF 21-4 is required for implementation through MM 21-5.

**PDF 21-5.** The Green Development Program requires that deeds, CC&Rs, or similar legal documents contain the following requirement: The owners of all single-family and multi-family residential units shall be required, upon resale, to present to the buyer a written energy audit checklist prepared by a qualified third party at the time the seller provides the buyer with the Real Estate Transfer Disclosure Statement required by Section 1102 et seq. of the California Civil Code. The energy audit checklist shall certify that all HVAC systems, thermostats, appliances, windows and swimming pools (if applicable) are the same as those originally installed or, if changed, otherwise comply with Centennial's Green Development Program. All residential pool covers shall be removable, and shall not be automatic retractable covers.

The CC&Rs of the master homeowners association or other applicable association shall require compliance with the provisions of this measure and shall provide notice to individual owners of the resale energy audit checklist requirement. The master homeowners association or other applicable association shall monitor compliance and provide the County with an annual report of compliance with this measure. PDF 21-5 is required for implementation through MM 21-6.

**PDF 21-6.** The Green Development Program requires that deeds, CC&Rs, or similar legal documents contain the following requirement: For nonresidential buildings, within 90 days after the end of the first full calendar year following the issuance of the certificate of occupancy and within 90 days after each 5-year period thereafter, the owner or tenant in possession thereof shall submit to the master commercial owners association or other applicable association a report prepared by the owner or a qualified, independent third party that evaluates whether all major building systems such as heat furnace, air conditioner, and other mechanical fixtures are working within the design standards established for each system. The master commercial owners association or other applicable association shall monitor compliance and provide the County with an annual report of compliance with this measure. PDF 21-6 is required for implementation through MM 21-7.

**PDF 21-7.** The Green Development Program requires builders to install energy efficient major appliances and HVAC systems which meet the more stringent of applicable CEC requirements or ENERGY STAR requirements. Major appliances subject to this requirement include dishwashers, clothes washers, refrigerators, and room air conditioners. PDF 21-7 is required for implementation through MM 21-8.

**PDF 21-8.** The Green Development Program requires that the Project's wastewater reclamation facilities (WRF) will include equipment to capture and reuse biogas for energy production. PDF 21-8 is required for implementation through MM 21-9.

As the Project will incorporate these project design features and must comply with these applicable regulations imposed by law, the Project would contribute to the achievement for AB 32's goals related to energy use.

#### *Water Supply, Treatment, and Distribution*

Indirect GHG emissions result from the production of electricity used to convey, treat and distribute water and wastewater. The amount of electricity required to convey, treat and distribute water depends on the volume of water as well as the sources of the water. Additional emissions from wastewater treatment include CH<sub>4</sub> and N<sub>2</sub>O, which are emitted directly from the wastewater. Estimated indoor and outdoor water use quantities and source are shown in Table 5.21-7 and are summarized from the data provided in Section 5.18, Water Resources. GHG emissions were calculated in CalEEMod using energy data from the CAPCOA publication, *Quantifying Greenhouse Gas Mitigation Measures* (CAPCOA 2010). As shown in Table 5.21-7 GHG emissions from water use at buildout are estimated at 7,387 MTCO<sub>2e</sub> per year. A summary of all Project-related greenhouse gas emissions is presented in Table 5.21-10 later in this section.

**TABLE 5.21-7  
WATER USE AND GREENHOUSE GAS EMISSIONS**

Water Use/Source	Water Use (afy)		GHG Emissions (MTCO <sub>2e</sub> /yr)
	Indoor	Outdoor	
<b>Indoor/Imported</b>	5,436		6,329
<b>Outdoor/Imported</b>		1,518	434
<b>Outdoor/Water bank</b>		4,578	624
<b>Total</b>	<b>5,436</b>	<b>6,096</b>	<b>7,387</b>

afy: acre-feet per year; GHG: greenhouse gas; MTCO<sub>2e</sub>/yr: Metric tons of carbon dioxide equivalent per year.

#### **Regulatory Requirements**

**California Water Code.** Sections 10910 through 10915 of the *California Water Code* require preparation of a project-specific Water Supply Assessment for developments like the Project. Sections 10610.4, 10617, and 10620 of the *California Water Code* require urban water suppliers to develop water management plans to actively pursue the efficient use of available supplies.

**SB X7-7 (Water Conservation Act of 2009).** The Water Conservation Act of 2009 sets an overall goal of reducing per-capita urban water use by 20 percent by December 31, 2020. The State is required to make incremental progress toward this goal by reducing per-capita water use by at least 10 percent by December 31, 2015. This is an implementing measure of the Water Sector of the AB 32 Scoping Plan. Reduction in water consumption reduces the

energy necessary and the associated emissions to convey, treat, and distribute the water; it also reduces emissions from wastewater treatment.

**State Model Water Efficient Landscape Ordinance (MWELo) and Executive Order B-29-15.** The MWELo (CCR Title 23, Division 2, Chapter 2.7) establishes an outdoor water budget for new landscaped areas that are 500 square feet or larger, and rehabilitated landscaped areas that are 2,500 square feet or larger (DWR 2015). EO B-29-15 called for revisions to the MWELo in order to increase water efficiency standards for new and rehabilitated landscapes through more efficient irrigation systems, greywater usage, on-site storm water capture, and by limiting the portion of landscapes that can be covered in turf. It also established a goal of achieving a statewide reduction in potable urban water usage of 25 percent relative to water use in 2013 (California 2015b). The California Department of Water Resources updated the MWELo in December 2015 to incorporate these elements.

**Title 24 Green Building Standards Code As Adopted by the Building Standards Commission.** The Building Standards Commission, which regulates construction of public schools and community colleges in California, approved a modified version of the MWELo that applies to public schools and community colleges within the Project site.

**Title 24 Green Building Standards Code.** The California Green Building Code includes water efficiency requirements for new residential and nonresidential structures, including the requirement that indoor potable water use be reduced by 12 percent through the use of water saving fixtures and or flow restrictors.

**Los Angeles Green Building Standards Code.** Title 31 of the Los Angeles County Code of Ordinances was adopted in 2013 in response to the mandates set forth in the CALGreen Code. The purpose of Title 31 is to improve public health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts having a reduced negative impact, or positive environmental impact, and encouraging sustainable construction practices in planning and design; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental air quality. Title 31 includes specific measures concerning drought-tolerant landscaping that require: (1) turf area shall be water-efficient and shall not exceed 25 percent of the total landscaped area; (2) non-invasive drought-tolerant plant and tree species appropriate for the climate zone region shall be utilized in at least 75 percent of the total landscaped area; and (3) hydrozoning irrigation techniques shall be incorporated into the landscape design.

**Antelope Valley Area Plan (AVAP).** AVAP Policy COS 2.1 requires new landscaping to comply with applicable water efficiency requirements in the County Code (including the measures discussed above). Policy COS 2.2 requires low flow plumbing fixtures in all new developments.

### ***Project Design Features***

**PDF 21-17.** The Green Development Program requires each applicant for an applicable construction permit for a nonresidential or multi-family building to install recycled water infrastructure to serve common areas for these facilities, except where prohibited by law. To the extent recycled water is produced within the Project and available, recycled water shall



be used for landscape irrigation within those common areas. Compliance with these measures shall be established prior to the issuance of a building permit for nonresidential and multi-family facilities and at the time of County approval of final landscaping plans submitted by the applicant after final map recordation for homeowners association common areas. Covenants, conditions, and restrictions shall require the owners of such common areas to maintain, repair and replace irrigation systems and plantings in accordance with County approved plans. PDF 21-17 is required for implementation through MM 21-10.

**PDF 21-18.** The Green Development Program requires each applicant for an applicable construction permit for a nonresidential building to install indoor plumbing fixtures and fixture fittings that would reduce the overall use of potable water within the building by 12 percent, consistent with 2016 CALGreen Tier 1 nonresidential voluntary measures as prescribed in Section A5.303.2.3.1 of the code. PDF 21-18 is required for implementation through MM 21-11.

**PDF 21-19.** The Green Development Program requires each applicant for an applicable construction permit for a single or multi-family residential building to install kitchen faucets and appliances that comply with 2016 CALGreen code residential voluntary measures specified in Sections A4.303.1 and A4.303.3 of the code. PDF 21-19 is required for implementation through MM 21-12.

**PDF 21-20.** The Green Development Program requires that landscaped areas of single-family detached residential front yards and multi-family residential common areas contain no more than 25 percent turf. PDF 21-20 is required for implementation through MM 21-13.

As the Project will incorporate these project design features and must comply with these applicable regulations imposed by law, the Project would contribute to the achievement for AB 32's goals related to water supply, treatment, and distribution.

#### *Solid Waste*

Solid waste may be disposed in landfills or diverted for recycling, composting, reuse, or other means to avoid landfilling. Any waste not diverted will be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. Solid waste GHG emissions were calculated using Project land use data and CalEEMod default emission factors. As shown in Table 5.21-8, solid waste GHG emissions are estimated at 10,214 MTCO<sub>2e</sub> per year. Further below in Table 5.21-10, a summary of all Project-related greenhouse gas emissions is presented.

**TABLE 5.21-8  
SOLID WASTE GENERATION AND  
GREENHOUSE GAS EMISSIONS**

<b>Land Use</b>	<b>Solid Waste (tons/yr)</b>	<b>GHG Emissions (MTCO<sub>2</sub>e/yr)</b>
City Park	9	5
Elementary School	730	367
General Light Industry	118	60
Government (Civic Center)	4,469	2,248
Health Club	372	187
High School	319	161
Office Park	3,424	1,722
Regional Shopping Center	543	273
Single-Family Housing	9,087	4,570
Apartments Mid Rise	1,237	622
<b>Total</b>	<b>20,308</b>	<b>10,214</b>
MTCO <sub>2</sub> e/yr: Metric tons of carbon dioxide equivalent per year		
Totals may not add due to rounding.		
Emissions calculations can be found in Appendix 5.11-A.		

### ***Regulatory Requirements***

**AB 341.** AB 341 established a statewide diversion rate for solid waste of not less than 75 percent through measures such as source reduction, recycling, or composting by the year 2020, and annually thereafter. That legislation increased the solid waste diversion rate by 25 percent compared to the California Integrated Waste Management Act of 1989 that it replaced.

**Los Angeles County Roadmap for a Sustainable Waste Management Future.** As discussed above, the County's Roadmap for a Sustainable Waste Management Future sets to achieve 80 percent diversion from landfills by 2025; 90 percent diversion from landfills by 2035; and 95 percent (or higher) diversion from landfills by 2045. To accomplish these goals, the Working Group identified specific recommended initiatives, which will be expanded in detailed implementation plans. Although the Roadmap does not contain currently enforceable regulations, development under the Centennial Specific Plan will comply with any implementation plans once adopted.

### ***Project Design Features***

**PDF 17-3.** PDF 17-3 of Section 5.17, Other Services, states that the Project includes a Solid Waste Management Plan to achieve the goal of diverting 75% of operational solid waste from the Project requiring landfill disposal. Property Owners shall process on-site, contract with a waste management company and/or recyclers, and/or self-haul to waste and recycling facilities to properly recycle, divert, and dispose of solid wastes generated on-site, such as metals, paper, household plastics, glass, cardboard, food waste, and green waste. The waste

hauler shall be required by contract to maintain records showing the diversion from landfills of not less than 75 percent of the operational waste generated by the Project. PDF 17-3 is required for implementation through MM 17-10.

As the Project will incorporate this project design feature and must comply with this applicable regulation imposed by law, the Project would contribute to the achievement for AB 32's goals related to solid waste.

### *Mobile Sources*

The GHG emissions associated with on-road mobile sources are generated from residents, workers, customers, and delivery vehicles visiting the land use types in the Project. The emissions associated with on-road mobile sources includes running and starting exhaust emissions, evaporative emissions, brake and tire wear, and fugitive dust from paved and unpaved roads. Mobile source emissions were calculated in CalEEMod. Trip generation rates were adjusted to be consistent with the trip generation data provided in the Project traffic impact analysis (TIA) (Stantec 2016). Average trip distance inputs were adjusted based on VMT data in the Project TIA. VMT and GHG emissions results are shown in Table 5.21-9. GHG emissions based on 2035 on-road emissions factors are calculated to be 160,904 MTCO<sub>2e</sub> per year. Further below in Table 5.21-10, a summary of all Project-related greenhouse gas emissions is presented.

**TABLE 5.21-9  
MOBILE SOURCE VEHICLE MILES TRAVELED AND  
GREENHOUSE GAS EMISSIONS**

Land Use	Vehicle Miles Traveled (VMT/yr)	GHG Emissions (MTCO <sub>2e</sub> /yr)*
City Park	750,300	194
Elementary School	15,864,160	4,098
General Light Industry	4,087,962	1,056
Government (Civic Center)	45,359,777	11,718
Health Club	7,694,986	1,988
High School	8,950,942	2,312
Office Park	128,855,027	33,287
Regional Shopping Center	79,419,401	20,516
Single-Family Housing	249,898,307	64,556
Apartments Mid Rise	81,986,191	21,179
<b>Total</b>	<b>622,867,052</b>	<b>160,904</b>
VMT/yr: vehicle miles traveled per year; MTCO <sub>2e</sub> /yr: Metric tons of carbon dioxide equivalent per year		
* CalEEMod does not output mobile source GHG emissions by land use; emissions apportioned based on VMT.		
Total may not add due to rounding.		
Emissions calculations can be found in Appendix 5.11-A.		

## **Regulatory Requirements**

**Light-Duty Vehicle Greenhouse Gas Emissions Standards and Corporate Average Fuel Economy Standards.** The USEPA and the NHTSA have been working together on developing a National Program of regulations to reduce GHG emissions and to improve the fuel economy of light-duty vehicles. On April 1, 2010, the USEPA and NHTSA announced a joint Final Rulemaking establishing standards for 2012 through 2016 model year vehicles. This was followed up on October 15, 2012, when the agencies issued a Final Rulemaking with standards for model years 2017 through 2025. The rules require these vehicles to meet an estimated combined average emissions level of 295 grams of CO<sub>2</sub> per mile by 2012, decreasing to 250 grams per mile by 2016, and finally to an average industry fleet-wide level of 163 grams per mile in model year 2025. The 2016 standard is equivalent to 35.5 miles per gallon (mpg) and the 2025 standard is equivalent to 54.5 mpg if the levels were achieved solely through improvements in fuel efficiency. These standards would cut GHG emissions by an estimated 2 billion metric tons and 4 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2017–2025).

**AB 1493 (Pavley Standard).** The Pavley Standard requires CARB to adopt regulations by January 1, 2005, to reduce GHG emissions from non-commercial passenger vehicles and light-duty trucks of model year 2009 and thereafter. The CalEEMod model includes emission reductions for non-commercial passenger vehicles and light-duty trucks of model year 2017–2025.

**Executive Order S-01-07 and CARB's Low Carbon Fuel Standard (LCFS).** Executive Order S-01-07 (January 18, 2007) requires a ten percent or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by CARB. The LCFS regulation went into effect on April 15, 2010, and requires a reduction in the carbon intensity of transportation fuels used in California by at least ten percent by 2020. It imposes fuel requirements on fuel that will be sold in California that will decrease GHG emissions by reducing the full fuel-cycle and the carbon intensity of the transportation fuel pool in California.

**Advanced Clean Cars Program.** The Advanced Clean Cars program, introduced in 2012, combines the control of smog, soot causing pollutants and greenhouse gas emissions into a single coordinated package of requirements for model years 2017 through 2025.

**Cap-and-Trade Regulation.** Emissions associated with transportation (largely in the form of consumption of transportation fuels) are the largest portions of Project GHG emissions. Transportation fuels are subject to the cap-and-trade regulation discussed previously in this section. The regulation requires that emissions generated by the combustion of fuels be reduced over time. Although not accounted for under the CalEEMod estimates of the Project's GHG emissions, the cap-and-trade regulations relating to fuels will reduce the Project GHG emissions beyond the estimates included in this section.

**Antelope Valley Area Plan (AVAP).** Under AVAP Policy M 2.3, the County must require trip reduction measures to relieve congestion and reduce air pollution from vehicle emissions when evaluating new development proposals.

---

### **Project Design Features**

**PDF 21-9.** The Green Development Program requires that the Project establish a Transportation Management Association (TMA) that develops strategic linkages with other Antelope Valley/Santa Clarita Valley TMAs or like organizations in order to maximize transit efficiencies and services. The TMA's purpose is to coordinate and facilitate transit and rideshare usage to serve as many riders as possible; to promote multi-modal transportation services and options; and to reduce resident and employee use of single-occupancy automobiles for off-site commuting, and for internal travel within the Specific Plan. PDF 21-9 is required for implementation through MM 10-1, detailed in Section 5.10, Traffic, Access, and Circulation. Elements of MM 10-1 that would reduce fossil fuel VMT and thereby reduce GHG emissions include, but are not limited to:

- Providing residents and employees with multiple modes of accessibility for internal and external trips by future residents and visitors;
- Providing residents and employees on the Project site with multiple modes of transportation;
- Allowing for 60 percent of residential units to be located within one-half mile of a Village center that includes retail uses;
- Providing parks within a 5-minute walk of all residences;
- Locating 90 percent of residents within a 10-minute bike ride of retail;
- Locating 70 percent of residents within a 15-minute bike ride of employment center;
- Locating 85 percent of residents within walking or biking distance of a school;
- Requiring TMA implementation of combination of transit and transportation measures to reduce on-site single-occupancy automobile use by 30 percent in relation to standard ITE-generation rates for the overall Project;
- Requiring TMA implementation of a combination of measures to reduce off-site peak hour commutes to and from the Project site in single-occupancy automobiles by 20 percent; and
- Incorporating Transportation Demand Management (TDM) features to reduce dependence on the automobile, provide for a more efficient use of transportation resources among Project occupants, and thereby reduce pollutant emissions. The key TDM elements that are inherent in the overall Mobility Plan are
  - Sidewalks, greenway trails, and community trails that link residential, schools, shopping, and employment areas;
  - Creation and ongoing operation of a Transportation Management Association (TMA) to fund and manage the operation of ongoing transportation programs, including but not limited to transit and on-demand services.
  - Small- to medium-sized streets and blocks that allow for shorter walking distances to retail, parks, schools, and other destinations;
  - Pedestrian environments incorporated with public streets;
  - Parking behind buildings to encourage walking in retail areas along street

frontage; and

- Parks within 0.25 mile of all residences.

**PDF 21-10.** The Centennial Affordable Housing Implementation Plan (see Appendix 3-H of the Centennial Specific Plan, which is in Appendix 4.0-A of the EIR) will be adopted in conjunction with the Specific Plan and will include dedication of a minimum of ten percent of all homes in Centennial communities that permit housing, with the exception of the lowest density area (Community 8-2) to be affordable housing units. A range of employment opportunities will be created within the community; therefore, a range of housing needs will be provided to reduce the number of vehicle trips (particularly long trips outside the Project). CAPCOA's *Quantifying Greenhouse Gas Mitigation Measures* identifies affordable housing as a quantifiable measure for reducing GHG emissions as it allows lower income families to live closer to jobs centers (CAPCOA 2010). PDF 21-10 is required for implementation through MM 21-14.

**PDF 21-11.** The *Centennial Specific Plan's* Green Development Program requires the installation of one 208/240 VAC receptacle that may be used for charging electric vehicles in each detached and attached single-family residence. The installation shall comply with requirements of Section 4.106.4.1 of the 2016 CALGreen Code. PDF 21-11 is required for implementation through MM 21-15.

**PDF 21-12.** The *Centennial Specific Plan's* Green Development Program requires each applicant for an applicable construction permit for a Business Park or Institutional land use to install "alternative energy fueling stations" as listed below. An "alternative energy vehicle fueling station" is a 208/240 VAC electrical vehicle charging station or a station providing another new or improved technology (e.g. CNG) and hydrogen fuel cell) that provides refueling for vehicles that do not use fossil fuel.

- Business Park and Institutional land use designations shall provide a minimum of one alternative energy vehicle fueling station on site for the first 50,000 square feet of usable floor space and additional alternative energy vehicle fueling stations for each additional 50,000 square feet of usable floor space thereafter.
- Multi-family residential buildings of at least 20 residential units shall provide a minimum of one alternative energy vehicle fueling station for the first twenty (20) residential units and an additional alternative energy vehicle fueling station for each additional twenty (20) residential units thereafter.
- The Town Center and each Village Center shall provide a minimum of one alternative energy vehicle charging station.
- Designated Transit Hubs shall provide a minimum of one alternative energy vehicle charging station.

PDF 21-12 is required for implementation through MM 21-16.

**PDF 21-13.** The Green Development Program requires that prior to the issuance of each nonresidential construction permit, the Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the building designs for non-residential buildings:

- Bicycle parking spaces at a rate of 5 percent of minimum required vehicle parking spaces for non-residential land uses.
- Preferential parking for low-emitting, fuel-efficient, and carpool/van vehicles shall be provided as specified in Section A5.106.5.1, Nonresidential Voluntary Measures, of the CALGreen Code.

PDF 21-13 is required for implementation through MM 21-17.

**PDF 21-14.** The Green Development Program requires that prior to the issuance of an applicable construction permit for each multi-family residential building permit, the Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the building designs or specifications:

- Visitor parking shall include preferentially located parking spaces for alternative-fueled vehicles.
- Bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen Code or as required by Section 22.52.1225B of the County Code, whichever is more stringent.

PDF 21-14 is required for implementation through MM 21-18.

**PDF 21-15.** The Green Development Program requires that, prior to issuance of an applicable construction permit for parking structures and parking lots with 20 or more parking spaces, the Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the parking facility:

- The parking facility shall include a minimum of five percent preferentially located parking spaces for alternative-fueled (electric, natural gas, or similar low-emitting technology) vehicles.
- The parking facility shall include at least one electric vehicle charging station. Electrical lines shall be designed and sized to add additional charging stations for up to three percent of the total parking spaces when a demand is demonstrated. The design and installation shall be consistent with Section A4.106.8.2, Residential Voluntary Measures, of the CALGreen Code.
- For residential parking facilities, bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen code or as required by Section 22.52.1225B of the County Code, whichever is more stringent.

PDF 21-15 is required for implementation through MM 21-19.

**PDF 21-16.** The Green Development Program requires that the Project Applicant/Developer provide:

- Internet infrastructure and high-speed broadband access to facilitate telecommuting, and
- A community intranet (or similar) with access for homeowners associations; interest groups; local event scheduling; schools, library, carpool and transit services; and other on-site entertainment and amenities reduce the need for people to use automobile travel to obtain the information that is provided.

Compliance shall be required prior to the issuance of building permit for the 1,000<sup>th</sup> residential unit. PDF 21-16 is required for implementation through MM 10-2 in Section 5.10, Traffic, Access, and Circulation.

As the Project will incorporate these project design features and must comply with these applicable regulations imposed by law, the Project would contribute to the achievement for AB 32's goals related to mobile source emissions.

Estimated Project operational GHG emissions are shown in Table 5.21-10. Table 5.21-10 also shows the combined operational, construction, and vegetation change GHG emissions.

As previously described in Section 5.21.5, under Threshold 21-1, this impact analysis evaluates consistency with applicable regulatory programs designed to reduce GHG emissions and that contribute to achievement of AB 32's goals as the primary significance criteria, a method of analysis that is consistent with pathways to compliance described in the *Newhall* decision. The quantitative emissions data in Tables 5.21-4 through 5.21-10 are provided for information purposes. Also for information purposes, Table 5.21-10 compares the emissions with the AVAQMD project-level CEQA significance threshold and the SCAQMD project-level recommended GHG efficiency threshold, both discussed in more detail below.



**TABLE 5.21-10  
OPERATIONAL AND TOTAL GHG EMISSIONS**

GHG Sources	Emissions MTCO <sub>2e</sub>	Percent of Operational Emissions
<i>Operational</i>	239,215	
Area	11,297	5%
Energy	49,414	21%
Mobile	160,904	67%
Solid waste	10,214	4%
Water	7,387	3%
<i>Construction</i>	4,490	
Vegetation loss	922	
New trees	-249	
<b>Total</b>	<b>244,379</b>	
<b>AVAQMD Project-Level CEQA significance threshold</b>	<b>100,000</b>	
Exceeds threshold?	Yes	
Service population (SP)	80,825	
<b>GHG Efficiency</b>	<b>3.02</b>	
<b>SCAQMD Plan-Level staff- proposed "plan-level" GHG efficiency threshold (MTCO<sub>2e</sub>/SP/Year)</b>	<b>4.1</b>	
Exceeds threshold?	No	
<b>SCAQMD Plan-Level staff- proposed "project-level" recommended GHG efficiency threshold (MTCO<sub>2e</sub>/SP/Year)</b>	<b>3.0</b>	
Exceeds threshold?	Yes	
GHG: greenhouse gas; MTCO <sub>2e</sub> : metric tons of carbon dioxide equivalent; AVAQMD: Antelope Valley Air Quality Management District; SCAQMD: South Coast Air Quality Management District.		
Emissions calculations can be found in Appendix 5.11-A.		

### **AVAQMD Thresholds**

The AVAQMD's *CEQA and Federal Conformity Guidelines* (2011) establishes significance thresholds to assess the regional impact of project-related air pollutant emissions in the AVAQMD. The AVAQMD threshold for GHG emissions is 100,000 MTCO<sub>2e</sub> per year. A project with emission rates below this threshold is considered to have a less than significant effect on regional air quality throughout the AVAQMD portion of the MDAB.

For informational purposes, the Project's estimated combined operational, construction, and vegetation change GHG emissions are 244,379 MTCO<sub>2e</sub>, thus exceeding AVAQMD's 100,000 MTCO<sub>2e</sub> threshold.

### **SCAQMD Thresholds**

In April 2008, SCAQMD convened a Working Group to develop GHG significance thresholds. On December 5, 2008, the SCAQMD Governing Board (Board) adopted its staff proposal for an interim CEQA GHG significance threshold for projects where the SCAQMD is the lead agency. As to all other projects, where the SCAQMD is not the lead agency, the Board has, to date, only adopted an interim threshold of 10,000 MTCO<sub>2e</sub> per year for industrial stationary source projects (SCAQMD 2008).

For all other projects, SCAQMD staff proposed a multiple tier analysis to determine the appropriate threshold to be used. The draft proposal suggests the following tiers: Tier 1 is any applicable CEQA exemptions; Tier 2 is consistency with a GHG reduction plan; Tier 3 is a screening value or bright line; Tier 4 is a performance based standard; and Tier 5 is GHG mitigation offsets (SCAQMD 2008). According to the presentation given at the September 28, 2010 Working Group meeting, SCAQMD staff proposed a Tier 3 draft threshold of 1,400 to 3,500 MTCO<sub>2e</sub>/year depending on if the project was commercial, mixed use, or residential (SCAQMD 2010). For the Tier 4 draft threshold SCAQMD staff presented a percent emission reduction target option but did not provide any specific recommendation for a percent emission reduction target; instead it referenced the San Joaquin Valley Air Pollution Control District (SJVAPCD) approach.

The percent reduction target is based on consistency with AB 32 as it was based on the same numeric reductions calculated in the Scoping Plan to reach 1990 levels by 2020. As discussed in Section 5.21.2, Relevant Plans, Policies, and Regulations, the First Update to the AB 32 Scoping Plan states the following (CARB 2014b):

California is on track to meet the near-term 2020 greenhouse gas limit and is well positioned to maintain and continue reductions beyond 2020 as required by AB 32.” Specifically, “if California realizes the expected benefits of existing policy goals (such as 12,000 megawatts [MW] of renewable distributed generation by 2020, net zero energy homes after 2020, existing building retrofits under AB 758, and others) it could reduce emissions by 2030 to levels squarely in line with those needed in the developed world and to stay on track to reduce emissions to 80 percent below 1990 levels by 2050.

The second Tier 4 option is to utilize an efficiency target. The targets for 2020 are 4.8 MTCO<sub>2e</sub> per year per service population (SP) for project level thresholds where SP is project residents plus employees and 6.6 MTCO<sub>2e</sub> per year per SP for a plan level threshold (SCAQMD 2010). The targets for 2035 are 3.0 MTCO<sub>2e</sub> per year per SP for project level thresholds and 4.1 MTCO<sub>2e</sub> per year per SP for a plan level threshold.

The Working Group has not convened since the fall of 2010. As of the writing of this EIR, the proposal has not been considered or approved for use by the SCAQMD Board.

The Project’s estimated combined operational, construction, and vegetation change GHG emissions are 244,379 MTCO<sub>2e</sub> and its estimated service population is 57,150 residents and 23,675 employees for a total of 80,825, resulting in annual emissions of 3.02 MTCO<sub>2e</sub> per service population. Thus, for informational purposes, the Project’s estimated emissions would exceed the 2035 “project-level” efficiency threshold of 3.0 MTCO<sub>2e</sub> proposed by

SCAQMD staff, which threshold has not been adopted by the SCAQMD Board. However, Project's estimated emissions would not exceed the 2035 "plan-level" efficiency threshold of 4.1 MTCO<sub>2e</sub> proposed by SCAQMD staff.

**Threshold 21-2 Would the project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?**

***Consistency with the Los Angeles County Community Climate Action Plan***

The Los Angeles County CCAP is designed to support the State's overall GHG reduction goals for 2020 under AB 32. The Project's consistency with the CCAP is shown in Table 5.21-11. If the Project is consistent with the CCAP, it would not have significant GHG emissions relative to the CCAP's 2020 planning horizon and the AB 32 reduction target. Since the Project has a phased implementation schedule with full buildout beyond the CCAP's 2020 planning horizon, consistency with the CCAP is only one *Newhall* compliance pathway used in this Section 5.21.6 to evaluate the significance of the Project's GHG emissions. However, the Project's consistency with the CCAP is important for determining the significance of GHG emissions for the current CCAP planning horizon.

As demonstrated in detail in Section 5.8, Land Use, Entitlements, and Planning, the Project would be consistent with the goals and policies of the AVAP, would implement the AVAP and would not conflict with it. Since the CCAP relies on the AVAP to inform its socioeconomic assumptions, and since the Project is consistent with the AVAP, it follows that the Project is also consistent with the socioeconomic assumptions contained in the County's CCAP.

The CCAP builds on existing County programs, and adds new actions, as shown in Table 5.21-11. Mandatory new actions are identified in ***bold and italic*** text, but this consistency analysis includes both mandatory and voluntary new actions. Centennial Implementation Actions, as shown in the Table 5.21-11 below, include a brief summary listing of Project Design Features (PDFs) and Mitigation Measures (MMs) presented in applicable topical sections 5.1 through 5.21 of this Draft EIR. The CCAP is a countywide program, and this analysis evaluates elements of the CCAP that are relevant to the Centennial Project.

**TABLE 5.21-11  
CENTENNIAL PROJECT COMPLIANCE WITH THE LOS ANGELES COUNTY  
COMMUNITY CLIMATE ACTION PLAN**

Existing Initiatives and New CCAP Actions	Centennial Implementation Actions
<b>CATEGORY 1: GREEN BUILDING AND ENERGY</b>	
<b>Existing County Initiatives</b>	
<i>Energy Upgrades to Existing Structures</i> provides rebates and incentives for energy retrofit efficiency projects.	Because Centennial will be a new community, energy efficiency is required for buildings, infrastructure (e.g., outdoor irrigation), and appliances. The Project does not include any existing structures, and thus this CCAP action is not applicable.
<i>Los Angeles County Code (Title 31)</i> requires implementation of sustainable policies for new building design.	Title 31 applies to the Project, and is implemented through a variety of measures including, for example (1) landscape design restrictions related to minimizing turf grass and the use of non-invasive and drought tolerant plants and tree species; (2) recycling and/or salvaging a minimum of 75% of the non-hazardous construction and demolition debris; and (3) compliance with a water budget for landscape irrigation use conforms to the California Department of Water Resources Model Water Efficient Landscape Ordinance.
<i>Commercial Building Performance Partnership</i> provides financial mechanisms for energy conservation upgrades to existing buildings.	Energy conservation is required for new structures, and no retrofits of existing structures are included in the Project and thus this CCAP action is not applicable.
<i>Renewable Energy and Clean Fuels Program</i> implements projects to accelerate the use of compressed natural gas as an alternative fuel.	Renewable energy produced within the Project will be primarily rooftop solar, and at minimum 50% of the Project's anticipated electricity demand will be satisfied from on-site renewable energy generation. It is anticipated that the dominant alternative transportation fuel will be electricity (e.g., electric and hybrid-electric vehicles); however, compressed natural gas (CNG) will also be made available as a transportation fuel to the extent consistent with then-applicable recommendations and/or requirements from the California Air Resources Board (CARB) and County.
<b>New CCAP Actions</b>	
<i>BE-1: Green Building Development</i> encourages energy reductions in new development through voluntary reductions that exceed the minimum standards set forth in the State's CALGreen Building Code (Title 24).	The Project exceeds the CALGreen Building Code minimum requirements in several ways, including: <ol style="list-style-type: none"> <li>1. Compliance with CALGreen voluntary measure A4.203.1.2.1 for low-rise residential buildings, resulting in buildings that would exceed 2016 Title 24 requirements by 15% (PDF 21-1).</li> <li>2. Compliance with CALGreen voluntary measure A5.203.1.2.1 for nonresidential buildings and residential buildings taller than 4 stories,</li> </ol>

**TABLE 5.21-11  
CENTENNIAL PROJECT COMPLIANCE WITH THE LOS ANGELES COUNTY  
COMMUNITY CLIMATE ACTION PLAN**

Existing Initiatives and New CCAP Actions	Centennial Implementation Actions
	<p>resulting in buildings that would exceed 2016 Title 24 requirements by 10%.</p> <p>3. Owners of all single-family units and multi-family residential structures are required, upon resale, to present to the buyer a written energy audit checklist at the time the seller provides the buyer with the Real Estate Transfer Disclosure Statement required by Section 1102 et seq. of the <i>California Civil Code</i>. The energy audit checklist shall certify that all heating, ventilation, and air conditioning (HVAC) systems, thermostats, appliances, windows, and swimming pools are either the same as originally installed or otherwise comply with the Green Development Program.</p> <p>4. For nonresidential buildings, within 90 days after the end of the first full calendar year following the issuance of the certificate of occupancy, and within 90 days after each 5-year period thereafter, the owner or tenant in possession thereof shall submit to the master commercial owners association or other applicable association a report prepared by the owner or a qualified, independent third party that evaluates whether all major building systems such as a heat furnace, air conditioner, and other energy-consuming mechanical fixtures are working within the design standards established by the manufacturer of such equipment.</p> <p>5. Residential appliances offered by builders shall consist exclusively of low-energy and/or low-water consuming appliances that are Energy-Star compliant for each appliance that is rated by Energy Star (e.g., refrigerator, clothes washer, dishwasher, and room air conditioner).</p> <p>These project design features meet and exceed the requirements of Section 22.52.2130 of the County Code (Green Building).</p>
<p><b>BE-2: Energy Efficiency</b> retrofits will be further encouraged for existing buildings and structures.</p>	<p>The Project does not include any existing buildings, so this measure is not applicable.</p>
<p><b>BE-3: Solar Installations</b> are encouraged for new and existing buildings</p>	<p>Renewable energy produced within the Project would be generated at a minimum of 50% of the Project’s anticipated electricity demand would be satisfied from on-site renewable energy generation. Specific metrics to achieve this goal include:</p>

**TABLE 5.21-11**  
**CENTENNIAL PROJECT COMPLIANCE WITH THE LOS ANGELES COUNTY**  
**COMMUNITY CLIMATE ACTION PLAN**

Existing Initiatives and New CCAP Actions	Centennial Implementation Actions
	<ol style="list-style-type: none"> <li>1. A minimum of 100% of all single-family detached residential units at buildout shall have solar energy collection equipment installed on roof areas or on top of other structures on the site (e.g., patio covers or pergolas).</li> <li>2. Single-family detached residential units with roof areas that are within 30 degrees of true south shall include plumbing appropriate for a solar water heating running from the installed water heater to the solar-ready roof areas, and those with roof areas that are not within 30 degrees of true south shall be plumbed to accommodate an on-demand tankless water heater.</li> <li>3. A minimum of 10% of all single-family detached residential units at buildout shall either include an installed solar water heater, tankless water heater, or other energy efficient water heater technology approved by the County.</li> <li>4. A minimum of 30% of all multi-family residential units at buildout shall have solar energy collection equipment, which shall be installed on roof areas facing within 30 degrees of true south.</li> <li>5. All swimming pools constructed within the Project shall be heated by a solar water heating system or renewable power system that provides electricity for water heating.</li> <li>6. A minimum of 60% of buildings located within Business Park land use designations at buildout shall have solar panel systems installed on roof areas. Such systems shall be installed on roof areas facing within 30 degrees of true south.</li> </ol>
<p><b>BE-4: Alternative Renewable Energy Programs</b> are designed to encourage the use of non-solar renewable energy technology such as wind, hydropower, and geothermal resources, as feasible.</p>	<p>The Project site does not have hydropower or geothermal resources. Utility-scale wind plants present a potential hazard to sensitive biological resources such as the California Condor, and utility-scale solar plants are not an authorized use on the Project site or vicinity under the Antelope Valley Area Plan.</p>
<p><b>BE-5: Wastewater Treatment Plant Biogas</b> recovery and reuse</p>	<p>The Project's wastewater reclamation facilities (WRF) will include equipment to capture and reuse biogas for energy production.</p>
<p><b>BE-6: Energy Efficiency Retrofits of Wastewater Equipment</b> promotes efficient treatment equipment</p>	<p>There is no existing wastewater treatment facility at the Project site, so this measure is not applicable.</p>
<p><b>BE-7 Landfill Biogas</b> encourages renewable biogas projects at regional landfills.</p>	<p>There is no existing or proposed landfill at the Project site, so this measure is not applicable.</p>

**TABLE 5.21-11  
CENTENNIAL PROJECT COMPLIANCE WITH THE LOS ANGELES COUNTY  
COMMUNITY CLIMATE ACTION PLAN**

Existing Initiatives and New CCAP Actions	Centennial Implementation Actions
<b>CATEGORY 2: LAND USE AND TRANSPORTATION</b>	
<b>Existing County Initiatives</b>	
<p><b>Healthy Design Ordinance</b> (Ordinance 2013-001, amending Title 21 (Subdivisions) and Title 22 (Planning and Zoning)) is designed to require projects to have better walking environments (e.g., with wider sidewalks and more shade trees), encourage more bicycling (e.g., by requiring bike parking), improve access to healthy foods (e.g., with weekly farmer’s markets and permissible community gardens), and enhance project review requirements to provide an opportunity to review healthy design features such as landscaping, lighting, street furniture and bike parking spots.</p>	<p>The Project design complies with all of the substantive standards of the Healthy Design Ordinance, including but not limited to requirements for right-of-way widths; pedestrian crossings; tree plantings in lot frontages; and bicycle parking facilities. The Project allows community gardens as legally permitted uses in residential and mixed use areas of the Project. The Project Transportation Demand Management (TDM) Program includes bicycle program metrics, discussed below.</p>
<p><b>Bicycle Master Plan</b> promotes bicycle ridership and bike-friendly designs throughout the County.</p>	<p>The Project includes a safe and aesthetically pleasing dedicated bicycle network and pedestrian system into all development designs, and distribute community uses such as neighborhood parks, elementary schools, and neighborhood-scale retail in key locations throughout the Project to reduce single-occupancy automobile travel for these neighborhood-scale destinations. The Project TDM Program includes bicycle program metrics, discussed below.</p>
<p><b>Sustainable Transportation Programs</b> to increase the efficiency of the transportation network.</p>	<p>The Project includes the following measures to reduce single-occupancy commuter travel to and from the Project site:</p> <ol style="list-style-type: none"> <li>1. Land use planning principles that create a balanced master-planned community that includes:               <ol style="list-style-type: none"> <li>A. Mixed-use neighborhoods where residential, commercial, and other employment-generating uses and institutional/public uses are proximate to each other and connected by a network of trails to reduce reliance on automobile use within the Project site.</li> <li>B. A diverse range of residential product types, including dedication of a minimum of 10% of residential units as affordable housing, to compliment the diverse range of employment opportunities within the Project and help minimize the off-site employment commuter trips.</li> </ol> </li> <li>2. Establishment of a Transportation Management Association (TMA) that develops strategic linkages with other Antelope Valley/Santa Clarita Valley TMAs or like organizations in order to maximize</li> </ol>

**TABLE 5.21-11**  
**CENTENNIAL PROJECT COMPLIANCE WITH THE LOS ANGELES COUNTY**  
**COMMUNITY CLIMATE ACTION PLAN**

Existing Initiatives and New CCAP Actions	Centennial Implementation Actions
	transit efficiencies and services. The TMA's purpose is also to coordinate and facilitate transit and rideshare usage to serve as many riders as possible, and to reduce the volume of automobile trips within and from the Project site, as described in more detail in the Project TDM Program below.
<b>New CCAP Actions</b>	
<b>LUT-1: Bicycle Programs and Supporting Facility improvements</b> to expand the County's existing bicycle network.	As a new community, the Project includes a network of multi-purpose trails and community trails, in addition to the greenways and paseos. The Project trail system will connect to the Pacific Crest Trail (PCT), which is designated as a National Scenic Trail that traverses approximately 2,650 miles through 3 states (California, Oregon, and Washington) will be relocated to the west side of 300 <sup>th</sup> Street West, which travels through the Project site. This realignment is not a part of the Project, but is assumed to be the future alignment for evaluation purposes in this EIR. Project requires bicycle parking facilities that meet or exceed the requirements of County Section 22.52.1225B, to encourage and support bicycle use.
<b>LUT-2: Pedestrian Network improvements</b> to expand the County's existing pedestrian network.	As a new community, the Project implements a Complete Streets design approach that includes sidewalks and dedicated bicycle network and pedestrian system incorporated into all development designs and throughout the community to reduce single-occupancy automobile travel for neighborhood-scale destinations.
<b>LUT-3: Transit Expansion</b> to create priority bus lanes and improve the existing efficiency of the transportation network.	As a new community, the Project implements a TDM Program that includes strategic linkages with other Antelope Valley/Santa Clarita Valley TMAs or like organizations in order to maximize transit efficiencies and services. The TMA's purpose is to coordinate and facilitate transit and rideshare usage to serve as many riders as possible.
<b>LUT-4: Travel Demand Management</b> to encourage ride-sharing and employer-sponsored vanpools to reduce peak-period vehicle trips.	The Project TDM Program encourages ride-sharing and employer-sponsored vanpools, as well as other measures to reduce automobile trips within and from the Project site. The TDM will be managed by the TMA.
<b>LUT-5: Car-Sharing Program</b> promotes the shared use of private and employer-owned vehicles.	The Project TDM Program includes formation of strategic partnerships with car sharing services (e.g., Uber or Lyft) and other innovation/technology approaches to increase transportation efficiency, as described in more detail below.



**TABLE 5.21-11**  
**CENTENNIAL PROJECT COMPLIANCE WITH THE LOS ANGELES COUNTY**  
**COMMUNITY CLIMATE ACTION PLAN**

Existing Initiatives and New CCAP Actions	Centennial Implementation Actions
<p><b>LUT-6: Land Use Design and Density</b> targets land use patterns to support mobility, and improve the diversity of urban and suburban developments</p>	<p>The Project includes a balanced mix of housing, employment, and community uses including schools, retail, and public services, to minimize off-site trips. The Project design also encourages pedestrian and bicycle use, and includes a diverse range of housing types.</p>
<p><b>LUT-7: Transportation Signal Synchronization Program</b> Improve the network of traffic signals on the major streets throughout Los Angeles (LA) County.</p>	<p>The Project does not include any existing traffic signals, but will use synchronized traffic signals to ensure the efficient use of future Project roadways.</p>
<p><b>LUT-8: Electric Vehicle Infrastructure.</b> Install EV charging facilities at County-owned public venues and ensure that at least one-third of these charging stations will be available for visitor use.</p>	<p>The Project requires electric vehicle infrastructure, specifically:</p> <ol style="list-style-type: none"> <li>1. Builders will be required to install one 240 volt of alternating current (VAC) outlet available for use to charge electric vehicles in the garage or other suitable location for each single-family home.</li> <li>2. For business park and institutional land uses, a minimum of 1 electric vehicle charging station (consisting of a 208/240 VAC or alternative electric charging technology approved by the County, serving 2 adjacent parking spaces) will be installed for the first 50,000 square feet (sf) of building space, and an additional fueling station will be installed for each subsequent 50,000 sf of building space.</li> <li>3. For multi-family residential projects that include at least 20 units, a minimum of 1 electric vehicle charging station be installed for the first 20 units and an additional charging station will be installed for each subsequent 20 units.</li> <li>4. Preferential parking for low-emitting, fuel-efficient, and carpool/van vehicles shall be provided for nonresidential structures larger than 20,000 sf and made available for employees and visitors.</li> <li>5. For parking facilities and parking lots with more than 20 spaces, the parking facility or lot must include: <ol style="list-style-type: none"> <li>A. A minimum of 5% preferentially located parking spaces for alternative-fueled vehicles.</li> <li>B. Electrical lines designed and sized to provide electric vehicle charging stations for</li> </ol> </li> </ol>

**TABLE 5.21-11**  
**CENTENNIAL PROJECT COMPLIANCE WITH THE LOS ANGELES COUNTY**  
**COMMUNITY CLIMATE ACTION PLAN**

Existing Initiatives and New CCAP Actions	Centennial Implementation Actions
	up to 3% of parking space when demand is demonstrated.
<b>LUT-9: Idling Reduction Goal.</b> Encourage idling limits of 3 minutes for heavy-duty construction equipment as feasible within manufacturer's specifications.	The Project includes as a mandatory contract specification for all construction contractors a restriction to limit unnecessary construction equipment idling to 3 minutes, and include methods to encourage equipment operators to achieve the 3-minute goal.
<b>LUT-10: Efficient Goods Movement</b> is designed to improve cargo transport on existing roadways and transportation infrastructure.	The Project includes contributions to California Department of Transportation (Caltrans) to avoid any adverse Project-related impact to goods movement on Interstate (I) 5 and State Route (SR) 138. Contributions are described in mitigation measures in Section 5.10, Traffic, Access and Circulation.
<b>LUT-11: Sustainable Pavements Program</b> is designed to improve the resiliency of, and reduce the GHG emissions associated with, existing paved roadways.	The Project will use durable roadway paving materials that will be determined upon consideration of aggregates, asphalt materials, cementitious materials, recycled materials, and other roadway materials that are commonly used in pavement construction in order to assess from a life-cycle perspective the role they play in contributing to the sustainability of the Project's pavement system. "Cool" pavements will be used to reduce heat island effects.
<b>LUT-12: Electrify Construction and Landscaping Equipment.</b> Utilize electric equipment wherever feasible for construction projects. Reduce the use of gas-powered landscaping equipment.	All landscape maintenance equipment at Centennial will be electric. The Project will incorporate an outreach and education program for the Centennial property owners, in collaboration of SCAQMD, to reduce the use of gasoline-or diesel-powered landscaping equipment.
<b>CATEGORY 3: WATER CONSERVATION AND WASTEWATER</b>	
<b>Existing County Initiatives</b>	
<b>Conservation rebates, smart gardening workshops and stormwater controls</b> provide water and wastewater improvements in existing communities	This measure does not apply to new communities. The Project includes compliance with drought-response State measures including the Model Water Efficient Landscape Ordinance (MWELO), which are more stringent than required by CALGreen (DWR 2015). The Project includes 2 WRFs that will provide a reliable supply of recycled water for landscaping, to reduce reliance on potable water supplies.
<b>New CCAP Actions</b>	
<b>WAW-1: Per Capita Water Use Reduction Goal.</b> Meet the State established per capita water use reduction goal as identified by Senate Bill (SB) X7-7 for 2020. The State goal is a 20 percent reduction in per capita water use compared to baseline levels.	The final EIR for the Antelope Valley Area Plan (AVAP) update utilized the Antelope Valley Integrated Regional Water Management Plan (AVIRWMP) average Antelope Valley estimate of per capita water use (199 gallons per capita per day

**TABLE 5.21-11**  
**CENTENNIAL PROJECT COMPLIANCE WITH THE LOS ANGELES COUNTY**  
**COMMUNITY CLIMATE ACTION PLAN**

Existing Initiatives and New CCAP Actions	Centennial Implementation Actions
	<p>[gpcd]) to evaluate the water demand growth that could occur from the implementation of the AVAP. At full buildout, the Project's total per capita water use would be approximately 177.5 gpcd.</p> <p>The Project would reduce water demand by approximately 10% below the per capita average consumption in the Antelope Valley. The analysis compared the Project to the baseline per capita consumption in the Project vicinity since the Project site is undeveloped there is not an established baseline of water consumption on the Project site.</p>
<p><b><i>WAW-2: Recycled Water, Water Supply Improvement Programs, and Stormwater Runoff.</i></b>  Promote the use of wastewater and gray water to be used for agricultural, industrial, and irrigation purposes. Manage stormwater, reduce potential treatment, and protect local groundwater supplies.</p>	<p>The Project includes a comprehensive water resources management program, including:</p> <ol style="list-style-type: none"> <li>1. <i>Recycled Water.</i> The Project includes water recycling facility to recycle, and reuse, wastewater piped to the Project WRF. All nonresidential and multi-family development must install recycled water infrastructure to irrigate common areas for these facilities (except where prohibited by law), and all available recycled water shall be used for such irrigation uses.</li> <li>2. <i>Potable Water Conservation.</i> The Project includes numerous potable water conservation measures, including: <ol style="list-style-type: none"> <li>A. Establishing maximum available water allocations for each residential and commercial parcel, and monitoring and enforcing such allocations through a metering system and rate structure and/or penalty structure for those exceeding their water allocations.</li> <li>B. Restricting outdoor landscaping planting in private yards to a designated low-water plant pallets to minimize use of potable water for private landscaping, prohibiting turf in commercial projects, and restricting turf to 25% of landscaped areas on private residential projects.</li> <li>C. Requiring the exclusive use of Energy Star or equivalent major appliances, as described above, that use less water (as well as less energy).</li> <li>D. Requiring the exclusive use of kitchen and bathroom faucets that comply with 2013</li> </ol> </li> </ol>

**TABLE 5.21-11  
CENTENNIAL PROJECT COMPLIANCE WITH THE LOS ANGELES COUNTY  
COMMUNITY CLIMATE ACTION PLAN**

Existing Initiatives and New CCAP Actions	Centennial Implementation Actions
	<p>CALGreen code residential voluntary measures specified in Sections A4.303.1 and A4.303.3 of the code.</p> <p>3. <i>Storm Water Management.</i> The Project's integrated water resources management approach will comply with County requirements related to hydrology and flood control considerations through compliance with Low Impact Development (LID) standards and best management practices (BMPs) for sediment management through hydromodification techniques. The Project includes 2 WRFs that will provide a reliable supply of recycled water for landscaping, to reduce reliance on potable water supplies. The Project provides a reliable water supply through use of an integrated water resources management approach that incorporates water conservation measures; uses recycled water for non-potable uses; uses multiple sources of water supply to ensure that the Project's water needs are met without the need to solely rely on the annual delivery of a fixed amount of imported water; provides a high degree of water supply reliability for each stage of Project buildout; and minimizes the impacts of additional water demand on the state's water supply.</p>
<b>CATEGORY 4: WASTE REDUCTION, REUSE AND RECYCLING</b>	
<b>Existing Initiatives</b>	
<p><b><i>Community waste diversion programs to redirect 50 percent of solid wastes to recycling or re-use instead of landfills</i></b></p>	<p>The Project will exceed this existing measure by implementing a 100 percent diversion of soil during grading activities, and at least 70 percent of non-hazardous construction and demolition waste. The Project will also divert 75 percent of operational solid waste.</p>
<b>New CCAP Action</b>	
<p><b><i>SW-1: Waste Diversion Goal.</i></b> For the County's unincorporated areas, adopt a waste diversion goal to comply with all State mandates to divert at least 75 percent of waste from landfill disposal by 2020.</p>	<p>The Project includes both a construction and operational waste reduction measures.</p> <p>1. The Project must implement a plan and monitoring program to ensure recycle or reuse of a minimum of 75% by weight of construction and demolition debris, exclusive of soil, rock, and gravel. This quantity exceeds the 50% requirement of Section 20.87.040 of the County Code and the 75% target proposed in the CCAP.</p>

**TABLE 5.21-11**  
**CENTENNIAL PROJECT COMPLIANCE WITH THE LOS ANGELES COUNTY**  
**COMMUNITY CLIMATE ACTION PLAN**

Existing Initiatives and New CCAP Actions	Centennial Implementation Actions
	<p>2. The Developer must provide the County with a contract establishing an on-site waste recycling and composting program, including the collection of metals, paper, household plastics, glass, cardboard, green waste and food waste. The waste hauler should be required by contract to maintain records showing the diversion of not less than 75% of the operational waste generated by the Project. The Project will include a minimum of five acres for a Materials Recovery Facility/Transfer Station (MRF/TS), which may include mulching and composting operations and a Household Hazardous Waste Permanent Collection Center. An MRF/TS could be privately or publicly operated. The MRF/TS would allow for all materials that are recyclable to be sorted and compacted for shipment to an off-site recycling processing facility. The Developer shall encourage a waste management company to build these facilities within the Project site by grading, improving, and providing utility hookups by the end of the first phase of construction. The CC&amp;R for the MRF/TS will require that the lot provided within the site remain as a Non-Disposal Solid Waste Processing Facility.</p>

**TABLE 5.21-11  
CENTENNIAL PROJECT COMPLIANCE WITH THE LOS ANGELES COUNTY  
COMMUNITY CLIMATE ACTION PLAN**

Existing Initiatives and New CCAP Actions	Centennial Implementation Actions
<b>CATEGORY 5: LAND CONSERVATION AND TREE PLANTING</b>	
<b>Existing Initiatives</b>	
<i>Implementation of the urban forestry plan and oak woodlands conservation management plan.</i>	The Project’s Natural Resources/Open Space Management Plan includes both on-site and off-site preserve areas. Approximately 5,116 acres of open space are available for use as on-site mitigation and off-site mitigation areas total 23,547 acres, for a combined total of 28,663 acres of preserved open space resulting from Project implementation. The Project avoids development within established Significant Ecological Areas, minimizes disturbance of high-value biological resources, including native grasslands, oak savannas, and oak woodlands, and preserve contiguous open space areas in order to keep its viability as wildlife habitat. Open spaces will be provided within the Business Park that allow for wildlife movement between the southern portion of the Project site through to the drainage located on the northern side of SR 138.
<b>New CCAP Actions</b>	
<i>LC-1: Develop Urban Forests.</i> Support and expand urban forest programs within the unincorporated areas.	The Project’s Natural Resources/Open Space Management Plan includes both on-site and off-site preserve areas. Approximately 5,116 acres of open space are available for use as on-site mitigation and off-site mitigation areas total 23,547 acres, for a combined total of 28,663 acres of preserved open space resulting from Project implementation. The Project avoids development within established Significant Ecological Areas, minimize disturbance of high-value biological resources, including native grasslands, oak savannas, and oak woodlands, and preserve contiguous open space areas in order to keep its viability as wildlife habitat.  The planting of an estimated 35,123 new trees, as required by the County Tree Planting Ordinance would result in an estimated long-term sequestration of 24,867 metric tons of carbon dioxide equivalent (MTCO <sub>2e</sub> ). This is a conservative analysis, as it is likely that many more trees would be planted than the minimum required by the County ordinance.
<i>LC-2: Create New Vegetated Open Space.</i> Restore and revegetate previously disturbed land and/or unused urban and suburban areas.	This action is not directly applicable to new development projects. However, the Project’s Natural Resources/Open Space Management Plan includes both on-site and off-site preserve areas. Approximately 5,116 acres of open space are available for use as on-site mitigation and off-site mitigation areas total 23,547 acres, for a combined

**TABLE 5.21-11**  
**CENTENNIAL PROJECT COMPLIANCE WITH THE LOS ANGELES COUNTY**  
**COMMUNITY CLIMATE ACTION PLAN**

Existing Initiatives and New CCAP Actions	Centennial Implementation Actions
	total of 28,663 acres of preserved open space resulting from Project implementation. The Project avoids development within established Significant Ecological Areas, minimize disturbance of high-value biological resources, including native grasslands, oak savannas, and oak woodlands, and preserve contiguous open space areas in order to keep its viability as wildlife habitat. Additionally, the Project would plant an estimated 35,123 new trees, as required by the County Tree Planting Ordinance. This would result in an estimated long-term sequestration of 24,867 MTCO <sub>2e</sub> . This is a conservative analysis, as it is likely that many more trees would be planted than the minimum required by the County ordinance
<b>LC-3: Promote the Sale of Locally Grown Foods and/or Products.</b> Establish local farmers markets and support locally grown food.	The Project will include a weekly Farmer's Market sponsored by the homeowners association (HOA) or other entity selected by the Master Applicant/Developer, and will allow for community gardens as a permitted use in commercial and residential areas.
<b>LC-4: Protect Conservation Areas.</b> Encourage the protection of existing land conservation areas.	The Project's Natural Resources/Open Space Management Plan includes both on-site and off-site preserve areas. Approximately 5,116 acres of open space are available for use as on-site mitigation and off-site mitigation areas total 23,547 acres, for a combined total of 28,663 acres of preserved open space resulting from Project implementation. The Project avoids development within established Significant Ecological Areas, minimize disturbance of high-value biological resources, including native grasslands, oak savannas, and oak woodlands, and preserve contiguous open space areas in order to keep its viability as wildlife habitat.

As shown in Table 5.21-11, the Project would be consistent with, and would not conflict with, all applicable actions of the CCAP and its greenhouse gas reduction strategy.

The CCAP also recognizes the importance of ongoing implementation of statewide GHG reduction statutory mandates, including the following:

- **STATE-1:** Renewable Portfolio Standard, which requires California utilities to generate 50 percent of the state's electricity from renewable sources by 2030.
- **STATE-2:** CALGreen Building Code Standards (Title 24), which reduces GHG emissions through energy and water efficiency standards to be implemented in Commercial and Residential Buildings.

- **STATE-3:** Pavley/Advanced Clean Cars fuel efficiency standards, and Low Carbon Fuel Standards for on-road transportation, to reduce GHG emissions from fossil fuel use in transportation.
- **STATE 4:** Low Carbon Fuel Standard for Off-road Equipment and Vehicles, to reduce GHG emissions from fossil fuel use in construction equipment and other off-road equipment and vehicles.
- **STATE 5:** California Cap-and-Trade Program, to reduce GHG from stationary sources like factories and power plants, and from fossil fuel use.

These statewide mandates apply to Centennial-related buildings and activities, and will further reduce Project-related GHG emissions.

### ***Consistency with the SCAG 2016–2040 RTP/SCS***

The 2016-2040 RTP/SCS is the regional sustainable community strategy prepared pursuant to SB 375. The 2016–2040 RTP/SCS, prepared pursuant to SB 375 includes the same land use designations and density assumptions for Centennial Project site as the approved 2012–2035 RTP/SCS. As demonstrated in Section 5.9, Population, Housing, and Employment, the regional projections formally adopted by SCAG in its 2012–2035 RTP/SCS are used to determine Project conformity with these projections.

Demographic projections included as part of the adopted SCAG 2016–2040 RTP/SCS include development of the Project and are the most recently updated demographic projections available for the Project site and regional vicinity. The County and regional projections were formally adopted by SCAG and the Project has been analyzed to determine conformity with these projections in Section 5.9, Population, Housing, and Employment, of this EIR. Thus, the Project is consistent with, and would not conflict with, the regional blueprint prepared in accordance with SB 375 to reduce the regional share of GHG emissions attributable to the land use sector.

### **Off-Site Impacts**

Construction of the off-site Project features (i.e., roadway improvements, water infrastructure, and utilities connections), as described in Section 4.7 of the EIR, would generate short-term GHG emissions. These construction activities and their associated emissions would be a small part of the estimated on-site emissions, quantified above in Table 5.21-10. Upon completion of construction, the Project off-site roadway, water infrastructure, and utility improvements would not generate GHG emissions.

### **Impact Summary**

Under AB 32, CARB, which is the agency in charge of regulating sources of emissions of GHGs in California, has been tasked with adopting regulations for reduction of GHG emission. The effects of the Project are evaluated based on whether the Project implements reduction strategies identified in applicable statutes such as AB/SB 32 and its implementing plans and regulations and other legal requirements and plans to reduce GHG to meet statutory requirements. As discussed above in Section 5.21.5, this impact analysis evaluates the



Project's compliance with applicable regulatory programs designed to reduce GHG emissions and that contribute to achievement of the State's GHG reduction goals in order to determine whether the Project would generate direct or indirect GHG emissions that may have a significant impact on the environment, a "pathway to compliance" recognized by the Supreme Court in the *Newhall* decision. As discussed under Threshold 21-1, the Project would comply with, and would be consistent with, applicable regulatory programs designed to reduce GHG emissions and would thus contribute to the achievement of AB 32's greenhouse gas reduction goals. Since the Project would comply with applicable regulatory programs designed to reduce GHG emissions, the Project-level impact related to GHG emissions could be considered less than significant under Threshold 21-1.

Furthermore, as discussed above under Threshold 21-2, this impact analysis evaluates whether the project would conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases by examining its consistency with the CCAP and SCAG's RTP/SCS, another "pathway to compliance" recognized by *Newhall*. As discussed above, the Project would be consistent with, and would not conflict with, the Los Angeles County CCAP, which meets the requirements for a programmatic climate action plan specified in Section 15183.5 of the State CEQA Guidelines, as well as the RTP/SCS, the regional sustainable communities strategy prepared pursuant to SB 375. Since the Project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs, and would be consistent with, and not conflict with, an applicable plan, policy or regulation adopted for the purpose of reducing GHG emissions, the Project-level impact related to GHG emissions could be considered less than significant under Threshold 21-2.

However, climate change is a global phenomenon and the significance of greenhouse gas emissions is inherently cumulative in nature. Accordingly, the Project's impact related to GHG emissions is most appropriately considered on a cumulative level, not on a project level. As described above, the Project would emit GHGs at an estimated rate of 278,577 metric tons per year that would contribute to the global inventory of GHGs.

To date, California remains a global leader in mandating GHG emission reductions across a broad spectrum of economic sectors, and most other nations and states have not enacted regulations similar to those adopted in California. California also already has nearly the lowest level of GHG per capita of any state. The County of Los Angeles has no jurisdictional control or responsibility for GHG reductions in other parts of California (and certainly not in the context of global action), which all contribute to climate change. In addition, the County does not have jurisdiction to enforce statewide implementation of all of the applicable GHG-reducing regulatory programs with which the Project (and other statewide projects) must comply. Although many other agencies with the necessary jurisdiction are currently taking action to reduce GHG emissions, the County cannot assure that these measures would ultimately be implemented or sufficient to address climate change. In light of these considerations, as well as the global nature climate change related to GHG emissions and the Project's total estimated GHG emissions, the Project's incremental contribution to the global GHG emissions inventory would be considered cumulatively considerable and this cumulative impact is significant and unavoidable, even though the Project satisfies several "pathways to compliance" identified by the *Newhall* court.

### **5.21.7 MITIGATION MEASURES**

The mitigation measures included below were informed by a review of potentially feasible GHG reduction measures identified by staff from the Attorney General of California, included on lists of potentially feasible measures from other agencies (e.g., Air Districts, planning associations), and measures suggested by the applicant.

Because the Office of Planning and Research (OPR) and other expert agencies and scientists agree that GHG emissions are inherently a cumulative impact issue relative to global climate change, the CEQA requirements for mitigating the project's contribution to a significant cumulative impact apply. The Supreme Court in the Newhall case identified several compliance pathways for assessing the significance of GHG emissions from projects, as described above. The project complies with each applicable pathway, and thus has a less than significant impact at a project level.

At a cumulative level, the project contributes GHG emissions to the global inventory of GHG emissions which are collectively causing climate change; however, on this global scale the GHG emissions of a single development project are insufficient to cause a significant adverse global climate change impact since all of California's anthropomorphic activities taken together account for only about 1% of global anthropomorphic GHG emissions based on US EPA data (2015). This conclusion that the project alone does not cause or substantially contribute to a significant adverse cumulative GHG impact is further supported by the fact that this project is designed to accommodate forecast population and economic growth based on growth allocations made by the state Department of Community Development, and assigned by regions and local jurisdictions as part of the Regional Housing Needs Assessment and Sustainable Communities Strategies programs described further in Section 5.9, and the project does not itself cause this population or economic growth. In fact, if this forecast growth does not occur on the Project site, it is likely to occur in other locations where per capita GHG emissions are equal to or higher than average per capita emissions in California. Per capita GHG emissions can vary by local jurisdiction, but locations with the lowest per capita emissions (San Francisco and New York City) also have housing costs that are among the highest in the nation as well as the state. Due to the widespread shortage and very high cost of California housing, numerous studies have confirmed that over 600,000 people have moved from California to other states over the past several years, and since most of those states (e.g., Texas, Arizona, Nevada) have much higher per capita GHG emissions than California the net effect of continuing to provide insufficient housing opportunities for California is to cause a net increase in global GHG for people who relocate to states with more housing opportunities.

Finally, courts have consistently held that single projects cannot be required to bear a greater than proportional share of mitigating a cumulative significant impact. Because GHG emissions from transportation, water and waste management and use, heating and cooling of buildings, and a myriad of other activities are common to all new and modified development projects, and are common attributes of simply residing, working or producing goods or services in California, the feasibility of the mitigation measures required for this project must be commensurate with a fair share allocation and not with a hypothetical “net zero” or “net reduction” threshold. Within this cumulative impact mitigation measure framework, all feasible mitigation measures to reduce the Project’s GHG emissions impacts have been required and are described below:

- MM 21-1** The Project Applicant/Developer shall provide the County with plans and specifications that demonstrate 50 percent of the Project’s anticipated electrical energy demand at buildout shall be satisfied from on-site renewable energy generation. “Anticipated electrical energy demand” shall be determined on the basis of the anticipated loads for each building as shown in the reports submitted at the time of building permit application pursuant to the Building Energy Efficiency Standards of Title 24. “On-site renewable energy generation” includes, but is not limited to, solar, wind, geothermal, biofuel and hydroelectric systems. These systems shall be installed in connection with the development of one or more of the following: residential units, nonresidential buildings, public buildings, or Specific Plan utility facilities located either within the Specific Plan area or within its immediate vicinity.
- MM 21-2** The Project’s plans and specifications shall demonstrate compliance with California Green Building Standards (CALGreen) Code voluntary measure A4.203.1.2.1 Tier 1 for newly-constructed low-rise residential buildings. Therefore, the energy efficiency of these buildings would exceed 2016 Title 24 requirements by 15 percent. Low rise buildings are three stories or less. The Project shall incorporate the Green Development Program (Centennial Specific Plan, Appendix 2A), and the Project Applicant/Developer shall be responsible for the implementation of this requirement, which may include energy reduction measures such as use of high performance glazing, radiant heat roof barriers, insulation of all pipes, programmable thermostats, fluorescent and LED bulbs, solar access, sealed ducts, strategic placement of trees and other shading devices. All single-family homebuyers shall have the option to include a photovoltaic array system.
- MM 21-3** The Project’s plans and specifications shall demonstrate compliance with CALGreen voluntary measure A5.203.1.2.1 Tier 1 for nonresidential buildings (e.g. hotel, high-rise residential), thereby exceeding the 2016 Title 24 energy efficiency requirements for these buildings by 10 percent. The Project shall incorporate the Green Development Program (*Centennial Specific Plan*, Appendix 2A), and the Project Applicant/Developer shall be responsible for the implementation of this requirement, which may include energy reduction measures such as high performance glazing, radiant heat roof barriers, high-

efficient HVAC with hot-gas reheat, insulation of all pipes, programmable thermostats, fluorescent and LED bulbs, solar access, sealed ducts, zero use of CFC refrigerants in commercial buildings, strategic placement of trees, and other shading devices. Commercial structures shall include passive solar design techniques, such as a north-south panel orientation on buildings, and shall install operable windows designed to maximize natural ventilation by opening into prevailing west winds at inlets and away outlets, thereby reducing use of interior climate controls.

**MM 21-4** The Project Applicant/Developer shall require, in contract specifications, that contractors limit construction equipment idling to 3 minutes and include a program to ensure that equipment operators comply with the 3-minute limit.

**MM 21-5** The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that a minimum of 70 percent of public and community pools and spas shall be equipped with active solar heating systems where heating is necessary or desired. The Project Applicant/Developer shall provide the proposed plan for compliance with this provision prior to obtaining a permit for the pool.

**MM 21-6** Deeds, CC&Rs or similar legal documents shall contain the following requirement: The owners of all single-family and multi-family residential units shall be required, upon resale, to present to the buyer a written energy audit checklist prepared by a qualified third party at the time the seller provides the buyer with the Real Estate Transfer Disclosure Statement required by California Civil Code, Section 1102 et seq. The energy audit checklist shall certify that all HVAC systems, thermostats, appliances, windows and swimming pools (if applicable) are the same as those originally installed or, if changed, otherwise comply with Centennial's Green Development Program. All residential pool covers shall be removable, and shall not be automatic retractable covers.

The CC&Rs of the master homeowners association or other applicable association shall require compliance with the provisions of this measure and shall provide notice to individual owners of the resale energy audit checklist requirement. The master homeowners association or other applicable association shall monitor compliance and provide the County with an annual report of compliance with this measure.

**MM 21-7** Deeds, CC&Rs, or similar legal documents shall contain the following requirement: For nonresidential buildings, within ninety (90) days after the end of the first full calendar year following the issuance of the certificate of occupancy and within ninety (90) days after each five year period thereafter, the owner or tenant in possession thereof shall submit to the master commercial owners association or other applicable association a report prepared by the owner or a qualified, independent third party that evaluates whether all major building systems such as heat furnace, air conditioner, and

other mechanical fixtures are working within the design standards established for each system. The master commercial owners association or other applicable association shall monitor compliance and provide the County with an annual report of compliance with this measure.

- MM 21-8** Energy efficient major appliances and HVAC systems that meet the more stringent of applicable California Energy Commission (CEC) requirements or ENERGY STAR requirements, or equivalent, shall be exclusively offered by residential builders. Major appliances subject to this requirement include dishwashers, clothes washers, refrigerators, and room air conditioners.
- MM 21-9** The Project Applicant/Developer shall provide plans and specifications to the County that have been prepared in accordance with the Project Water Purveyor or alternate qualified public utility district requirements and standards, demonstrating that the Project's wastewater reclamation facilities (WRFs) shall include equipment to capture and reuse biogas for energy production.
- MM 21-10** The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that nonresidential or multi-family buildings shall be constructed with recycled water infrastructure to serve common areas for these facilities, except where prohibited by law. To the extent recycled water is produced within the Project and available, recycled water shall be used for landscape irrigation within those common areas. Compliance with these measures shall be established prior to the issuance of a construction permit for nonresidential and multi-family facilities and at the time of County approval of final landscaping plans submitted by the Project Applicant/Developer after final map recordation for homeowners association common areas. Covenants, conditions and restrictions (CC&Rs) shall require the owners of such common areas to maintain, repair and replace irrigation systems and plantings in accordance with County approved plans.
- MM 21-11** The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that non-residential building shall be constructed with indoor plumbing fixtures and fixture fittings that would reduce the overall use of potable water within the building by 12 percent, consistent with 2016 CALGreen Tier 1 non-residential voluntary measures as prescribed in Section A5.303.2.3.1 of the code.
- MM 21-12** The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that single or multi-family residential building shall be constructed with kitchen faucets and appliances that comply with 2016 CALGreen code residential voluntary measures specified in Sections A4.303.1 and A4.303.3 of the code.
- MM 21-13** The outdoor residential (single-family and multi-family) water budget for water-budget-based ratemaking shall be based on having no more than 25

percent turf grass allowed in landscaped areas of single-family detached residential front yards and multi-family residential common areas.

- MM 21-14** Ten percent of all homes in Centennial communities that permit housing, with the exception of the lowest density area (Community 8-2) will be affordable, in conformance with the Affordable Housing Implementation Plan (see Appendix 3-H of the *Centennial Specific Plan*).
- MM 21-15** The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that one 208/240 VAC receptacle that may be used for charging electric vehicles, shall be installed in each detached and attached single-family residence. The installation shall comply with requirements of the 2016 CALGreen Code Section 4.106.4.1, or the most applicable code at the time of construction.
- MM 21-16** The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that “alternative energy fueling stations” shall be installed as follows. An “alternative energy vehicle fueling station” is a 208/240 VAC electrical vehicle charging station or a station providing another new or improved technology (e.g. compressed natural gas (CNG) and hydrogen fuel cell) that provides refueling for vehicles that do not use fossil fuel. An electric charging station shall allow for simultaneous charging of two electric vehicles.
- Business Park and Institutional land use designations shall provide a minimum of one alternative energy vehicle fueling station on site for the first 50,000 square feet of usable floor space and additional alternative energy vehicle fueling stations for each additional 50,000 square feet of usable floor space thereafter.
  - Multi-family residential buildings of at least 20 residential units shall provide a minimum of one alternative energy vehicle fueling station for the first twenty (20) residential units and an additional alternative energy vehicle fueling station for each additional twenty (20) residential units thereafter.
  - The Town Center and each Village Center shall provide a minimum of one alternative energy vehicle charging station.
  - Designated Transit Hubs shall provide a minimum of one alternative energy vehicle charging station.
- MM 21-17** The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the building designs for non-residential buildings:
- Bicycle parking spaces at a rate of 5 percent of minimum required vehicle parking spaces for non-residential land uses.

- Preferential parking for low-emitting, fuel-efficient, and carpool/van vehicles shall be provided as specified in Section A5.106.5.1, Nonresidential Voluntary Measures, of the CALGreen Code.

**MM 21-18** The Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the building designs or specifications for multi-family residential buildings:

- Visitor parking shall include preferentially located parking spaces for alternative-fueled vehicles.
- Bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen Code or as required by County Code Section 22.52.1225B, whichever is more stringent.

**MM 21-19** For parking structures and parking lots with 20 or more parking spaces, the Project Applicant/Developer shall provide plans and specifications to the County demonstrating that the following features have been incorporated into the parking facility:

- The parking facility shall include a minimum of five percent preferentially located parking spaces for alternative-fueled (electric, natural gas, or similar low-emitting technology) vehicles.
- The parking facility shall include at least one electric vehicle charging station. Electrical lines shall be designed and sized to add additional charging stations for up to three percent of the total parking spaces when a demand is demonstrated. The design and installation shall be consistent with Section A4.106.8.2, Residential Voluntary Measures, of the CALGreen Code.
- For residential parking facilities, bicycle parking shall be provided as specified in Section A4.106.9, Residential Voluntary Measures, of the CALGreen code or as required by County Code Section 22.52.1225B, whichever is more stringent.

**MM 21-20** The Project Applicant/Developer shall ensure that the implementation of the Green Development Program takes into account compliance with the following regulations:

1. Regulations that are quantified inputs into the CalEEMod analysis, resulting in GHG Reductions:
  - a. Pavley Motor Vehicle Standards (AB 1493)
  - b. Low Carbon Fuel Standard (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 7, Section 95480 et seq.)

- c. Title 24 (part 6 [Energy Code] and part 11 [CALGreen Code]) of the California Code of Regulations
  - d. Renewable Portfolio Standard (SB X1 2 and SB 350)
  - e. Solid Waste Diversion (AB 341)
  - f. Statewide reduction in potable urban water usage of 25 percent relative to water use in 2013 (Executive Order B-29-15)
  - g. Model Water Efficient Landscape Ordinance (MWELO) (California Code of Regulations, Title 23, Division 2, Chapter 2.7)
  - h. Los Angeles Tree Planting Ordinance (Los Angeles County Code, Title 22, Division 1, Chapter 22, Part 20, Sections 22.52.2100 et seq.)
  - i. Los Angeles County Green Building Standards Code (Los Angeles County Code, Title 31, Chapter 1, Sections 100 et seq.)
  - j. California Water Code (California Code of Regulations, Division 6, Part 2.10, Sections 10910–10915)
  - k. Los Angeles County Community Climate Action Plan
2. Regulations that are not quantified inputs into the CalEEMod analysis, but should be considered for incorporation as appropriate:
- a. EPA and NHTSA GHG and CAFE standards for passenger cars, light-duty trucks, and medium-duty passenger vehicles (75 FR 25324–25728 and 77 FR 62624–63200) and for medium- and heavy-duty vehicles (76 FR 57106–57513)
  - b. Cap-and-Trade Program for Electricity, Stationary Sources, and Fuels (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 5, Section 95801 et seq.)
  - c. Advanced Clean Cars Program (California Code of Regulations, Title 13, Division 3, Chapter 1, Articles 1, 2, 6 (parts); Chapter 2, Articles 1, 2.1, 2.3, 2.4 (parts); Chapter 4.4 (parts); Chapter 8 (parts).
  - d. Under Inflated Vehicle Tires (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 8, Section 95550 et seq.)
  - e. Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Regulation (California Code of Regulations, Title 17, Division 3,



Chapter 1, Subchapter 10, Article 4, Subarticle 1, Section 95300 et seq.)

- f. Management of High Global Warming Potential Refrigerants for Stationary Sources (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5.1, Section 95380 et seq.)
- g. Small Containers of Automotive Refrigerant (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5, Section 95360 et seq.)
- h. High-Global Warming Potential Greenhouse Gases in Consumer Products (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 8.5, Article 2)
- i. CALGreen Code as Adopted by the Building Standards Commission (California Code of Regulations, Title 24, Part 11 Emergency Building Standard DSA-SS EF-02/15)
- j. Natural Gas Cooking Stoves and Fireplaces (SCAQMD Rule 445)

### 5.21.8 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Although the Project would comply with various “pathways to compliance” for CEQA GHG analysis identified by the *Newhall* court, as discussed in Sections 5.21.6, even with implementation of all reasonable and feasible mitigation measures, as described in Section 5.21.7, the Project’s climate change impacts would remain significant and unavoidable.

### 5.21.9 REFERENCES

American Recovery and Reinvestment Act of 2009 (ARRA). 2009 (February 17). Pub.L. 111-5. 111th U.S Congress. Washington D.C.

Bay Area Air Quality Management District (BAAQMD). 2011 (May). *California Environmental Quality Act, Air Quality Guidelines*. San Francisco, CA: BAAQMD.  
[http://www.baaqmd.gov/~media/Files/Planningpercent20andpercent20Research/CEQA/BAAQMDpercent20CEQAPERCENT20GUIDELINES\\_MAYPERCENT202011\\_5\\_3\\_11.ashx](http://www.baaqmd.gov/~media/Files/Planningpercent20andpercent20Research/CEQA/BAAQMDpercent20CEQAPERCENT20GUIDELINES_MAYPERCENT202011_5_3_11.ashx)

———. 2010 (June). *Adopted Air Quality Thresholds of Significance*. San Francisco, CA: BAAQMD.  
[http://www.baaqmd.gov/~media/Files/Planningpercent20andpercent20Research/CEQA/Adoptedpercent20Thresholdspercent20Table\\_6\\_2\\_10.ashx](http://www.baaqmd.gov/~media/Files/Planningpercent20andpercent20Research/CEQA/Adoptedpercent20Thresholdspercent20Table_6_2_10.ashx)

———. 2009a (April). *Workshop Draft Options Report: California Environmental Quality Act Thresholds of Significance*. San Francisco, CA: BAAQMD.

<http://www.baaqmd.gov/~media/files/planning-and-research/ceqa/workshop-draft-ceqa-thresholds-options-report-4-28-2009.pdf?la=en>.

———. 2009b (December). *California Environmental Quality Act: Air Quality Guidelines*. San Francisco, CA: BAAQMD.

[http://www.baaqmd.gov/~media/Files/Planningpercent20andpercent20Research/CEQA/Draftpercent20BAAQMDpercent20CEQApersent20Guidelines\\_Decpercent207percent202009.ashx](http://www.baaqmd.gov/~media/Files/Planningpercent20andpercent20Research/CEQA/Draftpercent20BAAQMDpercent20CEQApersent20Guidelines_Decpercent207percent202009.ashx).

Brekke, L.D., N.L. Miller, K.E. Bashford, N.W.T. Quinn, and J.A. Dracup. 2004. Climate Change Impacts Uncertainty for Water Resources in the San Joaquin River Basin, California. *Journal of the American Water Resources Association*. 40(1): 149–164. Malden, MA: Blackwell Synergy for AWRA.

California Air Pollution Control Officers (CAPCOA). 2010 (August). *Quantifying Greenhouse Gas Mitigation Measures*. <http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf>.

———. 2008 (January). *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*. CAPCOA. <http://www.energy.ca.gov/2008publications/CAPCOA-1000-2008-010/CAPCOA-1000-2008-010.PDF>.

California Air Resources Board (CARB) 2016a (March). California Climate Investments. Annual Report to the Legislature on California Climate Investments Using Cap-and-Trade Auction Proceeds. Sacramento, CA: CARB. [http://arb.ca.gov/cc/capandtrade/auctionproceeds/cci\\_annual\\_report\\_2016\\_final.pdf](http://arb.ca.gov/cc/capandtrade/auctionproceeds/cci_annual_report_2016_final.pdf).

———. 2016b (December 2). 2030 Target Scoping Plan Update, Discussion Draft. Sacramento, CA: CARB. [https://www.arb.ca.gov/cc/scopingplan/2030target\\_sp\\_dd120216.pdf](https://www.arb.ca.gov/cc/scopingplan/2030target_sp_dd120216.pdf).

———. 2016c (May 16). 2016 Mobile Source Strategy. Sacramento, CA: CARB. <https://www.arb.ca.gov/planning/sip/2016sip/2016mobsrc.pdf>.

———. 2016d (November). Revised Proposed Short-Lived Climate Pollution Reduction Strategy. Sacramento, CA: CARB. <https://www.arb.ca.gov/cc/shortlived/meetings/11282016/revisedproposedslcp.pdf>.

———. 2015a (October 5, last reviewed). AB 32 Scoping Plan. Sacramento, CA: CARB. <http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm>.

———. 2015b (October 5, last reviewed). Low Carbon Fuel Standards Regulation. Sacramento, CA: CARB. <http://www.arb.ca.gov/regact/2015/lcfs2015/lcfs2015.htm>.

- 
- . 2015c (June 30). California Greenhouse Gas Inventory - 2015 Edition). Sacramento, CA: CARB. <http://www.arb.ca.gov/cc/inventory/data/data.htm>.
- . 2014a (July 17, last reviewed). Lev III and ZEV Regulation Amendments for Federal Compliance Option, December 31. Sacramento, CA: CARB. <http://www.arb.ca.gov/regact/2012/leviiidtc12/leviiidtc12.htm>.
- . 2014b (May). *First Update to the Climate Change Scoping Plan*. Sacramento, CA: CARB. [http://www.arb.ca.gov/cc/scopingplan/2013\\_update/first\\_update\\_climate\\_change\\_scoping\\_plan.pdf](http://www.arb.ca.gov/cc/scopingplan/2013_update/first_update_climate_change_scoping_plan.pdf).
- . 2013 (October). Climate Change Scoping Plan First Update, Discussion Draft for Public Review and Comment. Sacramento, CA: CARB. [http://www.arb.ca.gov/cc/scopingplan/2013\\_update/discussion\\_draft.pdf](http://www.arb.ca.gov/cc/scopingplan/2013_update/discussion_draft.pdf), accessed October 2, 2013).
- . 2012 (September). Cap-and-Trade Regulation Instructional Guidance. Sacramento, CA: CARB. <http://www.arb.ca.gov/cc/capandtrade/guidance/chapter1.pdf>, accessed October 28, 2015).
- . 2011a. *Rulemaking To Consider The Adoption Of A Proposed California Cap On Greenhouse Gas Emissions And Market-Based Compliance Mechanisms Regulation, Including Compliance Offset Protocols*. Sacramento, CA: CARB. <http://www.arb.ca.gov/regact/2010/capandtrade10/capandtrade10.htm>.
- . 2011b (March 24). Update on Litigation Challenging Scoping Plan for the Global Warming Solutions Act, AB 32. Sacramento, CA: CARB. [http://docs.nrdc.org/air/files/air\\_11032501a.pdf](http://docs.nrdc.org/air/files/air_11032501a.pdf).
- . 2011c. Supplement to the AB 32 Scoping Plan Functional Equivalent Document, approved by Resolution 11-27, August 24, 2011. Sacramento, CA: CARB. <http://www.arb.ca.gov/cc/scopingplan/fed.htm>.
- . 2011d (July 28). Commitment Letter to National Program. Sacramento, CA: CARB. [https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/carb\\_2017-2025\\_commitment\\_letter.pdf](https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/carb_2017-2025_commitment_letter.pdf).
- . 2011e (February 17, approval date). *Notice of Decision: Regional Greenhouse Gas Emissions Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375*. Sacramento, CA: CARB. <https://www.arb.ca.gov/cc/sb375/notice%20of%20decision.pdf>.
- . 2011f. (February) *Executive Order No. G-11-024: Relating to Adoption of Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375*. Sacramento, CA: CARB. [http://www.arb.ca.gov/cc/sb375/executive\\_order\\_g11024.pdf](http://www.arb.ca.gov/cc/sb375/executive_order_g11024.pdf).

- 
- . 2009 (November). Greenhouse Gas Inventory – 2020 Forecast. Sacramento, CA: CARB. [http://www.arb.ca.gov/cc/inventory/data/forecast.htm#summary\\_forecast](http://www.arb.ca.gov/cc/inventory/data/forecast.htm#summary_forecast). [Last Updated 10/28/2010]
  - . 2008a (December). *Climate Change Scoping Plan: A Framework for Change*. Sacramento, CA: CARB. [https://www.arb.ca.gov/cc/scopingplan/document/adopted\\_scoping\\_plan.pdf](https://www.arb.ca.gov/cc/scopingplan/document/adopted_scoping_plan.pdf).
  - . 2008b. *Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases Under the California Environmental Quality Act*. Sacramento, CA: CARB.
  - . 2007a. (June 21). *Summary of Board Meeting: Consideration of Recommendations for Discrete Early Actions for Climate Change Mitigation in California*. Sacramento, CA: CARB.
  - . 2007b. (October 25). *Summary of Board Meeting: Public Meeting to Consider Approval of Additions to Reduce Greenhouse Gas Emissions under the California Global Warming Solutions Act of 2006 and to Discuss Concepts for Promoting and Recognizing Voluntary Early Actions*. Sacramento, CA: CARB.
  - . 2007c. (November) *California Greenhouse Gas Inventory (millions of metric tonnes of CO<sub>2</sub> equivalent) by IPCC Category*. Sacramento, CA: CARB. [http://www.arb.ca.gov/cc/inventory/archive/tables/ghg\\_inventory\\_ipcc\\_90-04\\_all\\_2007-11-19.pdf](http://www.arb.ca.gov/cc/inventory/archive/tables/ghg_inventory_ipcc_90-04_all_2007-11-19.pdf).
  - . 2007d. (November) *Staff Report: California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit*. Sacramento, CA: CARB. [http://www.arb.ca.gov/cc/inventory/pubs/reports/staff\\_report\\_1990\\_level.pdf](http://www.arb.ca.gov/cc/inventory/pubs/reports/staff_report_1990_level.pdf).
  - . 2007e (December 14). Sector-Based Workshop: Land Use and Local Initiatives (PowerPoint Presentation by J. Weir and Annmarie Mora). Sacramento, CA: CARB. [http://www.arb.ca.gov/cc/scopingplan/meetings/12\\_14\\_07/12\\_14slides/landuselocalaction\\_sector.pdf](http://www.arb.ca.gov/cc/scopingplan/meetings/12_14_07/12_14slides/landuselocalaction_sector.pdf).
- California Building Standards Commission (CBSC). 2015 (accessed November 16). Adopted 2013 Code, Triennial California Building Standards Commission (CBSC). Adopted 2013 Code, Triennial Edition. Sacramento, CA: CBSC. <http://www.bsc.ca.gov/Codes.aspx>.
- . 2014 (January, effective date). CALGreen Code. Sacramento, CA; CBSC. <http://www.bsc.ca.gov/Home/CALGreen.aspx>.
- California Climate Action Registry (CCAR). 2009a (January). *California Climate Action Registry General Reporting Protocol (Version 3.1)*. Los Angeles, CA: CCAR. [http://www.climateregistry.org/resources/docs/protocols/grp/GRP\\_3.1\\_January2009.pdf](http://www.climateregistry.org/resources/docs/protocols/grp/GRP_3.1_January2009.pdf).

- 
- . 2009b (June). *Local Government Operations Protocol*. Los Angeles, CA: CCAR. [http://www.theclimateregistry.org/downloads/2009/05/LGO\\_Protocol.pdf](http://www.theclimateregistry.org/downloads/2009/05/LGO_Protocol.pdf).
- California Climate Change Center (CCCC). 2012. *Reports on the Third Assessment from the California Climate Change Center*. Sacramento, CA: CCCC. [http://climatechange.ca.gov/climate\\_action\\_team/reports/third\\_assessment/index.html](http://climatechange.ca.gov/climate_action_team/reports/third_assessment/index.html).
- California Department of Fish and Wildlife (CDFW). 2016 (December 16, site accessed) *Draft Additional Environmental Analysis for the Newhall Ranch Resource and Development Plan and Spineflower Conservation Plan Final Environmental Impact Report*. Sacramento, CA: CDFW. <https://nrm.dfg.ca.gov/documents/ContextDocs.aspx?cat=NewhallRanchDraftAEA>.
- California Department of Resources Recycling and Recovery (CalRecycle). 2016a (April 22, site accessed). *Mandatory Commercial Recycling*. Sacramento, CA: CalRecycle. <http://www.calrecycle.ca.gov/recycle/commercial/>.
- . 2016b (April 22, site accessed). *Mandatory Commercial Organics Recycling (MORe)*. Sacramento, CA: CalRecycle. <http://www.calrecycle.ca.gov/recycle/commercial/organics/default.htm>.
- California Department of Transportation (Caltrans). 2016a. (June). *California Transportation Plan 2040*. Sacramento, CA: Caltrans. [http://www.dot.ca.gov/hq/tpp/californiatransportationplan2040/Final%20CTP/FINALCTP2040-Report-PRINT-NoBleed\\_secured.pdf](http://www.dot.ca.gov/hq/tpp/californiatransportationplan2040/Final%20CTP/FINALCTP2040-Report-PRINT-NoBleed_secured.pdf).
- . 2016b (July). *California Sustainable Freight Action Plan 2016*. Sacramento, CA: Caltrans. <http://www.dot.ca.gov/casustainablefreight/theplan.html>.
- California Department of Water Resources (DWR). 2015 (September 18). *Model Water Efficient Landscape Ordinance (Title 23, Chapter 2.7)*. Sacramento, CA: DWR. <http://www.water.ca.gov/wateruseefficiency/landscapeordinance/docs/Title%2023%20extract%20-%20Official%20CCR%20pages.pdf>.
- . 2006 (July). *Progress on Incorporating Climate Change into Management of California Water Resources*. Sacramento, CA: DWR. [http://www.water.ca.gov/climatechange/docs/ClimaticChange\\_DWRarticle\\_Mar08.pdf](http://www.water.ca.gov/climatechange/docs/ClimaticChange_DWRarticle_Mar08.pdf).
- . 2005 (December). *Final California Water Plan Update 2005. (Volume 4: Reference Guide)*. Sacramento, CA: DWR. <http://www.water.ca.gov/waterplan/cwp/previous/2005/index.cfm>.
- California Energy Commission (CEC) 2015a (Accessed October 27). *2016 Building Energy Efficiency Standards, Frequently Asked Questions*. [http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016\\_Building\\_Energy\\_Efficiency\\_Standards\\_FAQ.pdf](http://www.energy.ca.gov/title24/2016standards/rulemaking/documents/2016_Building_Energy_Efficiency_Standards_FAQ.pdf)

- 
- . 2015b (February). (Accessed February 3, 2017). Guidelines for Certification of Combined Heat and Power Systems Pursuant to the Waste Heat and Carbon Emissions Reduction Act, Public Utilities Code, Section 2840Et Seq. <http://www.energy.ca.gov/2015publications/CEC-200-2015-001/CEC-200-2015-001-CMF.pdf>.
- . 2015c (June). (Accessed January 6, 2017). *California Energy Efficiency Strategic Plan: New Residential Zero Net Energy Action Plan 2015-2020*. <http://www.californiaznehomes.com/links-and-resources>  
<http://californiaznehomes.epaperflip.com/v/New-Residential-ZNE-Action-Plan-2015-2020>
- . 2008. *Statement of Reasons for Adopting 2008 Building Energy Efficiency Standards*. Sacramento, CA: CEC. <http://www.energy.ca.gov/title24/2008standards/>.
- . 2006 (December). *Refining Estimates of Water-Related Energy Use in California* (prepared by Navigant Consulting). Sacramento, CA: CEC. <http://www.energy.ca.gov/2006publications/CEC-500-2006-118/CEC-500-2006-118.PDF>.
- California Governor's Office of Planning and Research (OPR). 2009a. Proposed Guidelines Amendments & Related Materials: Notice of Proposed Action. Sacramento, CA: OPR. [http://www.ceres.ca.gov/ceqa/docs/Notice\\_of\\_Proposed\\_Action.pdf](http://www.ceres.ca.gov/ceqa/docs/Notice_of_Proposed_Action.pdf).
- . 2009b. Proposed Guidelines Amendments & Related Materials: Text of Proposed Guideline Amendments. Sacramento, CA: OPR. [http://resources.ca.gov/ceqa/guidelines/proposed\\_guidelines\\_amendments\\_and\\_related\\_materials.html](http://resources.ca.gov/ceqa/guidelines/proposed_guidelines_amendments_and_related_materials.html).
- . 2009c. *Transmittal of the Governor's Office of Planning and Research's Proposed SB97 CEQA Guidelines Amendments to the Natural Resources Agency*. Sacramento, CA: OPR. [http://resources.ca.gov/ceqa/guidelines/proposed\\_guidelines\\_amendments\\_and\\_related\\_materials.html](http://resources.ca.gov/ceqa/guidelines/proposed_guidelines_amendments_and_related_materials.html).
- California Legislative Information 2015. 2015 (November 16, last accessed). SB-350 Clean Energy and Pollution Reduction Act of 2015. Sacramento, CA: California Legislative Information. [https://leginfo.legislature.ca.gov/faces/billCompareClient.xhtml?bill\\_id=201520160SB350](https://leginfo.legislature.ca.gov/faces/billCompareClient.xhtml?bill_id=201520160SB350).
- California Natural Resources Agency (CNRA). 2014 (July). *Safeguarding California: Reducing Climate Risk; An update to the 2009 California Climate Adaptation Strategy*. Sacramento, CA: CNRA. [http://resources.ca.gov/docs/climate/Final\\_Safeguarding\\_CA\\_Plan\\_July\\_31\\_2014.pdf](http://resources.ca.gov/docs/climate/Final_Safeguarding_CA_Plan_July_31_2014.pdf).
- . 2009a. (July). *Initial Statement of Reasons for Regulatory Action: Proposed Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of*

- Greenhouse Gas Emissions Pursuant to SB97*. Sacramento, CA: CNRA.  
[http://resources.ca.gov/ceqa/docs/Initial\\_Statement\\_of\\_Reasons.pdf](http://resources.ca.gov/ceqa/docs/Initial_Statement_of_Reasons.pdf).
- . 2009b. Revised Text of Proposed Guideline Amendments. Sacramento, CA: CNRA.  
[http://ceres.ca.gov/ceqa/docs/Text\\_of\\_Proposed\\_Changes.pdf](http://ceres.ca.gov/ceqa/docs/Text_of_Proposed_Changes.pdf).
- . 2009c. Notice of Public Hearings and Notice of Proposed Amendment of Regulations Implementing the California Environmental Quality Act. Sacramento, CA: CNRA. [http://www.ceres.ca.gov/ceqa/docs/Notice\\_of\\_Proposed\\_Action.pdf](http://www.ceres.ca.gov/ceqa/docs/Notice_of_Proposed_Action.pdf).
- . 2009d. (December). *Final Statement of Reasons for Regulatory Action*. Sacramento, CA: CNRA. [http://resources.ca.gov/ceqa/docs/Final\\_Statement\\_of\\_Reasons.pdf](http://resources.ca.gov/ceqa/docs/Final_Statement_of_Reasons.pdf).
- California, State of. 2015a. *Center for Biological Diversity v. Department of Fish and Wildlife* (Cal. Supreme Ct., November 30, 2015, No. S217763).
- . 2015b. Senate Bill 350 (2015-2016 Reg. Session) Stats 2015, ch. 547.
- . 2015c. (April 1). Executive Department: State of California, Executive Order No. B-29-15. Sacramento, CA: the State.  
[https://www.gov.ca.gov/docs/4.1.15\\_Executive\\_Order.pdf](https://www.gov.ca.gov/docs/4.1.15_Executive_Order.pdf)
- . 2014. Senate Bill 605 (2013-2014 Reg. Session) Stats 2014, ch. 523.
- . 2011a. *Ass'n of Irrigated Residents v. California Air Resources Board* (Super. Ct. San Francisco County, March 18, 2011, No. CPF-09-509562).
- . 2011b. *Senate Bill X1-2* (2011-2012 First Extraordinary Session) Stats. 2011, ch. 1.
- . 2010. *Professional Engineers in Cal. Gov't v. Schwarzenegger* (Cal. Supreme Ct., October 4, 2010, No. S183411).
- . 2009. Governor's Executive Order No. S-21-09 (September 15, 2009).
- . 2008a. Governor's Executive Order No. S-14-08 (September 15, 2008).
- . 2008b. *Senate Bill 375* (2007-2008 Reg. Session) Stats. 2008, ch. 728.
- . 2008c. Governor's Executive Order No. S-13-08 (November 14, 2008).
- . 2007. Governor's Executive Order No. S-01-07 (January 18, 2007).
- . 2007b. Assembly Bill 1109 (2007-2008 Reg. Session) Stats. 2007, ch. 534.
- . 2006a. *Assembly Bill 32* (2005-2006 Reg. Session) Stats. 2005, ch. 488.
- . 2006b. *Senate Bill 107* (2005-2006 Reg. Session) Stats. 2006, ch 464.
- . 2006c. Senate Bill 1368 (2005-2006 Reg. Session) Stats. 2006, ch. 598.

- . 2006d. Senate Bill 1 (2005-2006 Reg. Session) Stats. 2006, ch. 132.
- . 2005. Governor's Executive Order No. S-03-05 (June 1, 2005).
- . 2002a. *Assembly Bill 1493* (2001-2002 Reg. Session) Stats. 2002, ch. 200.
- . 2002b. *Senate Bill 1078* (2001-2002 Reg. Session) Stats. 2002, ch 516.
- . 1997. *Santa Ana Hospital Medical Center v. Belshe* (3rd District. App. Ct., July 23, 1997, No. C024834).
- . 1990. *California Constitution*, Article 4, Section 8(b), last amended June 5, 1990.
- . 1988. *Laurel Heights Improvement Association v. Regents of University of California* (Cal. Supreme Ct., December 1, 1988, No. S001922).
- CalSpace Virtual Museum. 2002. CalSpace Glossary of Terms: Carbon Cycling. San Diego, CA: University of California. [http://earthguide.ucsd.edu/virtualmuseum/Glossary\\_Astro/gloss\\_a-f.shtml#carbonCycle](http://earthguide.ucsd.edu/virtualmuseum/Glossary_Astro/gloss_a-f.shtml#carbonCycle).
- Cayan, D., A.L. Luers, M. Hanemann, G. Granco, and B. Croes. 2006 (February). Scenarios of Climate Change in California: An Overview (White Paper, CEC-500-2005-203-SF). Sacramento, CA: CCCC. <http://www.energy.ca.gov/2005publications/CEC-500-2005-186/CEC-500-2005-186-SF.PDF>.
- Center for Biological Diversity v. Kempthorne* (Ninth Circuit 2009) 588 F.3d 701.
- Citizens for Responsible Equitable Environmental Development (CREED) v. City of Chula Vista* (2011) 197 Cal.App.4th 327.
- Congressional Research Service (CRS). 2009 (May). *U.S. Tree Planting for Carbon Sequestration* (prepared by Ross W. Gorte. Specialist in Natural Resources Policy). <https://fas.org/sgp/crs/misc/R40562.pdf>.
- Consolidated Appropriations Act of 2008 (Consol. Appro.). 2007 (January 4). Pub. L. 110-161. 110th U.S Congress. Washington D.C.
- Council on Environmental Quality (CEQ). 2014. *Revised, Draft Guidance for Greenhouse Gas Emissions and Climate Change Impacts*, December 18, 2014. <https://obamawhitehouse.archives.gov/administration/eop/ceq/initiatives/nepa/ghg-guidance>.
- . 2010. *Memorandum for Heads of Federal Departments and Agencies, Draft NEPA Guidance on Consideration of the Effects of Climate Change and Greenhouse Gas Emissions*, February 18, 2010. <https://ceq.doe.gov/docs/ceq-regulations-and-guidance/20100218-nepa-consideration-effects-ghg-draft-guidance.pdf>.
- Department of the Interior (DOI). 2008 (October 3). Letter from David Bernhardt, Solicitor, to the Secretary of the Interior entitled "Guidance on the Applicability of the ESA's



---

Consultation Requirements to Proposed Actions Involving the Emissions of GHGs (Opinion M-37017).” [http://www.peer.org/docs/doi/08\\_14\\_10\\_interior\\_solicitor\\_memo.pdf](http://www.peer.org/docs/doi/08_14_10_interior_solicitor_memo.pdf).

ENVIRON International Corporation 2011 (June). *Climate Change Technical Report, Centennial*. Emeryville, CA: ENVIRON.

———. 2010 Memo from Shari Libicki, David Kim, and Jennifer Schulte (ENVIRON International Corporation) to CAPCOA Project Oversight Panel entitled “Baseline Electricity Emission Factors for GHG Mitigation Measure Analyses”.

———. 2009. Personal communication. Email from D. Weaver (Senior Associate, ENVIRON International Corporation) to C. Holloway (Associate, Holland & Knight) with an attachment entitled “20091221 cent relationship table for EIR.xls”.

Energy Independence and Security Act of 2007 (EISA). 2007 (January 4). Pub.L. 110-140. 110th U.S Congress. Washington D.C.

Golden Valley Municipal Water District (GVMWD). 2011 (May 18). *Centennial Water Supply Assessment and Verification Report, SB 610/221*. Gorman, CA: GVMWD (Appendix 5.18-A).

Inkley, D. B., M. G. Anderson, A. R. Blaustein, V. R. Burkett, B. Felzer, B. Griffith, J. Price, and T. L. Root. 2004. *Global Climate Change and Wildlife in North America* (Wildlife Technical Review 04-2). Bethesda, MD: The Wildlife Society.

Intergovernmental Panel on Climate Change (IPCC). 2000. Summary for Policymakers. Land Use, Land-Use Change, and Forestry (A Special Report of the Intergovernmental Panel on Climate Change). <http://www.ipcc.ch/pdf/special-reports/spm/srl-en.pdf>.

Kiparsky, M. and P.H. Gleick. 2003 (July). *Climate Change and California Water Resources: A Survey and Summary of the Literature*. Oakland, CA: Pacific Institute for Studies in Development, Environment, and Security. [http://www.pacinst.org/reports/climate\\_change\\_and\\_california\\_water\\_resources.pdf](http://www.pacinst.org/reports/climate_change_and_california_water_resources.pdf).

Los Angeles, County of. 2016 (April 25, current through). *Los Angeles County, California – Code of Ordinances* (Title 31, Green Building Standards Code). Tallahassee, FL: Municode Corporation for the County. [https://www2.municode.com/library/ca/los\\_angeles\\_county/codes/code\\_of\\_ordinances?nodeId=TIT31GRBUSTCO](https://www2.municode.com/library/ca/los_angeles_county/codes/code_of_ordinances?nodeId=TIT31GRBUSTCO).

———. 2016a (April accessed). Tree Planting Ordinance. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tree>.

———. 2016b. (March 29). Ordinance Amending Title 21 and Title 22 to Establish Tree Planting Requirements for New Projects. Los Angeles, CA: DRP. [http://planning.lacounty.gov/assets/upl/project/tpo\\_draft-ordinance.pdf](http://planning.lacounty.gov/assets/upl/project/tpo_draft-ordinance.pdf).

- . 2015a. *Unincorporated Los Angeles County Community Climate Action Plan 2020*. Final. August. Los Angeles, CA. Prepared with assistance from: ICF International (ICF 027920.0.011).
- . 2015b. (October 6). Los Angeles County General Plan. Los Angeles, CA: DRP.
- . 2014a (June). *Los Angeles County General Plan Update, Draft Environmental Impact Report*. Los Angeles, CA: DRP.  
[http://planning.lacounty.gov/assets/upl/project/gp\\_2035\\_deir.pdf](http://planning.lacounty.gov/assets/upl/project/gp_2035_deir.pdf).
- . 2007 (October 4). Report on the Impact of the State Action Against San Bernardino County Regarding its General Plan Update and the County's Efforts to Improve Energy Efficiency and Combat Global Warming (A Letter from B.W. McClendon, FAICP, Director of Planning to the Board of Supervisors). Los Angeles, CA: the County. <http://file.lacounty.gov/bos/supdocs/29664.pdf>.
- . 2006. (December 7). *Request for Approval of a Countywide Energy and Environmental Policy: Joint Recommendation with Chief Administrative Office, Department of Public Works and Regional Planning Department*. Los Angeles, CA: the County Planning Department. <http://file.lacounty.gov/bos/supdocs/29480.pdf>.
- . 2002 (September). *Development Planning for Storm Water Management: A Manual for the Standard Urban Storm Water Mitigation Plan (SUSMP)*. Los Angeles, CA: Los Angeles County Department of Public Works.
- Los Angeles, County of. Internal Services Department (LACISD). 2015 (June). Approval of Revised Board Policy Number 3.045 – Countywide Environmental Sustainability. Los Angeles, CA: LACISD. <http://file.lacounty.gov/bos/supdocs/95081.pdf>.
- . 2014 (May). Energy & Environmental Policy Report #9. Los Angeles, CA: LACISD. [http://file.lacounty.gov/green/cms1\\_213023.pdf](http://file.lacounty.gov/green/cms1_213023.pdf)
- Los Angeles County Metropolitan Transportation Authority (Metro). 2014 (October). Metro Complete Streets Policy.  
[http://media.metro.net/projects\\_studies/sustainability/images/policy\\_completestreets\\_2014-10.pdf](http://media.metro.net/projects_studies/sustainability/images/policy_completestreets_2014-10.pdf)
- . 2012 (December). Metro Countywide Sustainability Planning Policy & Implementation Plan.  
[http://media.metro.net/projects\\_studies/sustainability/images/countywide\\_sustainability\\_planning\\_policy.pdf](http://media.metro.net/projects_studies/sustainability/images/countywide_sustainability_planning_policy.pdf)
- Massachusetts et al. vs. Environmental Protection Agency* (Massachusetts), 549 U.S. 497 (2007).
- National Aeronautics and Space Administration (NASA). 2015 (January 16, Posted). NASA, NOAA Find 2014 Warmest Year in Modern Record. New York, NY: NASA, the

Goddard Institute for Space Studies.  
<http://www.giss.nasa.gov/research/news/20150116/>.

National Highway Traffic Safety Administration (NHTSA). 2009. *Average Fuel Economy Standards Passenger Cars and Light Trucks Model Year 2011, Final Rule*. 75 Fed. Reg. 25324.

National Oceanic and Atmospheric Administration (NOAA). 2002 (February 14). President Announces Clear Skies & Global Climate Change Initiatives. Oxnard, CA: NOAA:  
<http://georgewbush-whitehouse.archives.gov/news/releases/2002/02/20020214-5.html>.

National Research Council of the National Academies (2012). June. Committee on Sea Level Rise in California, Oregon, and Washington; Board on Earth Sciences and Resources and Ocean Studies Board; Division of Earth and Life Studies. *Sea-Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future*.  
[http://www.nap.edu/catalog.php?record\\_id=13389](http://www.nap.edu/catalog.php?record_id=13389).

Office of Planning and Research (OPR). 2008 (June). *CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review*. Sacramento, CA: OPR.

Official California Legislative Information. 2009. AB 118 Current Bill Status. Sacramento, CA: Legislative Counsel.

Psomas. 2017 (April). *Centennial Wastewater Treatment Report*. Costa Mesa, CA: Psomas (Appendix 5.19-A).

Pacific Coast Collaborative. 2013 (October). *Pacific Coast Action Plan on Climate and Energy*, October 18, 2013. Pacific Coast Collaborative.  
<http://www.pacificcoastcollaborative.org/Documents/Pacific%20Coast%20Climate%20Action%20Plan.pdf>.

Regional Targets Advisory Committee. 2009. *Recommendations of the Regional Targets Advisory Committee Pursuant to Senate Bill 375*.  
<https://www.arb.ca.gov/cc/sb375/rtac/report/092909/finalreport.pdf>.

San Joaquin Valley Air Pollution Control District (SJVAPCD). 2009a. (December 17). *Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA*. Fresno, CA: SJVAPCD.  
<https://www.valleyair.org/Programs/CCAP/12-17-09/3%20CCAP%20-%20FINAL%20LU%20Guidance%20-%20Dec%2017%202009.pdf>.

———. 2009b. (December 17) *Final Staff Report: Addressing Greenhouse Gas Emissions Impacts Under the California Environmental Quality Act*. Fresno, CA: SJVAPCD.  
<https://www.valleyair.org/Programs/CCAP/12-17-09/1%20CCAP%20-%20FINAL%20CEQA%20GHG%20Staff%20Report%20-%20Dec%2017%202009.pdf>.

Sea Level Rise Task Force. 2010. Sea Level Rise Task Force of the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), Ocean Protection Council's Science Advisory Team and the California Ocean Science Trust. *State of California Sea-Level Rise Interim Guidance Document*.

South Coast Air Quality Management District (SCAQMD). 2010. Greenhouse Gas CEQA Significance Thresholds Working Group. *September 28, 2010 Presentation*. Diamond Bar, CA: SCAQMD.

———. 2008 (November 26, last update). *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans*. Diamond Bar, CA: SCAQMD.  
[http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-\(ghg\)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2](http://www.aqmd.gov/docs/default-source/ceqa/handbook/greenhouse-gases-(ghg)-ceqa-significance-thresholds/ghgboardsynopsis.pdf?sfvrsn=2).

Southern California Association of Governments (SCAG). 2016a (April). The 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy. A Plan for Mobility, Accessibility, Sustainability and a High Quality of Life.  
<http://scagrtpscscs.net/Pages/FINAL2016RTPSCS.aspx>.

———. 2016b (April 7). Final 2016 RTP/SCS - Demographics and Growth Forecast Appendix. Los Angeles, CA: SCAG.  
[http://scagrtpscscs.net/Documents/2016/final/f2016RTPSCS\\_DemographicsGrowthForecast.pdf](http://scagrtpscscs.net/Documents/2016/final/f2016RTPSCS_DemographicsGrowthForecast.pdf).

———. 2016c (April 13). 2016-2040 RTP/SCS Final Growth Forecast by Jurisdiction. Los Angeles, CA: SCAG.  
[http://www.scag.ca.gov/Documents/2016\\_2040RTPSCS\\_FinalGrowthForecastbyJurisdiction.pdf](http://www.scag.ca.gov/Documents/2016_2040RTPSCS_FinalGrowthForecastbyJurisdiction.pdf).

———. 2012a. (April). 2012-2035 Regional Transportation Plan. Los Angeles, CA: SCAG.  
<http://rtpscscs.scag.ca.gov/Documents/2012/final/f2012RTPSCS.pdf>.

———. 2012b (April). 2012 Regional Transportation Plan/Sustainable Communities Strategy - Growth Forecast Appendix. Los Angeles, CA: SCAG.  
[http://rtpscscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP\\_GrowthForecast](http://rtpscscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP_GrowthForecast).

———. 2012c. 2012 Adopted Growth Forecast (an excel spreadsheet). Los Angeles, CA: SCAG.  
<http://gisdata.scag.ca.gov/Pages/SocioEconomicLibrary.aspx?keyword=Forecasting>.

United Nations Framework Convention on Climate Change (UN). 2016 (access date, April 11). Paris Agreement. Bonn, Germany: UN.  
[http://unfccc.int/files/meetings/paris\\_nov\\_2015/application/pdf/paris\\_agreement\\_english\\_.pdf](http://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf).

———. 1997. *Kyoto Protocol to the United Nations Framework Convention on Climate Change*, December 11, 1997. (Available at  
[http://unfccc.int/essential\\_background/kyoto\\_protocol/items/1678.php](http://unfccc.int/essential_background/kyoto_protocol/items/1678.php)).

- U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Earth System Research Laboratory, Global Monitoring Division (ESRL) 2017 (May 5, last updated). Trends in Atmospheric Carbon Dioxide. Boulder, CO: ESRL.  
[https://www.esrl.noaa.gov/gmd/ccgg/trends/global.html#global\\_data](https://www.esrl.noaa.gov/gmd/ccgg/trends/global.html#global_data).
- United States Environmental Protection Agency (USEPA). 2017 (May, last accessed). *Learn about Clean Diesel* webpage. <https://www.epa.gov/cleandiesel/learn-about-clean-diesel>.
- . 2016 (April 18, last updated). U.S. Greenhouse Gas Inventory Report: 1990–2014). Washington, D.C.: USEPA.  
<https://www3.epa.gov/climatechange/ghgemissions/usinventoryreport.html>.
- . 2011. *EPA and NHTSA Adopt First-Ever Program to Reduce Greenhouse Gas Emissions and Improve Fuel Efficiency of Medium-and Heavy-Duty Vehicles*, August 2011. [nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100BOT1.TXT](http://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100BOT1.TXT).
- . 2010a. *Light Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, Final Rule*. 75 Fed. Reg. 25324.
- . 2010b (April). Regulatory Announcement: EPA and NHTSA Finalize Historic National Program to Reduce Greenhouse Gases and Improve Fuel Economy for Cars and Trucks. Washington, D.C.: USEPA.  
[http://www.aie.org.au/AIE/Documents/US\\_Vehicle\\_emission\\_standards\\_420f10014.pdf](http://www.aie.org.au/AIE/Documents/US_Vehicle_emission_standards_420f10014.pdf).
- . 2010c. (November 30). *Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles; Proposed Rule*. 75 Fed. Reg. 74152.
- . 2010d. (January 24). *EPA, DOT and California Align Timeframe for Proposing Standards for Next Generation of Clean Cars*.  
<http://yosemite.epa.gov/opa/admpress.nsf/1e5ab1124055f3b28525781f0042ed40/6f34c8d6f2b11e5885257822006f60c0!OpenDocument>
- . 2010e. *Greenhouse Gas Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles; Proposed Rule*. 75 Fed. Reg. 81952.
- . 2009a. (December 18, last update). *Endangerment and Cause or Contribute Findings for Greenhouse Gases under the Clean Air Act*. Washington, D.C.: USEPA.  
[https://19january2017snapshot.epa.gov/sites/production/files/2016-08/documents/federal\\_register-epa-hq-oar-2009-0171-dec.15-09.pdf](https://19january2017snapshot.epa.gov/sites/production/files/2016-08/documents/federal_register-epa-hq-oar-2009-0171-dec.15-09.pdf).
- . 2009b. *California Greenhouse Gas Waiver Granted*. 74 Fed. Reg. 32744.
- . 2009c. (October 30). *Mandatory Reporting of Greenhouse Gases, Final Rule*. 74 Fed. Reg. 56260.

U.S. Environmental Protection Agency and U.S. Department of Transportation, National Highway Traffic Safety Administration (USEPA and NHTSA). 2012 (October 15). 2017 and Later Model Year Light-Duty Vehicle Greenhouse Gas Emissions and Corporate Average Fuel Economy Standards. Federal Register (Volume 77, No. 199, pp. 62623–63200). Washington, D.C.: USEPA and NHTSA.

United States Energy Information Administration (USEIA). 2009. *Residential Energy Consumption Survey: Public Use Microdata*. Washington, D.C.: Dept. of Energy. <https://www.eia.gov/consumption/residential/data/2009/>.

Whitehouse. 2010 (May 21). *Improving Energy Security, American Competitiveness and Job Creation, and Environmental Protection Through a Transformation of Our Nation's Fleet of Cars and Trucks*. 75 Fed. Reg. 29399.

———. 2009 (February 14). *President Announces Clear Skies & Global Climate Change Initiatives*. Washington, D.C. Whitehouse. <http://georgewbush-whitehouse.archives.gov/news/releases/2002/02/20020214-5.html>.

World Resources Institute (WRI). 2016. Climate Analysis Indicators Tool (CAIT) version 9.0. Washington, D.C.: WRI. <http://cait.wri.org/>.

*This page intentionally left blank*

## 6.0 GROWTH-INDUCING IMPACTS

### 6.1 INTRODUCTION

Section 15126(d) of the California Environmental Quality Act (CEQA) Guidelines (14 *California Code of Regulations* [CCR] 15126.2[d]) requires evaluation of a project's growth-inducing impacts. This section discusses the manner in which the Centennial Project could encourage substantial economic or population growth or the construction of additional housing in the surrounding area, either directly or indirectly.

#### 6.1.1 DEFINITION OF GROWTH INDUCEMENT

Section 15126.2(d) of the State CEQA Guidelines defines "growth inducement" as the ways in which a project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. A project can induce unplanned growth by removing infrastructure constraints; providing new transportation access; building infrastructure sized to serve the region; or otherwise attracting growth to the project area that is not assumed in a General Plan or the regional growth projections. Projects are considered to induce growth if they remove obstacles to population growth that would allow for more construction in the area; increase the population or require the construction of new regional-serving facilities that could cause significant environmental effects; and/or facilitate other activities that could significantly affect the environment, either individually or cumulatively.

CEQA does not assume that growth is necessarily beneficial, detrimental, or of little significance to the environment. It also does not require that a project mitigate the effects of induced growth, nor does it require an attempt to stop additional growth. Accordingly, CEQA does not require that an environmental impact report (EIR) provide a detailed analysis of a project's effects on growth, and states that a general analysis is sufficient.<sup>1</sup>

#### 6.1.2 SUMMARY

The Project is proposed in response to anticipated growth in the Northern Los Angeles County/Antelope Valley area, and Project development is consistent with the growth projections that have been adopted by the Southern California Association of Governments (SCAG) for the Project area, the Antelope Valley, the North Los Angeles County Subregion, the County, and the region.

The Project is also consistent with the *Antelope Valley Area Plan* (AVAP) and proposes development in the West Economic Opportunity Area (EOA), where the AVAP anticipates future development. The EIR (SCH No. 2014061043) for the AVAP fully evaluated the growth-inducing impacts of buildout of the unincorporated areas of the Antelope Valley, as allowed by the AVAP (LACDRP 2015b). No changes to the AVAP are proposed by the Project that would affect population generation or otherwise lead to additional indirect growth, and no changes to the circumstances under which development would occur have occurred since

---

<sup>1</sup> See *Napa Citizens for Honest Government v. Napa County Board of Supervisors* (2001) 91 Cal.App.4th 342, 369.



the EIR for the AVAP was certified in June 2015. The portion of the Project site that is located east of 300<sup>th</sup> Street West is designated as RL2 (1 DU/ 2 ac) in the AVAP; the Specific Plan designates this land as LDR (0-7 du / ac). The AVAP allows for flexibility in land use adjustments, as stated in Chapter 8 (Plan Implementation), Section II.C.3 (West EOA):

In order to allow for more flexibility in the future, detailed site design of specific neighborhoods in this area, a Specific Plan for a Project in the West EOA may be allowed to convert the areas designated as Residential 5 (H5) to General Commercial (CG) or Public and Semi-public (P) designations without amending this Area Plan, so long as the resulting residential densities do not exceed those provided for by this Area Plan and no change in unmitigated significant impacts occur. The Specific Plan may also include provisions for the conversion of residential to commercial areas, provided the amount of planned commercial building square footage does not result in any new unmitigated significant impacts. The Specific Plan shall also stipulate that these provisions (i.e., converting residential to commercial or other designations) are subject to a traffic study that confirms that no new unmitigated significant traffic impacts will occur. Land use adjustments within designations are permitted as part of a Specific Plan provided that the adjustments: 1) do not increase the total number of developable acres, dwelling units, or square footage; 2) increase the total amount of open space and do not decrease the total amount of natural open space; and 3) do not result in unmitigated significant impacts.

Because the Project is consistent with the allowable land uses and development densities/intensities in the AVAP and because the EIR for the AVAP adequately analyzed the growth-inducing impacts of the AVAP, the proposed Project would not have any growth-inducing impacts that were not previously analyzed in that certified EIR. As such, the Project would not be considered growth-inducing related to planned growth in the region. However, because the Project site is currently largely vacant and the Project would substantially increase population and housing relative to the existing site conditions, it is reasonably foreseeable that future unplanned development may occur along the eastern fringes of the Project site, where physical constraints to development are less than to the north and south.

### **6.1.3 SECTION FORMAT**

Due to its nature, this section is organized differently than other sections in this document. It is organized as follows:

- Introduction
  - Definition of Growth Inducement
  - Summary
  - Section Format
  - References
- Existing Regional Trends
- Growth Constraints Near the Project Site
- Growth Inducement Potential

- Potential Growth-Inducing Impacts
  - Removal of Obstacles to Growth
  - Expansion of Public Services
  - Economic and Population Expansion or Growth
  - Establishment of Precedent-Setting Action
- Project Impacts
- References

#### 6.1.4 REFERENCES

The main references used in this section include the AVAP (which designates areas for development in the unincorporated areas of the Antelope Valley) and the EIR for the AVAP (which provides buildout projections for population, housing and employment and discusses the growth-inducing impacts of the AVAP). The analyses in this document also uses SCAG's 2016 Adopted Growth Forecasts and the *2016–2040 Regional Transportation Plan/Sustainable Communities Strategy* (RTP/SCS). All references cited for preparation of this analysis are listed in Section 6.7.

## 6.2 EXISTING REGIONAL TRENDS

The Project site is located in the North Los Angeles County Subregion, as identified by the SCAG. This SCAG subregion includes the Cities of Lancaster, Palmdale, and Santa Clarita, as well as the unincorporated Santa Clarita and Antelope Valley areas. SCAG projects that Los Angeles County and the North Los Angeles County Subregion will experience substantial growth between 2012 and 2040 (SCAG 2016c). The Project site is located in traffic analysis zones (TAZs)<sup>2</sup> where future growth is expected (SCAG 2012e, 2016b). Future growth in the County is expected to occur as infill development in urban centers, as well as new development on vacant lands.

Section 5.9, Population, Housing, and Employment, discusses population, housing, and employment projections for the region, Los Angeles County, North Los Angeles County, Antelope Valley, and TAZs 20280000 and 20281000, which include the Project site. Concurrent with the projected increases in housing and population in these TAZs (SCAG 2012c), the economic base in these TAZs is expected to grow, as the largely vacant Project site is developed to include future commercial, light manufacturing, public service, and residential uses. The proposed Project is consistent with the household and employment projections for the area that includes the Project site in the SCAG's 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) (SCAG 2012e) and 2016 RTP/SCS (SCAG 2016a). The resident population of the Project at buildout is 82.46 percent of the projected resident population of TAZ 20280000 and TAZ 20281000 by 2035, but exceeds the SCAG projections for 2040. The 2016 RTP/SCS states that TAZ level data or any data at a geography smaller than the jurisdictional level is included in the draft growth forecasts for regional modeling purpose only, and is advisory and non-binding. As such, the

---

<sup>2</sup> SCAG divides the entire region into traffic analysis zones (TAZs) as a basic geographic unit for its growth projections.

exceedance of population growth projections at the Project site on a TAZ level is not considered a significant adverse impact.

The AVAP regulates development within the unincorporated areas of the Antelope Valley, including the site. At buildout, the EIR for the AVAP estimates a resident population of 405,410 people; a housing stock of 106,180 units; and an employment base of 134,351 jobs (LACDRP 2015b). The AVAP focuses future development in Economic Opportunity Areas (EOAs) as a means to accommodate growth and development in the Antelope Valley while preserving the rural character and ecological resources of the surrounding areas. The Project site is located within the West EOA. The Project is also consistent with the allowable development for this area, based on the Land Use Policy Map in the AVAP.

### 6.3 GROWTH CONSTRAINTS NEAR THE PROJECT

On June 17, 2008, the Tejon Ranch Company entered into a Conservation and Land Use Agreement (Conservation Agreement) with Audubon California, the Endangered Habitats League, the Natural Resources Defense Council, the Planning and Conservation League, and the Sierra Club (Resource Groups). The Conservation Agreement covers the site and allows Tejon Ranch Company and its development partners to pursue approvals for developing portions of the Ranch, including the Project site, while providing for the designation of permanent open spaces and the dedication or sale of conservation easements over approximately 240,000 acres of the Ranch (approximately 90 percent of the Ranch). In exchange for the preservation of open space areas, the Natural Resources Defense Council, the Sierra Club, Audubon California, the Planning and Conservation League, and the Endangered Habitats League will not oppose the development of the Tejon Industrial Complex, Tejon Mountain Village, Grapevine, and the Centennial Project. This agreement would preclude future development in other areas of Tejon Ranch to the north and southeast of the site. In preventing development throughout much of the Ranch property, the Conservation Agreement creates a barrier to development and other improvements within the approximately 240,000 acres of open space set aside in the Agreement, thus limiting future development within the vicinity of the Project site. The boundaries of Tejon Ranch-owned lands are depicted in Exhibit 3-2, Project Vicinity Map, in Section 3.0, Environmental Setting.

The San Gabriel Mountains and the Angeles National Forest are located south of the Project site. This area is subject to physical and government ownership constraints. The Los Padres National Forest and the Hungry Valley State Vehicular Recreation Area to the west of the site—which, together with the Angeles National Forest, total approximately 2.6 million acres—are expected to remain undeveloped. The 93,000-acre Wind Wolves Preserve (west of Interstate [I] 5 in the Tehachapi Mountains) is also expected to remain as permanent open space (The Wildlands Conservancy 2016). Some lands in the area are also owned by the Bureau of Land Management and the State Department of Parks and Recreation and are unlikely to be developed.

Thus, vacant land near the site that may be developed in the future would be limited to privately-owned parcels and areas that are not designated for preservation as open space. Exhibit 3-4, Local Area Constraints, included in Section 3.0, Environmental Setting, depicts

the locations of many of these constraints in relation to the Project site boundary. In addition to the open space constraints, other development constraints in the Project area include the steep slopes and rugged terrain in the Tehachapi Mountains to the northwest and the San Gabriel Mountains to the south, and the San Andreas Fault that runs through these mountains (CDOC 1974a, 1974b). This is discussed further in Section 5.1, Geotechnical. Wildfire hazards that may constrain development are discussed in Section 5.3, Hazards and Hazardous Materials. This area also contains environmentally sensitive areas, such as the San Andreas Significant Ecological Area (SEA), as discussed in Section 5.7, Biological Resources.

An additional constraint to development is water supply in the Antelope Valley. The Antelope Valley Groundwater Basin, which was determined to be in overdraft, is regulated in accordance with a Court-approved adjudication Judgment and Physical Solution entered in December 2015. The purpose of the Antelope Valley Adjudication Judgment and Physical Solution is to allow for groundwater use in a manner that avoids overdraft and fosters sustainable beneficial uses by limiting production to the basin's total sustainable yield of approximately 110,000 acre-feet per year (afy). Tejon Ranch is a party to the Judgment and Physical Solution entered by the Superior Court and has been allocated an overlying production right of 1,634 afy. All of Tejon Ranch's overlying right allocation will be provided to and utilized by the Project. Although water supply is not a constraint for the proposed Project, as described in Section 5.18, Water Resources, other future development projects in the area would be constrained if their development was not anticipated in the AVAP and/or the Court-approved adjudication Judgment and Physical Solution (California Superior Court 2015; see Appendix 5.18-E).

Another constraint is the Antelope Valley Area Plan and related provisions of the County General Plan, which focus new urban development in designated locations, including the Project site which is in the West EOA. Development located outside this and other areas designated for future development could occur only if the Board of Supervisors made a policy choice to amend the Antelope Valley Area Plan to allow development at greater densities than currently allowed according to the AVAP's land use designations.

## 6.4 GROWTH INDUCEMENT POTENTIAL

When considering the growth constraints to development in the vicinity of the Project site, as discussed in Section 6.3 above, the Project may prompt further growth in three general areas:

- Areas west of the Project site from Quail Lake, along State Route (SR) 138 to the I-5, and northward along the eastern side of I-5 to Gorman would potentially be influenced by development of the proposed Project. Also, development of the adjacent Gorman Post Ranch has been proposed in this area.
- Areas east of the Project site along the SR-138 corridor, which are also included in the West EOA designated in the Antelope Valley Area Plan.
- Areas east of the Project site (e.g., the area near Neenach and toward the cities of Lancaster and Palmdale) that are outside the West EOA.

As shown on Exhibit 3-1, Regional Location, in Section 3.0, Environmental Setting, growth to the north and south of the Project site will be precluded due to the Tejon Ranch Conservation Agreement and its provision for up to 240,000 acres of open space slated for permanent preservation. Specifically, this Conservation Agreement involves only Tejon Ranch property, and includes land both south and north of the proposed Project site. The Conservation Agreement serves to prevent development within much of the Ranch property, not including the Tejon Mountain Village and Tejon Industrial Complex projects, and creates a barrier to development and other improvements within the approximately 240,000 acres of open space set aside in the Agreement, thus limiting future development in the vicinity of the Project site. As previously discussed, the Angeles National Forest and Los Padres National Forest lands provide a substantial barrier to development to the south of the Project site.

## 6.5 POTENTIAL GROWTH-INDUCING IMPACTS

Pursuant to Section 15126.2(d) of the State CEQA Guidelines, an EIR must discuss the ways in which the proposed Project could foster economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. An EIR should not assume that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment. For the growth-inducing analysis, impacts would be considered significant only if the reasonably foreseeable growth could result in significant effects on the environment. This discussion of the potential growth-inducing effects of the Project uses four growth-inducing criteria:

1. Would this project remove obstacles to growth, e.g., through the construction or extension of major infrastructure facilities that do not presently exist in the project area, or through changes in existing regulations pertaining to land development?
2. Would this project result in the need to expand one or more public services to maintain desired levels of service?
3. Would this project encourage or facilitate economic effects that could result in other activities that could significantly affect the environment?
4. Would approval of this project involve some precedent-setting action that could encourage and facilitate other activities that could significantly affect the environment?

Each growth-inducing criterion is discussed below.

1. **Removal of Obstacles to Growth.** While the Project does include the construction of new infrastructure facilities and provisions for new access to the area north of SR-138, the infrastructure facilities are not sized to accommodate growth beyond that which is proposed for the Centennial Project.

No new electrical production plants or natural gas facilities are part of the proposed Project and no new electrical/gas production facilities are required to support the development of the proposed Project, although 50% of the Project's total electric energy demand (i.e. household, business, civic/institutional, recreational, and public facilities) must be met by onsite renewable energy. This renewable energy generation

would be used by the Project; therefore, the Project would not provide any additional power/gas supplies or eliminate a power-related obstacle to growth.

Water supplies are limited in the proposed Project area. The Project will utilize several water supplies and on- and off-site water banking facilities to meet potable demand. Available supplies include groundwater and imported water return flows in accordance with the approved Antelope Valley adjudication Judgment and Physical Solution and State Water Project (SWP) supplies secured for Project use and imported to the site under an agreement with the Antelope Valley – East Kern Water Agency (AVEK). The Project is designed to have a balance between demand and supply, and will not generate “extra” potable water that could be used to support additional growth in the area. Also, the Antelope Valley adjudication Judgment and Physical Solution limits the amount of growth in the area due to limited water supplies.

While the Project does propose two wastewater reclamation facilities (WRFs), they are designed to accommodate the proposed Project only and would not treat wastewater from the surrounding area. Due to limited wastewater treatment facilities in the Project’s surrounding area and due to the restricted size of wastewater reclamation plants proposed as part of the Project, growth is not anticipated to be induced as a result of the wastewater reclamation plants associated with the Project.

SR-138 provides the main access from the Lancaster/Palmdale area to I-5. The SR-138 is planned for expansion by Caltrans, as discussed in Section 5.10, Traffic, Access and Circulation, and is not related to the proposed Project. While new roads are a part of the infrastructure supporting the proposed Project, these roads are internal to the Project site. The roads would provide new access in an area (the proposed Project); however, they are limited to the boundaries of the Project site and are not sized to support regional traffic flows. Except for providing access to the SR-138, the Project roads would not provide access to other areas outside the Project boundaries. At the Project site, the construction of roads, water treatment and delivery systems, sewers, two wastewater reclamation facilities, and utilities would not be sized to accommodate growth beyond that which is proposed for the Centennial Project.

However, future nearby landowners could propose to connect to or build upon the Project’s infrastructure to serve future development in the surrounding area. Such proposals would be subject to environmental analysis pursuant to CEQA, and any approvals of future development would be at the discretion of the lead agency.

- 2. Expansion of Public Services.** Housing being built as part of the Project will only support the anticipated needs of this new community. New housing will bring in a new population base. This population will require support services such as fire and police protection, libraries, schools and employment opportunities. The Project will be adding fire and police stations, libraries, and schools to support the anticipated population associated with the Project. However, the services being provided are scaled such that these services will support the anticipated population only. Additional population in areas nearby or surrounding the Project would require

additional support services. Thus, the Project will not provide services to support additional growth beyond what is expected for the Project.

However, nearby landowners could benefit from the proximity of new services available at Centennial, which could, in turn, prompt them to seek approvals for additional development. Such proposals would be subject to environmental analysis pursuant to CEQA and any approvals of future development would be at the discretion of the lead agency.

- 3. Economic and Population Expansion or Growth.** The Project will increase the population within the boundaries of the Project site. The total anticipated increase in population generated by development of the Project (i.e., 57,150 people) represents approximately 4.81 percent of the projected population increase (1,188,600 persons) for the County as a whole between 2020 and 2040, and would represent approximately 23.38 percent of the SCAG growth projections for the North Los Angeles County Subregion for the same period. The Project is also consistent with the population and housing projections included in the AVAP, where 311,920 new residents and 81,441 new dwelling units are expected within the unincorporated areas from 2013 to 2035 (LACDRP 2015b).

The Project is consistent with demographic projections in the 2012–2035 RTP/SCS at the TAZ level, where as many as 68,641 new residents are expected between 2012 to 2035 (refer to Table 5.9-5 in Section 5.9 of this EIR) in the two TAZs that cover the Project site, of which 57,150 persons would be residents of the Project. The Project is consistent with the household and employment projections in the 2016–2040 RTP/SCS at the TAZ level, where 22,225 new households and 23,877 new jobs are projected from 2012 to 2040. The 2040 household projections at the TAZ level in the 2016 RTP/SCS are consistent with the proposed Project’s buildout estimates. The resident population of the Project at buildout is 82.46 percent of the projected resident population of TAZ 20280000 and TAZ 20281000 by 2035, but exceeds the SCAG projections for 2040. The 2016 RTP/SCS states that TAZ level data or any data at a geography smaller than the jurisdictional level is included in the draft growth forecasts for regional modeling purpose only, and is advisory and non-binding. As such, the exceedance of population growth projections at the Project site on a TAZ level is not considered a significant adverse impact. Population, housing, and economic growth relative to the SCAG RTP/SCS would be less than significant as it relates to the exceedance of regional population projections.

The Project would accommodate a projected demand for residential development in the North Los Angeles County Subregion. Development allowed by the proposed Project would also include shopping, entertainment, recreation, institutional, and health care uses. These uses would serve the residential development on the site and the existing residential uses near the site. The increased employment opportunities and businesses in the area could, in turn, induce growth locally and/or regionally to support visitors to the area that are not residents of the Centennial Project.

Long-term growth, should it occur, would primarily be in the form of an economic response to the presence of an increased resident population and employment opportunities that would occur on the Project site and that, in turn, could incrementally increase the area's demand for local goods and services. As the proposed Project would result in the introduction of residents and its associated demand for goods and services and since the Project would create new employment opportunities in the Project's commercial and business park areas, Project implementation would have the potential to induce regional economic growth.

4. **Establishment of a Precedent-Setting Action.** Approval of the proposed Project would require the approval of an amendment to the Highway Plan Policy Map in the *County of Los Angeles General Plan* and an amendment to the AVAP Highway Plan in the *Antelope Valley Area Plan* to include the internal roadway network. The Project would also require a zone change for the adoption of the *Centennial Specific Plan*. However, given that the Specific Plan's regulations would apply only in the Specific Plan area, the proposed Project would not be considered growth inducing with respect to a precedent-setting action.

## 6.6 PROJECT IMPACTS

As discussed in Section 5.9, Population, Housing and Employment, the Project would lead to growth in employment, housing, and population on largely vacant land that is consistent with the household and employment growth projections for the area in SCAG's 2012–2035 RTP/SCS and 2016–2040 RTP/SCS (SCAG 2016b, 2016c, 2012a, 2012b).

The Project is also consistent with the AVAP and proposes development in the West EOA, where the AVAP anticipates future development. The EIR (SCH No. 2014061043) for the AVAP fully evaluated the growth-inducing impacts of buildout of the unincorporated areas of the Antelope Valley, as allowed by the AVAP (LACDRP 2015b). The only amendment to the AVAP proposed by the Project is the inclusion of the internal roadway network into the AVAP Highway Plan. This amendment would require a corresponding amendment the Highway Plan Policy Map in the *County of Los Angeles General Plan* to also show the proposed internal roadway network. These roadways would establish the circulation network that would serve the development contemplated by the AVAP but would not change land use designations; increase the allowable development; or decrease open space areas. Also, no changes to the circumstances under which development would occur have occurred since the EIR for the AVAP was certified in June 2015. Therefore, the Project, as planned, would not result in significant growth-inducing impacts related to approved County and regional plans.

Notwithstanding these constraints on additional development in the Project vicinity, the existence of the Project makes it reasonably foreseeable that additional development proposals seeking AVAP amendments, which could result in a significant impact on the environment, would be made outside the West EOA, which is considered a significant adverse indirect growth-inducing impact.



## 6.7 REFERENCES

- California Department of Conservation (CDOC). 1974a (July 1). *Special Studies Zones – Lebec Quadrangle*. Sacramento, CA: CDOC.
- . 1974b (July 1). *Special Studies Zones – La Liebre Ranch Quadrangle*. Sacramento, CA: CDOC.
- California, State of. 2009. *California Code of Regulations* (Title 14, Natural Resources; Division 6, Resources Agency; Chapter 3, Guidelines for Implementation of the California Environmental Quality Act). Sacramento, CA: the State.
- California Superior Court. 2015 (December). *Antelope Valley Groundwater Cases [Proposed] Judgement and Physical Solution* (Santa Clara Case No. 1-05-CV-049053). Los Angeles, CA: Superior Court of the State of California, County of Los Angeles – Central District.  
[http://www.sccourt.org/complexcivil/105CV049053/volume4/234671e\\_ExhibitxAxxxxProposedxJudgmentxandxPhysicalxSolution.pdf](http://www.sccourt.org/complexcivil/105CV049053/volume4/234671e_ExhibitxAxxxxProposedxJudgmentxandxPhysicalxSolution.pdf)(Appendix 5.18-D).
- Los Angeles County Department of Regional Planning (LACDRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: LACDRP.  
<http://planning.lacounty.gov/tnc>.
- . 2015b (March). *Final Environmental Impact Report, Los Angeles County General Plan Update, County of Los Angeles*. Los Angeles, CA: LACDRP.  
<http://planning.lacounty.gov/generalplan/eir>.
- . 2015c (May 27, last accessed). *Los Angeles County General Plan 2035*. Los Angeles, CA: LACDRP. <http://planning.lacounty.gov/generalplan>.
- Napa Citizens for Honest Government v. Napa County Board of Supervisors* (2001) 91 Cal. App. 4th 342, 369.
- Southern California Association of Governments (SCAG). 2016a (April 7). *The 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy*. Los Angeles, CA: SCAG. <http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS.pdf>.
- . 2016b (April). *Final 2016–2040 RTP/SCS – Demographics and Growth Forecast Appendix*. Los Angeles, CA: SCAG.  
[http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS\\_DemographicsGrowthForecast.pdf](http://scagrtpscs.net/Documents/2016/final/f2016RTPSCS_DemographicsGrowthForecast.pdf).
- . 2016c (April 13). *2016–2040 RTP/SCS Final Growth Forecast by Jurisdiction*. Los Angeles, CA: SCAG. [http://www.scag.ca.gov/Documents/2016\\_2040RTPSCS\\_FinalGrowthForecastbyJurisdiction.pdf](http://www.scag.ca.gov/Documents/2016_2040RTPSCS_FinalGrowthForecastbyJurisdiction.pdf).

- . 2012a (April). 2012 Regional Transportation Plan/Sustainable Communities Strategy –Growth Forecast Appendix. Los Angeles, CA: SCAG.  
[http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP\\_GrowthForecast.pdf](http://rtpscs.scag.ca.gov/Documents/2012/final/SR/2012fRTP_GrowthForecast.pdf).
  - . 2012b. 2012 Adopted Growth Forecast (an excel spreadsheet). Los Angeles, CA: SCAG.  
<http://gisdata.scag.ca.gov/Pages/SocioEconomicLibrary.aspx?keyword=Forecasting>.
  - . 2012c. Growth Forecast by Subregion. Los Angeles, CA: SCAG.
- The Wildlands Conservancy. 2016. Wind Wolves Preserve. Oak Glen, CA: The Wildlands Conservancy. [http://www.wildlandsconservancy.org/preserve\\_windwolves.html](http://www.wildlandsconservancy.org/preserve_windwolves.html).

*This page is intentionally left blank.*

---

## 7.0 CUMULATIVE IMPACTS

### 7.1 INTRODUCTION

The California Environmental Quality Act (CEQA) Guidelines require that a project's cumulative impacts be discussed when "the incremental effect is cumulatively considerable" (*California Code of Regulations* [CCR], Title 14, Section 15130). Section 15065(a)(3) of the State CEQA Guidelines specifies that cumulatively considerable means "that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects". Further, Section 15355 of the State CEQA Guidelines defines cumulative impacts as follows:

- . . . two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
- a) The individual effects may be changes resulting from a single project or a number of separate projects.
  - b) The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

When addressing cumulative impacts, Section 15130(b) of the State CEQA Guidelines states that an adequate discussion of significant cumulative impacts involves one of the following two elements, either:

- A. A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or
- B. A summary of projections contained in an adopted local, regional or statewide plan, or related planning document, that describes or evaluates conditions contributing to the cumulative effect. Such plans may include: a general plan, regional transportation plan, or plans for the reduction of greenhouse gas emissions. A summary of projections may also be contained in an adopted or certified prior environmental document for such a plan. Such projections may be supplemented with additional information such as a regional modeling program. Any such document shall be referenced and made available to the public at a location specified by the lead agency.

### 7.1.1 SECTION FORMAT

The cumulative impacts of each environmental category analyzed in Section 5.0 (i.e., 5.1–5.21) of this Draft EIR are analyzed under a separate subheading in this section. This section is arranged in the following manner:

- Introduction
- Approach to Cumulative Impact Analysis
  - Regional Growth
  - Related Projects
- Cumulative Impact Analysis
- Conclusion
- References

## 7.2 APPROACH TO CUMULATIVE IMPACT ANALYSIS

As discussed in Section 7.1 above, CEQA establishes that either the “list” or “projection” methods are appropriate to provide a basis to analyze cumulative impacts. To provide a comprehensive cumulative impact analysis, this Environmental Impact Report (EIR) uses both methods.

While not the sole source for the cumulative impact analysis, the regional growth method (i.e., projection method) for analyzing cumulative impacts is especially applicable to the Project because of its location and planned long-range buildout. As discussed further in Section 6.0, Growth-Inducing Impacts, although there is expansive undeveloped land in the area surrounding the Project site, there is limited land proximate to the Project site that is available for future development. The majority of surrounding lands are subject to development constraints, such as permanent conservation, limited infrastructure, public ownership, and/or topography. Refer to Exhibit 3-2, Project Vicinity Map, and Exhibit 4-12, Off-Site Mitigation Preserve, in this Draft EIR that demonstrate the location and extent of surrounding lands with development limitations. As such, the Project site is physically separated from most current, or potential future, development projects. This factor minimizes the potential for cumulative impacts that are associated with proximity to related projects, such as construction-related air quality and long-term aesthetics, for example.

Due to the long-range (20-year) buildout of the Project site, the regional growth projections are considered the best measure of full cumulative impacts for several reasons. The Project is consistent with the Los Angeles County General Plan 2035 and the Antelope Valley Area Plan (AVAP), which is a component of the General Plan and is the applicable Area Plan for the site. The Project is consistent with the goals of the Economic Opportunity Areas (EOAs), as designated in the AVAP. In addition, the Project would be consistent with applicable Southern California Association of Governments (SCAG) plans and policies, including the *2012--2035 Regional Transportation Plan/Sustainable Communities Strategy* (2012 RTP/SCS) and the 2016-2040 RTP/SCS, as discussed in Section 5.8, Land Use, Entitlements, and Planning. As discussed in Section 5.9, Population, Housing and Employment, the Project is consistent with the population, household, and employment growth forecasts for the

North Los Angeles County Subregion and for the traffic analysis zones (TAZs) where the site is located, as used in the 2012 RTP/SCS and would not exceed the housing and employment growth projections in the 2016 RTP/SCS.

An itemized list of currently proposed development projects would capture only a portion of expected growth in the area, and it is likely that over Centennial's 20-year timeframe, other developments will be proposed that cannot be foreseen now and would not be captured through a list of past, present, and probable future projects. Although local and regional planning agencies anticipate eventual growth for the region, the precise location and the characteristics of any future, yet-to-be-defined development cannot be determined at this time. Additionally, most, if not all, of the individual related projects considered in this analysis are included in regional growth projections. Finally, although projects are under consideration at any given time, there is no guarantee that they will be approved and, if they are approved, that they will be developed. For these reasons, the regional growth projections are considered the best measure of full cumulative impacts.

While there are limitations to the assessment of related projects (i.e., the "list" approach) for this Project, this section also includes a discussion of the anticipated growth currently being considered or entitled by local jurisdictions in the Project region to ensure a conservative and comprehensive analysis. The Project region, for purposes of the cumulative analysis, includes unincorporated County areas in the AVAP area, Santa Clarita Valley (SCV), southern Kern County (approximately south of Interstate [I] 5 and State Route [SR] 99) as well as the cities of Lancaster, Palmdale, and Santa Clarita. Collectively, this represents approximately one-half of the County of Los Angeles land area plus the southern portion of Kern County.

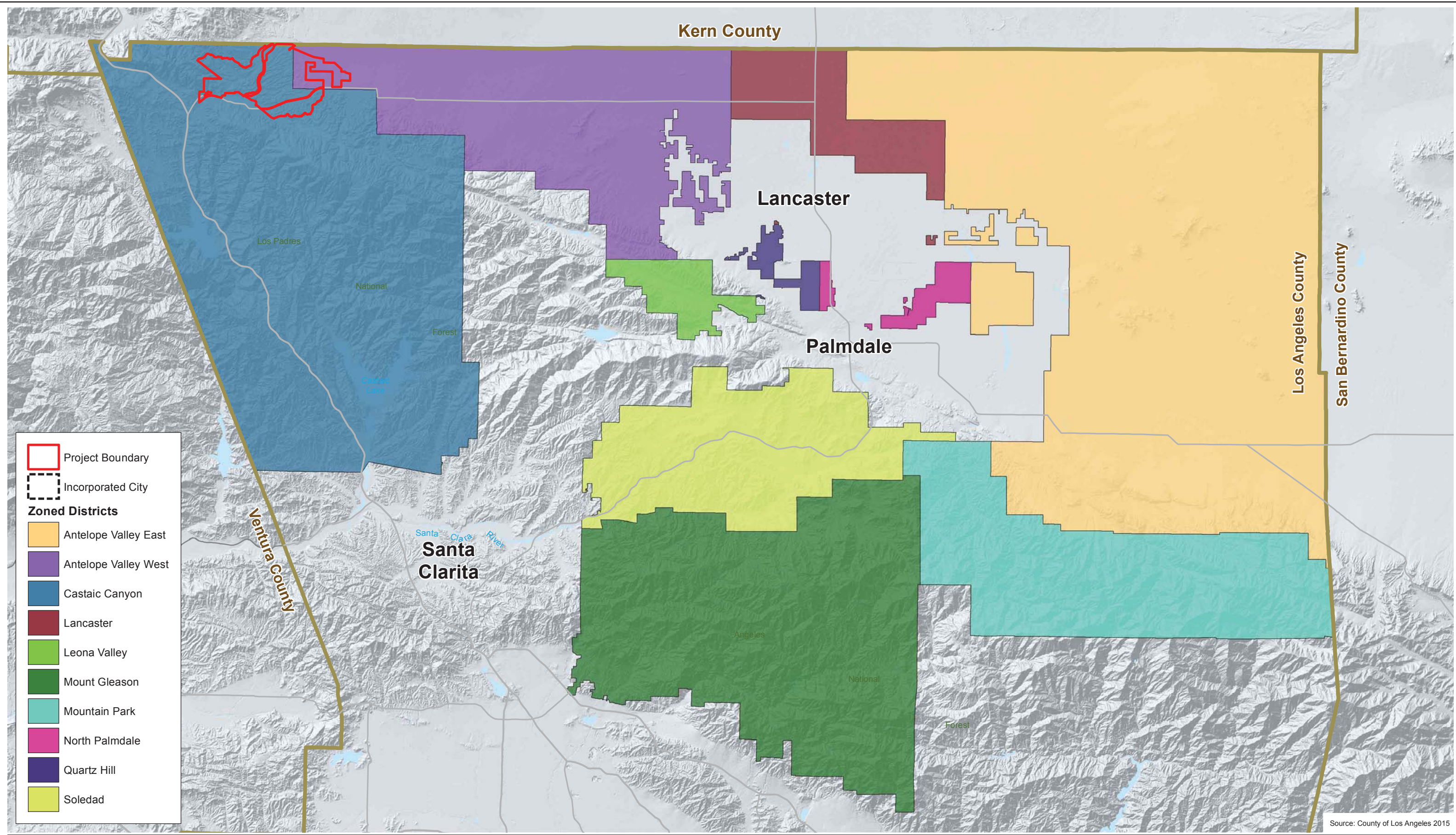
There is overlap between the regional growth projections and known development projects, as the anticipated growth numbers submitted to SCAG by individual jurisdictions are based, in part, on ongoing development activity. Ventura County projects were not included in this analysis because of the topographical barrier represented by the mountainous portion of the County near I-5. However, the traffic model used in this EIR accounts for trips that would cross the regional boundaries into the study area, both from Ventura County to the west and San Bernardino County to the east.

Exhibit 7-1, Los Angeles County Cumulative Impact Area, illustrates the area encompassed within Los Angeles County for the cumulative impact analysis. Further details regarding the method applied for regional growth and related projects, is presented below.

## 7.2.1 REGIONAL GROWTH

Applicable planning documents that serve as local and regional guides for future development include the *Los Angeles County General Plan* (County General Plan), the *Antelope Valley Area Plan* (AVAP), *Kern County General Plan*, and the regional growth projections developed by SCAG and the Kern Council of Governments (Kern COG). SCAG's 2012 RTP/SCS and 2016 RTP/SCS include growth projections for population, household and employment. Future development on the site under the *Centennial Specific Plan* is consistent with the growth projections for the area, as anticipated in the 2012 and 2016 RTP/SCS prepared by SCAG. The most current Kern COG projections were adopted as part of the *Kern*





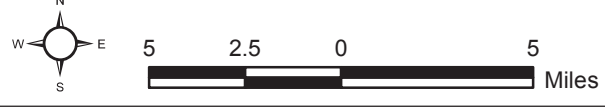
- Project Boundary
- Incorporated City
- Zoned Districts**
- Antelope Valley East
- Antelope Valley West
- Castaic Canyon
- Lancaster
- Leona Valley
- Mount Gleason
- Mountain Park
- North Palmdale
- Quartz Hill
- Soledad

Source: County of Los Angeles 2015

**Los Angeles County Cumulative Impact Area**

**Exhibit 7-1**

Centennial Project



D:\Projects\CEN\Centennial\MXD\EIR\EX\_Cumulative\_Impacts\_20151105.mxd



COG 2014 Regional Transportation Plan/Sustainable Communities Strategy (Kern COG 2014 RTP/SCS) (Kern COG 2014).

The AVAP EIR addressed cumulative impacts using solely the regional growth method. Specifically, SCAG's growth projections from the 2012 RTP/SCS for the North Los Angeles County Subregion were used in the AVAP EIR, for all topics except air quality, greenhouse gas (GHG) emissions, noise, and traffic. The North Los Angeles County Subregion includes the AVAP unincorporated area, Santa Clarita Valley, and the cities of Santa Clarita, Palmdale, and Lancaster. The AVAP EIR's cumulative analysis for the four topics listed above used the data from the North Los Angeles County Sub-Area Traffic Model; this traffic model is also used in this EIR and the cumulative analysis of impacts related to traffic for these topics.

It is noted that the Kern COG 2014 RTP/SCS and its associated growth projections are presented for each city and the unincorporated areas as well as County-wide, and do not have subregional areas defined that would enable the approximation of growth in the southern Kern County area. Therefore, the regional growth projections for SCAG's North County Subregion in the 2016 RTP/SCS and Kern COG's County-wide area in the Kern COG 2014 RTP/SCS are used as the basis of growth projections considered for cumulative impacts. Table 7-1, North Los Angeles County and Kern County Growth Projections, summarizes the SCAG (2012 base year and 2040 horizon year) and Kern COG (2010 base year and 2040 horizon year) projections. As shown, both the North Los Angeles County Subregion and Kern County are expected to experience substantial population, housing, and employment growth in the coming decades. The SCAG and Kern COG projections are discussed in more detail in Section 5.9, Population, Housing, and Employment.

**TABLE 7-1  
NORTH LOS ANGELES COUNTY AND KERN COUNTY GROWTH PROJECTIONS**

	Population			Housing			Employment		
	2012	2040	Change	2012	2040	Change	2012	2040	Change
North Los Angeles County Subregion <sup>a</sup>	657,825	985,840	50%	200,990	331,399	65%	181,089	280,447	55%
Kern County <sup>b</sup>	2010	2040	Change	2010	2040	Change	2010	2040	Change
	839,600	1,444,100	72%	284,367	456,100*	79%	273,900 <sup>c</sup>	426,100 <sup>c</sup>	36%

\* - household projection  
Source: <sup>a</sup> SCAG 2016; <sup>b</sup> Kern COG 2014, <sup>c</sup> Caltrans 2014.

Utilizing these regional growth projections allows a more comprehensive evaluation of certain categories of cumulative impacts than relying on known projects identified by the local jurisdictions. It takes into account the effects of growth beyond the immediate study area. This information is particularly useful in evaluating the cumulative impacts associated with traffic, air quality, GHG emissions, noise, and traffic, because it provides growth assumptions consistent with the local general plans with a long-range horizon year.



## 7.2.2 RELATED PROJECTS

To determine the scope of growth associated with a listing of related projects to be considered in this cumulative impact analysis, development summaries were provided by the County of Los Angeles Department of Regional Planning; the Kern County Planning and Community Development Department; the City of Lancaster Planning Department; the City of Palmdale Planning Division; and the City of Santa Clarita Planning Division. These development summaries are provided in Appendix 7.0-A.

The development summary data include permits for several types of planning actions that would have no effect on the physical environment and/or would not generate growth that would result in a cumulative impact, such as permits to continue existing uses or renew conditional use permits (CUPs); sell or serve alcohol in an existing establishment; authorize existing, non-compliant uses; and authorize additions or renovations to existing development (e.g., pools/spas, patio covering, decks, room additions). Therefore, the total number of residential dwelling units and total square footage of non-residential development (e.g., commercial, industrial, public/institutional, and renewable energy) were quantified (where this data were available) for those projects with current applications, approved projects, and partially constructed projects in the Project region as a whole.

It is noted that some of the anticipated development may not ultimately be constructed, either in part or in whole. Also, some projects may already be fully constructed at the time the Project begins implementing its first phase, if approved. As such, the summary of related project development is based on a broad, worst-case approach to the anticipated land use development being considered in northern Los Angeles County and southern Kern County that could have the potential to result in cumulative impacts when considered in combination with the Project. Table 7-2, Related Project Development Summary, presents the total residential and non-residential land use development currently expected in each jurisdiction in the northern half of Los Angeles County and in southern Kern County. In the non-residential column, renewable energy projects are presented separately in acres (when present) while all other non-residential development expected to have a physical development impact is presented in square feet (sf).

**TABLE 7-2  
RELATED PROJECT DEVELOPMENT SUMMARY**

<b>Jurisdiction</b>	<b>Residential (du)</b>	<b>Non-Residential</b>
Unincorporated Los Angeles County (AVAP) <sup>a</sup>	9,444	179,912 sf/20 ac (solar)
Southern Kern County <sup>b,c</sup>	15,450	25,308,400 sf
City of Lancaster <sup>d</sup>	14,122	4,379,860 sf/377 ac (solar)
City of Palmdale <sup>e</sup>	301	954,229 sf/224 ac (solar)
City of Santa Clarita <sup>f</sup>	5,551	7,202,640 sf
<b>Totals</b>	<b>44,868</b>	<b>38,025,041 sf (38.0 million sf)/ 621 ac (solar)</b>
AVAP: Antelope Valley Area Plan; du: dwelling unit; sf: square feet; ac: acres Note: All development summaries used in the generation of this table are available in Appendix 7.0-A. Sources: <sup>a</sup> Dea 2015. <sup>b</sup> Keith 2015a, 2015b <sup>c</sup> Kern County Planning Department 2014 <sup>d</sup> Lancaster 2015a, 2015b <sup>e</sup> Palmdale 2015 <sup>f</sup> Peterson 2015		

In addition to consideration of the total related project development in the region as of summer 2015 (i.e., at the time of Notice of Preparation [NOP] distribution), a second tier of the related project methodology involved assessing individual projects located in close proximity to the Project site that, due to this proximity, would have the most potential for cumulative impacts. As of 2017, these include the Burrows property, Gorman Post Ranch, Tejon Mountain Village, the Tejon Ranch Commerce Center (formerly named the Tejon Industrial Complex), the Grapevine Property, and the Northwest 138 Corridor Improvement Project (NW138 Project). All of these properties are included in the Table 7-2 with the exception of the Burrows property, as an application for development has not yet been filed with the County of Los Angeles Department of Regional Planning.

### **Burrows Property**

The Burrows property occupies approximately 596 acres in a “J” shape located between the eastern Project boundary and 300<sup>th</sup> Street West. This property aligns with the Project site on all sides except the west, which meets 300<sup>th</sup> Street West. This property is also located within the West EOA, as designated within the AVAP. There is no pending application for entitlement with the County. Because of its location immediately adjacent to the Project site and discussions with County staff, this is considered a reasonably foreseeable project for purposes of the cumulative impact analysis. The property owner has indicated an intention to file an application for development of residential, park, school, and greenway uses.

### **Gorman Post Ranch**

The Gorman Post Ranch project occupies approximately 2,720 acres in the northwestern corner of unincorporated Los Angeles County, just south of the Kern County border. Specifically, the site is located on Gorman Post Road approximately four miles to the west of

the Centennial Project's western boundary. The Gorman Post Ranch project proposes to develop 533 residential units and related features, including water tanks, sewer pump stations, debris basins, and street infrastructure on approximately 525 acres with the remaining approximately 2,195 acres as designated open space (County of Los Angeles 2011).

An Initial Study for the Gorman Post Ranch Project dated December 2006 (SCH No. 2007011064) was circulated in January 2007 (County of Los Angeles 2006). The document identifies potential effects associated with most topical areas on the CEQA checklist, including traffic, public services/utilities, aesthetics, biological resources, and cultural resources. Per the Initial Study, many of these potential impacts would be mitigated below the threshold of significance. The Draft Environmental Impact Report for this project remains in preparation as of January 2017.

### **Tejon Mountain Village**

The Tejon Mountain Village (TMV) is a master-planned residential resort development to be located within Tejon Ranch, east of Lebec at the top of the Grapevine in Kern County. Although the TMV project site can presently only be accessed through Lebec at a travel distance of approximately 11 miles from the proposed entrance to the Centennial Project, it is located approximately 1 mile north of the northwesterly corner of the Centennial Project site.

The TMV site consists of approximately 28,000 acres, of which approximately 23,000 acres would be dedicated for permanent open space and approximately 5,000 acres developed with a total of 3,450 residential units, 160,000 sf of commercial uses, 750 hotel rooms, and two golf courses. The environmental documentation prepared for the TMV project identified significant and unavoidable impacts related to aesthetics (visual character and light/glare); air quality emissions of reactive organic gasses (ROG, which are also known as volatile organic compounds [VOCs]), nitrous oxides (NO<sub>x</sub>), and respirable particulate matter with a diameter of 10 microns or less (PM<sub>10</sub>); greenhouse gas emissions; hazards (exposure to wildlife); traffic-generated noise; population and housing; and cumulative traffic (Kern County 2009).

### **Tejon Ranch Commerce Center**

The Tejon Ranch Commerce Center (TRCC) is a master-planned development project located on approximately 1,450 acres within Tejon Ranch, at the junction of the I-5 and SR-99 in the southernmost region of unincorporated Kern County (Kern County 2005). The I-5 freeway runs through the project site, with 350 acres on the west side and 1,100 acres on the east. The project is located approximately 18 miles north of the Project site.

The TRCC is partially constructed, and will contain a total of approximately 19.4 million sf industrial and commercial uses. As of September 2015, approximately 4.6 million sf of the approved 19.4 million sf have been built. As such, the cumulative impact analysis considers construction and operation of the remaining 14.8 million sf of approved development as part of the TRCC. The environmental documentation prepared for the TRCC project identified

significant and unavoidable impacts related to conversion of agricultural land and to air quality emissions of ROG (now known as VOCs), NO<sub>x</sub>, and PM<sub>10</sub> (Kern County 2005).

## **Grapevine Project**

Grapevine is a master-planned development project that encompasses approximately 8,010 acres of the 15,644-acre Grapevine Planning Area located just south of the TRCC employment center. The Grapevine project includes up to 12,000 residential units, up to approximately 10,748,400 sf of commercial development, parks, public and private recreation amenities, schools, public services, helipad(s), a transit center/park and ride, and water- and wastewater- treatment facilities (Kern County Planning Department 2014). A Draft Environmental Impact Report for the Grapevine project was circulated in 2016, and the project was approved by Kern County in December 2016 (Kern County 2017).

## **Northwest 138 Corridor Improvement Project**

In anticipation of necessary regional improvements, the California Department of Transportation (Caltrans) has prepared a Project Study Report/Project Development Support (PSR/PDS) for the NW138 Project that addresses the long-term alignment and right-of-way needs of SR-138 between I-5 and SR-14. There is no implementation schedule in the PSR/PDS for the improvements along SR-138. A portion of Caltrans' SR-138 study area and the proposed re-alignment traverses the Project site, as depicted on Exhibit 4-7, Centennial Project – Circulation Plan, in Section 4.0, Project Description. Caltrans is the lead agency for the completion of the EIR/Environmental Impact Statement (EIS) for the NW138 Project, which was released for public comment in July 2016. The NW138 Project environmental document considers three build alternatives.

Build Alternative 1 improvements would include modifying the existing SR-138 roadway into a six-lane freeway and four-lane expressway sections, generally following the existing alignment of SR-138. A freeway is defined as a divided arterial highway with full control of access and with grade separations at intersections; and an expressway is defined as an arterial highway with at least partial control of access, which may or may not be divided or have grade separations. The portion of SR-138 between 300<sup>th</sup> Street West and I-5, which is applicable to the Project site, is envisioned by Caltrans to be a 6-lane freeway. This alternative would involve grade-separated undercrossings at the Cement Plant Road and 300<sup>th</sup> Street West intersections with SR-138; and a grade-separated overcrossing at the Gorman Post Road intersection; and a new grade separate structure (standard box culvert) east of Quail Lake near the airport. Build Alternative 1 would also include an extension of the existing reinforced concrete box (RCB) culvert at the Quail Lake Outlet into the west branch of the California Aqueduct.

Build Alternative 1 with Design Option is the same as Build Alternative 1 but adds a bypass route around the Antelope Acres community. However, this alternative would be the same in the Project site vicinity.

Build Alternative 2 improvements would include modifying the existing SR-138 roadway into six- or four-lane expressways and six-lane freeway sections, generally following the

existing alignment of SR-138. The portion of SR-138 between 300<sup>th</sup> Street West and Gorman Post Road, which is applicable to the Project site, is envisioned by Caltrans to be a six-lane expressway. This alternative would involve at-grade signalized intersections at Cement Plant Road and 300<sup>th</sup> Street West; a grade-separated overcrossing at the Gorman Post Road intersection (same as Build Alternative 1); and a new grade separate structure (standard box culvert) east of Quail Lake near the airport (same as Build Alternative 1). Same as Build Alternative 1, this alternative would include an extension of the existing RCB culvert at the Quail Lake Outlet into the west branch of the California Aqueduct.

## Other Considerations

Phase 1 of the California High-Speed Rail project involves the construction and operation of the first high-speed rail system in the United States and would connect San Francisco to the Los Angeles Basin. Phase 2 of the system would eventually extend to Sacramento and San Diego, including up to 24 stations. The portion of the alignment nearest to the Project site is the Palmdale to Burbank Project Section, which would connect the Antelope Valley to the San Fernando Valley, with a proposed stations at the Palmdale Transportation Center and near the Burbank Airport. The proposed alignments of this Section would either follow the SR-14, or would be located to the east through the San Gabriel Mountains. The clearance of the environmental documents, and Record of Decision, for this Section is anticipated in 2017 (CHSRA 2016). However, there is no available funding source for this Section. Because the ultimate funding source is unknown, whether this Section is construction cannot be predicted and the timing cannot be assumed. As such, it is not considered a cumulative project for the purposes of this analysis.

## 7.3 CUMULATIVE IMPACT ANALYSIS

The thresholds of significance used in each section to evaluate Project-specific impacts are also applicable to the cumulative evaluation. For the cumulative evaluation, these thresholds are used to evaluate whether the related projects, together with the Centennial Project, would create significant cumulatively considerable impacts on the environment. Much of the cumulative evaluation is a qualitative judgment regarding the combined effects of the Project and buildout of a regional growth and related project development. The cumulative study area varies from one environmental topic to another depending upon the nature of the topic's related impacts. For example, cumulative air quality considerations encompass the air basin, while the cumulative loss of agricultural resources is a regional issue that is analyzed on a broader scale. Where the cumulative study area is different than the northern Los Angeles County area and southern Kern County as whole, the analysis indicates the topic-specific study area.

### 7.3.1 GEOTECHNICAL

As discussed in Section 5.1, Geotechnical, with implementation of Project Design Features (PDFs) and Mitigation Measures (MMs), which ensure compliance with applicable regulations, the Project would result in less than significant impacts related to fault rupture; seismic ground shaking; seismic-related ground failure (e.g., liquefaction, settlement, lateral spreading); or location on an unstable geologic unit (e.g., collapse, expansive soils, corrosive

soils). The Geotechnical Summary Report prepared for the Project concludes that there are no soil or geologic conditions present on or near the Project site that would preclude the safe development of all proposed land uses given incorporation of all existing and future, subdivision map-level, geotechnical recommendations into grading and construction plans and specifications (Geocon 2015). This includes compliance with County subdivision specifications, County building code requirements, and the Project-specific Grading Plan.

Geotechnical impacts tend to be site-specific in nature, while seismic conditions are regional in nature. Each related development site is subject to, at a minimum, uniform site development and construction standards relative to seismic and other geologic conditions that are prevalent within the region. Because future development of other project sites in Los Angeles County and Kern County would have to comply with current State and applicable County building codes and development requirements as they pertain to protection against identified geologic hazards, the Project's incremental contribution to cumulative geotechnical and seismic impacts would be less than significant. Development projects would be subject to applicable Seismic Design requirements and the Alquist-Priolo Earthquake Fault Zone Act, which restricts development on the traces of active faults. The Project components would not exacerbate or otherwise influence any geotechnical hazards for off-site development. Similarly, the related projects are not expected to have an adverse impact on the Project. Therefore, no significant cumulative geotechnical impacts would occur for the Project.

Cumulative impacts associated with landform alteration are more of an aesthetic issue than a geotechnical constraint. This is addressed in Section 7.5.13, Visual Resources. Erosion and downstream sedimentation is addressed as a water quality issue in Section 7.5.4.

### **7.3.2 HYDROLOGY AND FLOOD**

As discussed in Section 5.2, Hydrology and Flood, the Project has been designed to meet or exceed the new development requirements of the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit, the County's Low Impact Development (LID) standards pursuant to Chapter 12.84 et seq. of the County code, and the County's LID Standards Manual. Specifically, the Project would implement site design, source control, LID, hydromodification, flow control, and runoff water quality best management practices (BMPs) and treatment requirements, ensured with implementation of mitigation. Impacts related to on-site hydrology would be less than significant. The Project would comply with and implement the requirements of the Construction General Permit issued by the State Water Resources Control Board (SWRCB, CAR000002, Order 2009-0009-DWQ as amended by Order 2010-0014-DWQ and Order 2012-0006-DWQ), ensuring a less than significant impact during construction activities.

As discussed in Section 4.0, the portions of the site located within the 100-year floodplain would be subject to a Floodplain Safety Overlay that precludes habitable residential, commercial, school, and institutional structures in the floodplain. There would be no housing development in on-site floodplains, and no significant impacts would occur from placing structures within a floodplain.

Potential mudflow impacts would be reduced to less than significant levels by (1) capturing debris flows in on-site basins and engineered and natural stream channels and (2) avoiding disturbance in on-site locations with slopes in excess of 25 percent that could generate mudflows. Storm water basins would be managed to avoid potential mosquito-borne health vectors by implementing California Department of Public Health (CDPH) recommendations and fully discharging captured storm water within 96 hours. Also, an integrated pest management program must be developed and confirmed during the County review and approval process for Project tract maps.

Cumulative impacts are evaluated relative to the approximate watersheds within which the Project site is located. Approximately 97.3 percent of the Project site, including locations that will be preserved in open space and remain undeveloped, is located within the Antelope Valley Watershed (95.5 percent of the site) and the much smaller Quail Lake Watershed to the south (1.8 percent of the site). Only projects within the same watershed would have the potential for cumulative impacts associated with hydrology and flooding. Projects outside the hydrologically defined watershed within which the Project is located could not result in impacts within the Project's watershed. Therefore, additional urbanized uses and increases in impervious surface areas in the Project site's vicinity could produce, if left unmitigated, increases in runoff volume, velocity, and peak discharge rates. Urbanized uses could also lead to potential erosion and sedimentation impacts. All future developments in the Antelope Valley and Quail Lake Watersheds would have to comply with the same flood-control criteria and general storm water drainage requirements with which the Project must comply. For example, the Project and all the related projects in the watershed would be required to comply with the Los Angeles County Department of Public Works' LID Manual. Through this process, applicants are required to demonstrate that their projects would not cause upstream or downstream properties to be adversely affected. All drainage systems in developments that carry runoff from developed areas must be able to carry the 2-year and 25-year storm runoff, while storm drains under major and secondary highways, open (main) channels, debris-carrying systems, and sumps must be designed to carry runoff from 50-year level storm. These requirements serve to minimize direct and cumulative impacts to runoff, debris production, water quality, and flooding potential to downstream areas. Therefore, development of the Project would not contribute to significant cumulative hydrology, flood, or drainage impacts.

### **7.3.3 HAZARDS AND FIRE SAFETY**

#### **Hazards and Hazardous Materials**

After implementation of MMs, Project-specific impacts due to hazardous materials would be reduced to a less than significant level. Although some of the related projects would also have potential impacts associated with hazardous materials, the environmental concerns associated with hazardous materials are generally site-specific. Each project is required to address any issues related to hazardous materials or wastes. Federal, State, and local regulations require mitigation to protect against site contamination by hazardous materials. Therefore, there would be no significant cumulative hazardous materials impacts to which the Project would contribute.

The Quail Lake Skypark Airport, a single strip, private airport, is located east of Quail Lake and south of the Project site. A total of six aircraft, all of which are fixed wing, are currently based out of the Quail Lake Skypark Airport. No heliports are located in the Project vicinity. There is the potential that the number of flights could increase incrementally over time if regional population grows and demand for the Skypark increases. Given that the Project would not result in any flight operations, it would not contribute to a cumulative impact, nor would the impacts associated with related projects result in substantially greater impacts than what has been described Section 5.3. As such, overflights would not constitute a cumulative impact with regards to the Project. Impacts associated with the potential noise impacts of overflights are addressed in Section 5.12, Noise.

## **Fire Safety**

As discussed in Section 5.3, Hazards and Fire Safety, portions of the Project site are designated as a Very High Fire Hazard Severity Zone and portions are designated as a High Fire Hazard Severity Zone. Therefore, consistent with County code requirements, a Fuel Modification Plan must be submitted to the Forestry Division and be preliminarily approved prior to permit issuance for any permanent habitable structure, in addition to compliance with all State and County fire code and access requirements. The extent and location of the fuel modification zones would be finalized with the County of Los Angeles Fire Department as part of implementation of individual tract maps.

With development of related projects located in wildfire hazard areas and projected growth in the region, new development and population would be introduced into the wildland/urban interface. As a result, the number of structures and people that would be affected by a wildland fire, and the potential losses if a fire occurs, would increase. However, each of the related projects would be required to meet local and State fire safety measures dependent on the fire hazard designation, including fuel modification, emergency access, building materials, and/or building methods. Therefore, the Project would result in a less than significant cumulative impact related to wildland fires.

### **7.3.4 WATER QUALITY**

The geographic area for evaluating cumulative water quality impacts is comprised of the four drainage areas on the Project site, as shown on Exhibit 5.2-2, Drainage Areas on the Project Site, the East Drainage Area, the Oso Canyon Drainage Area, the Quail Lake Drainage Area, and the Gorman Creek Tributary Drainage Area. Outside the Project site, the remainder of the drainage areas are also largely undeveloped. Existing major roadways, which represent impervious surfaces and pollutant sources, include I-5, which traverses the Gorman Creek Tributary Drainage Area; Gorman Post Road in the Gorman Creek Tributary and East Drainage Areas; and SR-138 in the Quail Lake and the East Drainage Areas.

## **Surface Water Quality**

As discussed in Section 5.4, Water Quality, the Project's surface runoff water quality, would comply with adopted and applicable federal, State, and County regulations with implementation of planned BMPs, which would be ensured by implementation of mitigation,



both during construction and operation. Regulatory standards applicable to the Project include those set forth by the MS4 Permit and LID Standards Manual; the Lahontan RWQCB and Los Angeles RWQCB Basin Plan benchmark water quality objectives; California Toxics Rule (CTR) criteria; the NPDES Construction General Permit; and the NPDES General Dewatering Permit/Limited Threat Discharge Permit. As determined by the Water Quality Technical Report, the anticipated quality of effluent expected from the Projects' BMPs would not contribute concentrations of pollutants of concern that would be expected to cause or contribute to a violation of the water quality standards in the Project's receiving waters. All future urban development occurring in the four drainage areas must also comply with these requirements. By extrapolating the results of the direct impact analysis, the Water Quality Technical Report states it can be predicted that analysis of other proposed development combined with existing conditions would have similar surface water quality results (Geosyntec 2016). Therefore, cumulative impacts on surface water quality of receiving waters from the Project and future urban development in the four drainage areas are addressed through compliance with the above-mentioned regulatory requirements and with compliance with Total Maximum Daily Loads (TMDLs), which are intended to protect beneficial uses of the receiving waters. Based on compliance with the applicable regulatory requirements, the Water Quality Technical Report (see Appendix 5.4-A) concludes that cumulative surface water quality impacts would be less than significant.

## Groundwater Quality

As discussed in Section 5.4, Water Quality, the Project's discharges to groundwater are predicted to comply with adopted and applicable federal, State, and County regulations, as listed above under "Surface Water Quality"; this would be ensured with implementation of planned BMPs and implementation of mitigation, both during construction and post-development. As determined by the Water Quality Technical Report, the anticipated quality of storm water runoff discharges from the Project's developed areas and from irrigation to groundwater (including with recycled water that is tertiary-treated in compliance with *California Code of Regulations* Title 22 standards) and the operating permits of the wastewater reclamation facilities [WFRs] would not contribute loads or concentrations of pollutants of concern that would be expected to cause or contribute to a violation of the groundwater quality standards (Geosyntec 2016). All future urban development occurring in the Antelope Valley Watershed must also comply with these requirements. Therefore, cumulative impacts on groundwater quality from the Project and future urban development in the Antelope Valley Watershed are addressed through compliance with the above-mentioned regulations. Based on compliance with the applicable regulatory standards, the Water Quality Technical Report concludes that cumulative groundwater quality impacts would be less than significant (Geosyntec 2016).

### 7.3.5 LAND RESOURCES

#### Agricultural and Forestry Resources

As discussed in Section 5.5, Land Resources, the Project site and surrounding area are within the West EOA designation in the AVAP. Implementation of the Project would involve the conversion of approximately 642 acres of Prime Farmland to urban uses. As discussed, this

conversion of farmland on the Project site is consistent with the AVAP's intent to concentrate development that supports economic growth and stability within the designated EOA, which includes localized areas of farmland conversion, thereby preserving Important Farmland and other agricultural resources in the remainder of the Antelope Valley. Regardless, for the same reasons as described in the AVAP EIR, there is no feasible mitigation to reduce this impact to a less than significant level, and therefore would be a significant unavoidable impact of the Project. The on-site conversion of farmland (approximately 642 acres of Prime Farmland) is part of the total of 6,169 acres of Important Farmland that the AVAP EIR identified would be converted as part of future growth. However, the Project's contribution to conversion of agricultural resources is cumulatively considerable and is considered a significant and unavoidable impact.

Section 5.5 identifies less than significant impacts to forest land, timberland, and timberland production. The Project's designated off-site mitigation areas allow tree crops as a permitted use. The Project would not conflict with zoning for timberland or a Timberland Production Zone, as the site has not been designated as such. There would be a less than significant cumulative impact to forest resources with implementation of the Project.

## **Mineral Resources**

Implementation of the Project would not result in cumulative impacts from the loss of availability of a known mineral resource because the Project site does not directly impact any mineral resources.

### **7.3.6 CULTURAL RESOURCES**

Cultural resources (historic built environment, archaeology, tribal cultural resources, and paleontology) are non-renewable and irreplaceable resources. Projects undertaken in the region have the potential to cause direct and cumulative impacts to these resources through land development. On the Project site, no historic built environment resources are located within the Project's Area of Potential Effects (APE), so the Project would not contribute to any cumulative impacts to these resources despite possible impacts to these resources by other public and private developments in the vicinity.

Three prehistoric archaeological sites that meet the definition of a "historical resource" (as defined by CEQA) have been identified within the Project site APE, including within the development footprint. They include CA-LAN-3201, CA-LAN-3240 and CA-LAN-3242. In addition, two sites within the open space areas (CA-LAN-3206 and CA-LAN-3227) would be treated as eligible and protected from secondary impacts as they are immediately adjacent to the development footprint. Mitigation measures are included in this EIR that would ensure the identification, protection, and/or evaluation of these sites, including those that may be tribal cultural resources as defined under CEQA, and would reduce related impacts to a less than significant level. Specifically, data recovered from a site, combined with data from other sites in the region, would enhance the ability to examine and fully appreciate the diversity of human activities in the region. As a result, development of the Project would not contribute to a significant cumulative impact on archaeological resources.

Development of the Project site, in combination with other projects in the region where a parcel is underlain by the Quail Lake or Oso Canyon Formations, could lead to the progressive loss of fossil-bearing strata in either a rock unit that could be prospected for fossil remains or in unrecorded fossil sites. However, mitigation measures are included in this EIR that would require the identification, evaluation, recovery, and curation any significant fossils discovered during construction of the Project. Therefore, this cumulative impact would be reduced to a less than significant level with similar mitigation associated with each related project developed in the cumulative study area. Section 5097.98 of the *California Public Resources Code* and Section 7050.5 of the *California Health and Safety Code* mandate processes to be followed in the event of a discovery of any human remains. Implementation of these processes would be ensured by implementation of mitigation and would reduce potential impacts to a less than significant level.

### 7.3.7 BIOLOGICAL RESOURCES

Each related project identified in this section would result in impacts on biological resources in the region. The combined impacts of the development of the Project and all other aforementioned projects in the region would result in substantial direct and indirect impacts on biological resources. Two of the related projects in particular, Gorman Post Ranch and Tejon Mountain Village, would impact similar biological resources, such as native grasslands, oak woodlands, special status plant and wildlife species, drainages, and wildlife movement. Other general impacts include direct impacts related to habitat removal and loss of open space as well as indirect impacts including increases in disturbances such as noise, night lighting, exotic species introduction, vehicular traffic, and human interaction. Similar types of impacts would be expected with future development associated with regional growth projections. While it is not possible to predict precisely where development associated with regional growth would occur, it is likely that such future development would also result in the conversion of natural open space areas that presently support plants, wildlife, and other biological resources of the region to development of some kind.

As discussed in Section 5.7, Biological Resources, the Project would result in impacts on special status plant and wildlife species. These impacts would be reduced to a level considered less than significant with mitigation, which includes preservation of at least 12,832 acres of grassland. Impacts to most special status vegetation types on the Project site and in off-site areas would also be reduced to less than significant levels with mitigation. However, impacts on native grasslands are considered cumulatively significant after mitigation.

It is likely that most identified related projects, especially Gorman Post Ranch and Tejon Mountain Village, also have impacts on special status species. These impacts would be less than significant for the four following reasons:

- Highly sensitive species, such as those that are federally or State-listed, are uncommon in the region and therefore less likely to be impacted by one of the future projects.
- The California condor (*Gymnogyps californianus*), a highly sensitive species from the region, does not occupy the low lying valley floor areas that are likely to incur the

greatest level of disturbance from future development. In addition, the Tehachapi Upland Multiple Species Habitat Conservation Plan (TUMSHCP) provides for the long-term preservation of essential condor areas and considers development of the Tejon Mountain Village project.

- The open space preserve proposed as part of the Project, the resource protection provided in the nearby National Forest lands, and the Los Angeles County Significant Ecological Areas in the area together encompass a large portion of the region and provide a valuable haven for species as other parts of the region are developed.
- Related projects would mitigate Project-specific impacts related to biological resources, thus reducing the cumulative impacts.

As a result, cumulative impacts on special status plant and animal species are considered less than significant for the Project.

Development of the Project would result in impacts on several sensitive vegetation types including oak woodlands, native grasslands, and wildflower fields. (See Section 5.21, Climate Change, for an analysis of changes in carbon sequestration capacity due to vegetation change.) Implementation of the Project's mitigation measures would enhance, restore, and create these vegetation types within the proposed open space preserve and would therefore reduce impacts to less than significant levels for all vegetation types except native grasslands. It is likely that most of the identified related projects would also have impacts on sensitive vegetation types. Impacts would be mitigated in accordance with County standards with implementation of standard County mitigation requirements and/or "no net loss" conditions of permits from some resource agencies (e.g., Streambed Alteration Agreements issued by the California Department of Fish and Wildlife [CDFW]). Although cumulative impacts would occur, these are expected to be less than significant after mitigation for all but one vegetation type (native grasslands) due to the applicable regulations that substantially minimize such impacts. Due to the cumulative loss of native grasslands in the larger region and the state as a whole and the lack of a widely accepted definition for "native grassland" or a published standard for a mitigation ratio, impacts on native grasslands are considered cumulatively significant after mitigation.

The Project's impacts on federally protected wetland resources and on State-protected wetlands and their associated habitat are reduced to less than significant levels after mitigation. Specifically, a Wetland Habitat Creation and Enhancement Plan would be developed and would further reduce related impacts. Other mitigation requires permits and/or agreements to be obtained from the U.S. Army Corps of Engineers (USACE), the CDFW, and Regional Water Quality Control Board (RWQCB), as well as the development of a Storm Water Pollution Prevention Plan (SWPPP) that incorporates BMPs for reducing or eliminating construction-related pollutants in the site runoff. Although these are Project-specific measures, they would serve to reduce cumulative impacts and, as such, cumulative impacts on riparian habitat and other sensitive vegetation types would be less than significant.

The related projects are likely to reduce such impacts to less than significant through adherence to federal and State regulations. Such regulations normally require the

replacement of all lost functions and values within the same region of impact. Therefore, the region is not expected to incur substantial losses of State or federally protected wetlands, their associated riparian habitat, or other jurisdictional waters. The cumulative impact on State and federally protected wetland resources is considered less than significant. Similarly, cumulative impacts on oak trees, as protected under the County of Los Angeles Oak Tree Ordinance (#88-0157), are expected to be fully mitigated and result in a less than significant cumulative impact for the Project.

The Centennial Project would result in an impact on regional wildlife movement that is reduced to a less than significant level following mitigation; however, the Project may also contribute to a cumulative significant impact when combined with projects in the region. Because movement events for some larger species may occur very rarely, the success of each event may be particularly important. Due to the potentially heightened sensitivity of movement through the region for some species, the potential for a project or set of projects (e.g., Gorman Post Ranch, Tejon Mountain Village, Grapevine, or the Northwest 138 Corridor Improvement Project) to substantially interfere with a wildlife corridor is greater.

Indirect impacts such as increases in disturbances like noise, night lighting, non-native species introduction, vehicular traffic, domestic pet interactions, and human interaction may all also contribute to wildlife movement interference. Since the locations of many future projects in the region are unknown, there is the potential they may occur within important movement corridors. There are no specific regulations or permit conditions protecting this resource, and successful mitigation for such impacts is generally difficult. Therefore, the effects of the Project combined with future regional development would result in a cumulatively significant impact on wildlife movement.

As stated in Section 5.7, Biological Resources, because most of the larger wildlife species in the region do not typically cross large expanses of sparsely vegetated landscape (such as the majority of the Project site), the central and eastern portions of the Project site are not likely to be used by wildlife to move between and within the regional open space areas in the site vicinity. The Project site provides unobstructed local movement opportunities for small animals within large portions of the site. While the Project would result in a cumulatively significant impact on wildlife movement and on native grasslands, no other impacts to biological resources resulting from Project implementation were found to be cumulatively significant.

### **7.3.8 LAND USE, ENTITLEMENTS, AND PLANNING**

As discussed in Section 5.8, Land Use, Entitlements, and Planning, the Project would be consistent with the Los Angeles County General Plan and the AVAP (a component of the General Plan and the applicable Area Plan for the site), with the accompanying amendments to the County General Plan Master Plan of Highways and the AVAP Highway Plan, zone change for the Project site to Specific Plan, and other associated entitlements, and would be consistent with applicable regional (Southern California Association of Governments) plans and policies, including the 2012-2035 RTP/SCS and 2016-2040 RTP/SCS.

The Antelope Valley is a predominantly rural area where significant growth has occurred and is expected to continue. A number of Rural Town Centers are located in the Antelope Valley and three Economic Opportunity Areas (EOAs) have been designated by the AVAP that are slated for more substantial, urbanized growth. The West EOA is located at the northwestern section of the Antelope Valley where future development is anticipated due to its location along the planned Northwest 138 Corridor Improvement Project, the I-5, and new commercial and housing developments in Kern County. This EOA covers the Project site, and the Project would accommodate future development, as planned in the West EOA.

Because the Project is consistent with the Los Angeles County General Plan and the AVAP, with the accompanying plan amendments, zone change and other associated entitlements, and SCAG's RTP/SCS, no mitigation is required. Additionally, related projects would be required to comply with the applicable land use plans or they would not be approved without a general plan amendment. Therefore, implementation of the Project would not conflict with existing land use plans, policies, or regulations of agencies, and the Project would not contribute to a significant cumulative impact.

The AVAP has been challenged in court, but no injunction against implementation of plan has been sought or granted. The County's General Plan was adopted in October 2015, and was not challenged and is in effect. Consistent with land use law and CEQA requirements, these land use plans are being implemented and the environmental impact reports (EIRs) prepared for each plan have been considered as part of this Project EIR and each is incorporated by reference. This EIR does not tier from, nor is it legally reliant upon, the EIRs for either the AVAP or the General Plan. Should the approval and adoption of the AVAP or its accompanying EIR be invalidated, a possible judicial remedy could effectively revive the now-superseded former (1986) Antelope Valley Areawide General Plan (AVAGP). In that case, the Project would require an AVAGP amendment, in addition to a zone change to "Specific Plan" and other entitlements, including a Conditional Use Permit for development within a SEA. Upon approval of these AVAGP plan amendments, the zone change, and other associated entitlements, the Project would have less than significant land use impacts. Therefore, the Project would not result in a cumulatively considerable contribution to impacts related to conflict with applicable land use policy or division of communities.

### **7.3.9 POPULATION, HOUSING, AND EMPLOYMENT**

As discussed in Section 5.9, Population, Housing, and Employment, the Project would accommodate growth in the Antelope Valley consistent with the AVAP and the intent of the designated West EOA. The Project would provide for growth in employment, housing, and population that is consistent with the growth projections for the area, as incorporated into the AVAP and with the housing and employment growth projections used by SCAG in the development of the 2012–2035 RTP/SCS and the 2016–2040 RTP/SCS. The Project would also contribute to meeting the State-mandated Regional Housing Needs Assessment (RHNA) housing production targets for the County of Los Angeles. The Project would be consistent with the AVAP's strategy for increasing the jobs/housing ratio in the unincorporated area of the Antelope Valley, within designated EOAs. There would be less than significant impacts related to the potential displacement of people or housing units as a result of the Project since the majority of the Project site is undeveloped. While the Project would result in

substantial growth, because it would be consistent with local and regional growth assumptions.

Population, housing, and employment impacts would be less than significant and no mitigation would be required in relation to approved County and regional plans. Population, housing and employment growth would be substantial relative to existing Project site conditions because the site is currently undeveloped and unoccupied; hence, this impact is significant. However, no mitigation would be appropriate since the Project is consistent with approved land use and growth plans in the region. Regarding growth-inducing impacts, the existence of the Project makes it reasonably foreseeable that additional development proposals seeking AVAP amendments would be made outside the West EOA, which is considered a significant adverse indirect growth-inducing impact.

### **7.3.10 TRAFFIC, ACCESS AND CIRCULATION**

The traffic analysis provided in Section 5.10, Traffic, Access, and Circulation, indicates that, under existing plus Project conditions and 2035 cumulative conditions, the Project would contribute to significant impacts along SR-138 in regards to the percent of time-spent-following between the I-5 and SR-14 interchanges; it would also contribute to increased delay for side street vehicles, traffic signal requirements, and intersection capacity at multiple locations along SR-138 between the westerly access of the Project area and SR-14. Under cumulative conditions, the Project contributes to a significant cumulative impact to the I-5 mainline freeway; the truck lane in between the Grapevine and Fort Tejon Road interchanges; the segment between the SR-138 and Parker Road interchange and the segment from Magic Mountain Parkway to SR-14 interchange. Impacts are shown at eight intersections at I-5 interchanges when applying the impact criteria of the County of Los Angeles. In addition, at the I-5/SR-138 interchange, the connector ramps from westbound SR-138 to southbound I-5 and from northbound I-5 to eastbound SR-138 are forecasted to exceed 1,500 vehicles per hour under cumulative conditions, which results in the need for an auxiliary lane at the point the connector ramp meets the I-5 mainline. At the SR-14/SR-138 interchange, the SR-14 southbound on-ramp would require a second lane on the on-ramp and the SR-14 northbound off-ramp to SR-138 would need an additional lane and an auxiliary lane on the SR-14 mainline.

For 2035 cumulative conditions, the SR-138 was analyzed as a limited access facility with grade-separated interchanges, consistent with the Northwest 138 Corridor Project currently being advanced by Caltrans. The Project would be fully mitigated and all ramp-arterial intersections would operate at a level of service (LOS) B or better. Mitigation measures for impacts to the I-5 and off-site intersections involving fair share contributions to identified improvements would reduce all cumulative traffic impacts to a less than significant level. The proposed Centennial Transportation Improvement Program (CTIP) Agreement provides a mechanism for the needed transportation improvements to be implemented by providing advance funding for planning, design, and construction of certain improvements and establishing a funding program to collect fair shares for other improvements. With these traffic mitigation assurances, there would not be a significant cumulative impact from Project traffic. However, if Caltrans does not implement planned and needed improvements on State facilities, the Project would contribute to significant unavoidable impacts since the

County (as the Lead Agency) has no control over these facilities and cannot enforce the construction of the needed improvements.

### **7.3.11 AIR RESOURCES**

As discussed in Section 5.11, Air Resources, the northern 91 percent of the site lies within the boundaries of the Antelope Valley Air Quality Management District (AVAQMD), while the remaining 9 percent lies within the South Coast Air Quality Management District (SCAQMD). The Project's construction emissions would exceed AVAQMD annual mass emissions thresholds for nitrogen oxides (NO<sub>x</sub>) and SCAQMD daily mass emissions thresholds for volatile organic compounds (VOC) and NO<sub>x</sub>; these emissions would remain significant and unavoidable with implementation of mitigation. Construction activity near previously completed and occupied residences could result in exceedance of ambient air quality standards and exposure of sensitive receptors to substantial local emissions (i.e., not mass emissions) of respirable particulate matter with a diameter of 10 microns or less (PM<sub>10</sub>) and fine particulate matter with a diameter of 2.5 microns or less (PM<sub>2.5</sub>) that would remain significant and unavoidable with implementation of mitigation. At buildout of the Project, in 2035, long-term operational emissions of VOC, NO<sub>x</sub>, carbon monoxide (CO), PM<sub>10</sub>, and PM<sub>2.5</sub> would exceed AVAQMD and SCAQMD thresholds. These emissions would remain significant and unavoidable with implementation of mitigation.

Pursuant to the Los Angeles County Department of Regional Planning Environmental Checklist, any project that results in "a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)" is considered to result in a cumulatively significant impact, and is addressed under Threshold 11-5 in Section 5.11, Air Resources. Both districts are in federal and State nonattainment for ozone (O<sub>3</sub>). The SCAQMD is also in federal and State nonattainment for particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>). The AVAQMD is in State nonattainment for PM<sub>10</sub>. As concluded in Section 5.11, construction annual emissions of NO<sub>x</sub> (an O<sub>3</sub> precursor) would be directly significant and therefore cumulatively considerable and significant. Construction daily emissions of VOC and NO<sub>x</sub> (O<sub>3</sub> precursors) would be directly significant and therefore cumulatively considerable and significant. Construction mass emissions of PM<sub>10</sub> and PM<sub>2.5</sub> would not be directly or cumulatively significant. Long-term operational emissions of PM<sub>10</sub>, PM<sub>2.5</sub>, and O<sub>3</sub> precursors VOC and NO<sub>x</sub>, would be directly significant and therefore cumulatively considerable and significant.

### **7.3.12 NOISE**

Section 5.12, Noise, of this EIR assesses potential noise impacts from Project construction, Project-related traffic generation, on-site stationary noise sources, and off-site noise sources.

Because noise naturally attenuates with distance, cumulative construction noise impacts would occur only if there was Project construction activity in the immediate proximity of construction activity from another project and if both activities are near a common sensitive receptor at the same time.



The NW138 Corridor Improvement Project would occur along the length of the SR-138, including on the portion that is adjacent to the Project site. It is likely that both the Project and the SR-138 would have construction activities occurring at the same time. However, it is unlikely that the construction for both projects would occur simultaneously adjacent to the same noise-sensitive receptors along SR-138. Because of the large size of the Project site, the potential for this to occur is limited to the perimeter of the Project site at a location where both the NW138 Improvement Project and the Project would be actively constructing facilities at the same time. The potential for this occurrence is also low due to the mobile nature of construction activities (moving from area to area on a site or alignment). The construction schedule for the NW138 Improvement Project is unknown at this time. However, to minimize impacts due to construction noise, Caltrans projects are subject to the Caltrans Standard Specifications in Section 148.02, "Noise Control," and also by Standard Special Provision S5-310, "Noise Control" (Caltrans 2016), which ensure that construction noise does not significantly affect adjacent sensitive receptors.

There is also a possibility of concurrent construction activities on both the Project site and the Burrows Property adjacent to the eastern Project boundary and 300<sup>th</sup> Street West. However, an entitlement application has not yet been filed with the County of Los Angeles for the Burrows Property, and therefore, the potential for overlapping construction cannot be reasonably determined. The Centennial Project's noise analysis (Section 5.12, Noise) determines that there would be less than significant construction and stationary noise impacts with implementation of the mitigation program. Therefore, there would not be cumulative noise impacts related to construction of the Project or proposed stationary noise sources on the Project site.

Stationary source noise is controlled by the standards of the County Noise Ordinance, which limits noise levels at the property line between the Project site and an adjacent off-site receptor. The NW138 Improvement Project would not have operational stationary sources. Stationary source noise from future development projects near the Project site would be limited by the County noise ordinance and would not have the same common property boundary with a sensitive receptor as the Project. There would be no cumulative stationary source noise impact.

In addition to construction and stationary source noise, the Project would generate mobile source noise from traffic. The noise analyses in Section 5.12 of this EIR identifies the future traffic noise exposures that would occur in the Project traffic noise study area both with and without the Project. The analysis of traffic noise is inherently a cumulative analysis because the calculation of buildout traffic noise exposures considers the anticipated future traffic volumes based on regional growth models as described in the Project traffic impact analysis, Appendix 5.11-A of this EIR (Stantec 2017). In other words, the cumulative analysis of traffic volumes includes noise generated by the Project and other projects in the traffic noise study area (as described in Section 5.12). The noise study determines that there would be less than significant traffic noise impacts to proposed on-site land uses with implementation of the mitigation program; therefore, there would not be cumulative traffic noise impacts at future on-site receptors (Wieland Acoustics 2011).

Regarding off-site receptors, the analyses in Section 5.12 determines that, at the completion of Project buildout (2035), operation of the Project would expose some existing off-site noise-sensitive receptors adjacent to SR-138 between Gorman Post Road and Old Ridge Route Road to increases in exterior ambient noise levels that exceed the 3 A-weighted decibels (dBA) threshold criterion due to Project-related traffic. The impact would be considered significant and unavoidable because feasible mitigation to reduce these impacts is not within County jurisdiction. Therefore, when considering the additional regional traffic on SR-138, the Project would contribute to significant and unavoidable cumulative impacts to these receptors.

The vibration analysis in Section 5.12 identifies potential vibration impacts from pile driving and from the operation of heavy equipment very near sensitive receptors. Mitigation would require that vibration-inducing construction activities be designed to limit vibrations to less than the County's performance standard. All projects near the Project site must comply with County standards to minimize vibration impacts to less than significant levels; therefore, cumulative vibration impacts would also be less than significant.

### **7.3.13 VISUAL RESOURCES**

The geographic context for cumulative visual impacts generally encompasses the site and adjacent areas that share viewsheds or lines of sight with the site, as provided by open expanses of open land, agricultural land, and low density developments in the Antelope Valley and distant views of the foothills and ridgelines of the Tehachapi and San Gabriel Mountains.

The cumulative impacts on visual resources from the Project and related projects in the area would be expected with new development throughout the site and surrounding areas. The construction of new structures and associated infrastructure would lead to visual changes that could be cumulatively considerable when assessed in combination with growth and development that would be visible to area residents, employees, visitors, and passing motorists. This growth and development may not necessarily be considered adverse to the visual character of the area, since development would occur in areas planned for development (such as EOAs in the Antelope Valley and City centers) and other areas are protected as permanent open space or designated a rural preserve areas. In addition, applicable design standards (including those contained in the *Centennial Specific Plan*) and the design review process for individual developments would ensure the construction of aesthetically pleasing developments in the area.

Mountain and hillside views are expected to remain visible to public views, as a large portion of these areas have been or would be preserved as permanent open space or would support limited development. Hillside management and scenic resource regulations would limit development in the hillsides and areas with scenic resources. However, the Project would develop a community in a largely undeveloped area, and the accompanying visual change is considered significant and unavoidable, even with mitigation. While the related projects would not all be visible in the same viewsheds as the Project, visual changes in the surrounding areas that would result from continued development would contribute to the

Project's impact. Thus, cumulative impacts on visual resources would also be significant and unavoidable.

There are limited light and glare sources in the area. Although the Project would include preparation of an Exterior Lighting Plan (also referred to as "the Dark Sky Plan") to minimize glare and limit light spillover, Project implementation would introduce development at a scale that would result in significant increases in lighting levels. The related projects would also increase lighting levels at individual development sites. While these related projects would not be located adjacent to the site, increases in ambient lighting levels would occur throughout the Project area. Regulations that prevent glare and light spillover into adjacent properties, including Specific Plan design standards and guidelines, would reduce impacts, but increases in sky glow are expected to occur. This impact would be significant and unavoidable with the Project and would be cumulatively significant and unavoidable, even after mitigation.

### **7.3.14 PARKS AND RECREATION**

As discussed in Section 5.14, Parks and Recreation, the Project would provide abundant on-site park acreage and other recreational facilities, and the planned parkland would meet, and substantially exceed, the State and County parkland requirements; this would be ensured by implementation of mitigation. Each future project in the region that includes implementation of a residential subdivision would be required to meet State (i.e., Quimby Act) and local, if any, parkland requirements. As discussed in Section 5.14, the Project is not anticipated to result in substantial deterioration of any existing recreation facilities or trails, nor would the Project require off-site construction or expansion of recreation facilities or trails. As regional growth occurs, the demand for various types of parks and other recreation facilities would increase. Since the Project provides adequate parkland and trails onsite to serve the Project's residents and since it exceeds the public parks requirement in an area with little local parkland, the Project's contribution to increased demand for parks and recreational facilities would not be cumulatively considerable, and there would be a less than significant cumulative impact.

### **7.3.15 EDUCATION**

As detailed in Section 5.15, Education, the Project site is within the jurisdiction of two public elementary school districts and one public high school district. The Project includes development sites for one Kindergarten (K) through 5<sup>th</sup> grade school, five K-8<sup>th</sup> grade schools, and one high school, which would be ensured by implementation of mitigation. In addition, the Project Applicant has signed agreements with the school districts for a contribution to facilitate the financing, construction, and operation of new school facilities in the Project area. As with the Project, each future project with residential and commercial/industrial development would be required to either pay developer's fees in compliance with Senate Bill (SB) 50 (i.e., the Leroy Greene School Facilities Act) or seek an alternate resolution or agreement with affected school districts to offset the cost of public school construction. Section 65996(b) of the *California Government Code* states that the provisions of the developer fee legislation (i.e., SB 50) provide full and complete school facilities mitigation. As the Project would provide on-site school facilities and would

implement agreements with the three affected school districts, the Project's contribution to increased demand for schools would not be cumulatively considerable, and there would be a less than significant cumulative impact.

### **7.3.16 FIRE AND LAW ENFORCEMENT SERVICES**

#### **Fire Services**

As discussed in Section 5.16, Fire and Law Enforcement Services, the Los Angeles County Fire Department has indicated that the proposed fire stations on the Project site would provide adequate fire service to the Project, which includes conceptual locations for up to four new fire stations. The number, location, and construction of the proposed fire stations would be ensured by implementation of mitigation. The Project, in combination with other development, would contribute to increased demand for fire protection services. Each future project would be required to provide facilities and/or fees, as applicable, for each jurisdiction (i.e., County of Los Angeles, County of Kern, cities of Lancaster, Palmdale, and Santa Clarita) to ensure they would be adequately served by fire protection services. The Project's contribution to increased demand for fire protection services would not be cumulatively considerable, and there would be a less than significant cumulative impact.

#### **Law Enforcement Services**

As discussed in Section 5.16, through coordination with the Los Angeles County Sheriff's Department, facilities required to adequately serve the Project were identified and have been included in the Conceptual Land Use Plan. The Project, in combination with other development, would contribute to increased demand for law enforcement services. As future growth occurs in unincorporated County areas and in other surrounding jurisdictions, the law enforcement agency serving that jurisdiction would be required to assess the demands placed on local stations and the staff and facilities needed to serve that growth, to be supported by general fund, taxes, and other revenues that occur with urban development. As the Project would provide the necessary on-site law enforcement facilities, the Project's incremental contribution to law enforcement services would not be cumulatively considerable, and there would be a less than significant cumulative impact.

There would also be an increased demand placed on the California Highway Patrol (CHP) as regional growth is developed. As stated in Section 5.16, there are no long-range planning documents or uniform staffing requirements used by the CHP to project future needs in each service area. As future projects are implemented, the Area Commander would be required to assess the demands placed on the local office. The increased revenues generated by the Project (via motor vehicle registration fees paid by new on-site residents and businesses) would provide funding that would partially offset increased demand on CHP services. The Project's incremental contribution to CHP's law enforcement services would not be cumulatively considerable and there would be a less than significant cumulative impact.

## 7.3.17 OTHER PUBLIC SERVICES

### Library Services

Development occurring in Los Angeles County and Kern County surrounding the Project site that contributes to the resident population would increase the demand placed on public library facilities and services. To meet the Project's anticipated library demand, the Project includes a conceptual location for a public library in the Town Core in Village 3, just north of SR-138, which would be built and equipped as a turn-key facility to be part of the County of Los Angeles Public Library system; this would be ensured by implementation of mitigation. As with the Project, each related project would be required to meet the respective County's library mitigation fees to allow for construction and/or expansion of facilities and services to accommodate the needs of the surrounding area's population. Also, increases in property taxes due to new development would provide additional funds. In addition, one of the related Projects, Tejon Mountain Village, located in Kern County would also involve the construction of an on-site library (Kern County 2009). The Los Angeles County Library System monitors library use and changes in service demand that may require additional personnel, library materials, or facilities. This evaluation assists in balancing demand with services in different geographic areas of Los Angeles County, to help prevent adverse cumulative impacts on library services to the extent resources are available where needed. As such, the impact on nearby Kern County and Los Angeles County library services attributable to the Project (when combined with other related projects) would not be cumulatively considerable.

### Solid Waste

Solid waste collection services are provided in the Project area under a non-exclusive franchise system, and future growth and development in the region would result in additional demands for private solid waste collection and disposal services. Increases in demand for waste collection services are expected to be met with increases in staffing, facilities, and equipment to provide the needed services. The Project's contribution to impacts on private solid waste collection services would not be cumulatively considerable.

Waste generation from new developments requiring landfill disposal are expected to decrease landfill capacity over time. There is remaining permitted capacity of approximately 133.14 million cubic yards (mcy) at the four major landfills serving the Project area, which have a permitted daily capacity of 25,000 tons per day). The Project's estimated annual solid waste volume would require disposal of 13,849 tons per year (approximately 44.4 tons per day; this is based on 312 days per year, i.e., 6 days a week, which is when most solid waste facilities operate) and would represent approximately 0.18 percent of the landfills' daily permitted capacity, not including capacity at minor landfills, remote landfills, or out-of-County landfills.

County of Los Angeles, County of Kern, and State waste reduction and recycling programs and regulations are expected to reduce solid waste generation, resulting in less landfill disposal demand and, in turn, extend of the life of existing landfills. However, permitted Class III landfill capacity cannot be guaranteed at the time of Project buildout and through the life of the Project, which are beyond the required 15-year Los Angeles Department of Public

Works (LACDPW) planning horizon for solid waste disposal. Therefore, while the County is committed to handling all solid waste generated in the County now and in the future, to be conservative, this EIR concludes that the Project would result in a significant impact on the County's anticipated Class III landfill capacity. The Project's contribution to solid waste disposal and associated landfill capacity during long-term operation would be cumulatively considerable.

The Project allows for a Materials Recovery Facility/Transfer Station (MRF/TS) in the Utility land use designation, which could be operated by a private or public entity. If an MRF/TS is established, it could include a green waste mulching and composting facility, which would assist the County in meeting its solid waste diversion goals.

As described in Section 5.17.3, construction of the Project is estimated to result in approximately 150,728 tons of construction wastes requiring disposal over the 20-year Project buildout period, after waste diversion; this is approximately 7,537 tons per year or 29.0 tons per day. This finite waste stream was determined to result in a less than significant impact related to Class III landfill space. Similarly, the comparatively limited proportion of hazardous waste compared to the total municipal waste stream is expected to be accommodated by the permitted Class I and Class II landfills currently in operation in Southern California, and there would be a less than significant impact. Therefore, the Project's contribution to landfill space for construction and hazardous waste disposal would not be cumulatively considerable.

### **Other Public Facilities**

Implementation of the Project would require County services for the maintenance of on-site public roadways, parks, and other public infrastructure. In order to facilitate the maintenance of County-owned facilities that would be developed as part of the Project, land would be provided to the County for the development of two on-site maintenance yards for the County of Los Angeles Departments of Public Works and Parks and Recreation. The County may also construct, equip, and operate a permanent new animal control facility adjacent to the maintenance yards, if such a permanent facility is needed in the Project area. Impacts on other public facilities would be less than significant. Therefore, the Project's impact on other public facilities attributable to the Project (when combined with other related projects) would not be cumulatively considerable.

### **7.3.18 WATER RESOURCES**

At buildout the Project is estimated to require 11,365 acre-feet per year (afy) of water for residential, commercial, landscaping and other purposes, of which 6,788 afy would be treated for potable use, and 4,577 afy would consist of recycled water treated to state standards under Title 22 of the *California Code of Regulations* for unrestricted reuse in on-site wastewater treatment facilities. The Project would utilize several types of water supply and on- and off-site water banking facilities to meet potable demand. Available supplies include groundwater and imported water return flows in accordance with the approved Antelope Valley Adjudication Judgment and Physical Solution, State Water Project (SWP) supplies secured for Project use and imported to the site under an agreement with the

Antelope Valley–East Kern Water Agency (AVEK), and AVEK service area deliveries that would occur only when SWP supplies are most abundant. Indoor wastewater would be conveyed to on-site treatment facilities, treated, and distributed to meet approximately 38 percent of the buildout water demand.

The Project's water supplies would sustainably meet buildout potable and recycled water demands and would maintain an average annual reserve supply of more than 79,000 acre-feet (af) after buildout has been achieved. The Project's water facilities would be owned and operated by a Project Water Purveyor regulated by the California Public Utilities Commission (CPUC) or organized as a Community Services District, a statutory water district or other entity with the appropriate capacity to own, operate, and maintain the Project's water system. The Project Water Purveyor would be funded through a rate-payer system and fees. Until the Project Water Purveyor is established, Centennial Founders, LLC (Project Applicant) would be responsible for all Project-related water services. All of the Project's water supplies and the design, permitting, financing, and construction of all treatment, collection and distribution infrastructure would be provided by the Project Applicant. The Project is required to provide the County with two water use reports, the first at the end of the fifth year following first occupancy or the occupancy of the 4,000<sup>th</sup> dwelling unit (whichever occurs later) and the second at the end of the 10<sup>th</sup> year or the occupancy of the 10,000<sup>th</sup> dwelling unit (whichever occurs later) to verify that the required water use rates are being achieved and to identify response measures if necessary to meet future water demand. No additional Project development would occur until any required water use report response measures have been implemented to the satisfaction of the County.

As discussed in Section 5.18, potential Project impacts to water supplies would be less than significant with mitigation, and no additional mitigation is required. The construction of off-site systems would not result in significant impacts to water supplies and no mitigation is required.

As discussed in Section 5.18, the AVAP and County General Plan EIRs estimated potential future water demands associated with the full buildout of the AVAP and County General Plan within the Antelope Valley region, which was projected to occur after 2035. The EIRs concluded that, while water supplies within the Antelope Valley would be sufficient to meet demand up to 2035 during average years, available water plans and projections, including the Antelope Valley Integrated Regional Water Management Plan (AVIRWMP) indicated that supplies would not sufficient to meet dry and multiple-dry year demand by 2035. The EIRs also concluded that, since there were no water supply projections extending after 2035, and potential buildout of the AVAP and General Plan in the region after 2035 could further increase regional water demand, it was uncertain if water supplies would be sufficient to meet future AVAP and General Plan demand after 2035 and cumulative impacts to water supplies would be significant and unavoidable (DRP 2014, 2015b).

The Project would help to reduce the water supply cumulative impact identified in the AVAP and General Plan EIRs because it would achieve water use efficiencies that would be below existing average rates in the region and would ensure that the Project-related increment of future regional growth considered in the AVAP and General Plan EIRs would occur with a high level of water conservation, including state-of-the art household and irrigation

installations and significantly enhanced recycled water use. Nevertheless, as determined during the AVAP and General Plan update CEQA review process, assuming buildout of the AVAP and General Plan in the Antelope Valley, regional water demands could exceed existing and planned supplies under post-2035 conditions. The Project has sufficient supplies to meet demand; Project-level impacts to water supply would be less than significant; and the Project would result in an increment of regional growth that incorporates state of art water use and conservation measures that would reduce per capita demand below existing levels. These conservation and efficiency measures would reduce but not eliminate the cumulative regional water supply impacts identified in the AVAP and General Plan EIRs, and would be significant and unavoidable.

### **7.3.19 WASTEWATER**

The Project would construct two new wastewater reclamation facilities (WRFs) providing solids handling, biogas reuse, and recycled water treated to unrestricted reuse standards under Title 22 of the *California Code of Regulations*; a wastewater collection system; and recycled water system that would be dedicated to serve the needs of the Project site, to be ensured with implementation of mitigation. The WRFs would be required to obtain Waste Discharge Requirements and other approvals issued by the Lahontan RWQCB and would comply with the State Water Resources Control Board's Recycled Water Use Policy. Because the Project's wastewater management system would be self-contained and would not connect with or otherwise impact any other existing or planned wastewater systems that may exist in off-site areas in the future, the Project would not result in any cumulative impacts related to compliance with Waste Discharge Requirements of either the Lahontan RWQCB or Los Angeles RWQCB, nor would it result in cumulative impacts to wastewater treatment facilities or capacity in the area.

### **7.3.20 DRY UTILITIES**

#### **Electricity**

Existing, planned, and foreseeable future projects within Southern California Edison's (SCE's) service area would contribute to increased demands for electrical service. As part of their long-range planning efforts, SCE evaluates the long-term growth projections when determining their long-range demand. The CPUC oversees and regulates service providers, including SCE, to ensure that adequate service levels are available to accommodate projected regional growth at fair prices. The Project's increase in demand for electricity would not be cumulatively considerable since SCE has stated its ability to provide service to the Project site and the surrounding area into the foreseeable future (See Section 5.20, Dry Utilities).

#### **Fossil Fuels (Natural Gas and Petroleum)**

Existing, planned, and foreseeable future projects in the Southern California Gas Company (SoCalGas) service area would contribute to increased demands for natural gas service. California's existing natural gas supply is regionally diverse and includes supplies from onshore and offshore California sources, the southwestern United States, the Rocky Mountains, and Canada. Additional pipeline capacity and interstate pipeline access allows



for long-term supply availability to serve existing, planned, and foreseeably future development. SoCalGas has indicated there are adequate natural gas supplies to accommodate the estimated demand of the Project as well as other existing and projected demands (SoCalGas 2006). Therefore, no significant cumulative impacts are anticipated.

The crude oil consumed in California comes from both in-state and out-of-state sources. Project construction and operations would result in consumption of petroleum. The majority of fuel consumption resulting from the Project would involve the use of motor vehicles. Petroleum fuel consumption associated with the Project is a function of the vehicle miles traveled (VMT) as a result of Project construction and operations. As discussed in Sections 5.10 (Traffic, Access, and Circulation), 5.11 (Air Resources), and 5.21 (Climate Change), the Project would result in an increase in VMT which, in turn, could result in additional fuel consumption and energy use associated with transportation. It should, however, be noted that, as a result of anticipated fuel efficiency improvements, additional VMT would not necessarily result in a proportional increase in fuel consumption. Moreover, the Project incorporates a variety of features intended to reduce VMT associated with the Project, thereby reducing petroleum consumption, both through energy-efficient site planning and building design as well as transportation improvements and vehicle trip reductions. As discussed further in Section 5.10, Traffic, Access and Circulation, the Project would construct and/or provide funding for necessary traffic and transit improvements to ensure there are less than significant traffic impacts; without these improvements, the Project-generated trips would otherwise result in increased gasoline usage and less efficient gasoline consumption due to traffic congestion. For these reasons, no significant cumulative transportation energy impacts are anticipated.

## **Telephone**

The CPUC oversees and regulates service providers (including AT&T, who would be the Project's service provider) to ensure that adequate service levels are available to accommodate projected regional growth at fair prices. The Project's increase in demand for telephone lines would not be cumulatively considerable since AT&T has indicated it has the ability to provide service to the Project site and the surrounding area into the foreseeable future.

## **Cable Television**

Existing, planned, and foreseeable future projects within the service area of the cable television (CATV) service provider (CalNeva Broadband or other provider yet to be determined) chosen for the Project would contribute to increased demands for CATV service. The CPUC oversees and regulates CATV service providers to ensure that adequate service levels are available to accommodate projected regional growth at fair prices. The Project's increase in demand for CATV service would not be cumulatively considerable as the CPUC ensures that whichever company chosen would be able to provide service to the Project site and the surrounding area into the foreseeable future.

### 7.3.21 CLIMATE CHANGE

The County acknowledges the consensus among leading scientists that, without action to reduce GHG emissions, climate change due to global warming will pose a considerable threat to the environment and to human health and society (DRP 2015d). Climate change is a global phenomenon and the significance of GHG emissions is most appropriately considered on a cumulative level. The *Final Unincorporated Los Angeles County Community Climate Action Plan 2020* (CCAP) is part of the County General Plan and was adopted along with the General Plan on October 6, 2015. The analysis of Project consistency with each of the CCAP goals and policies shows that the Project is fully consistent with the CCAP. The Project is also consistent with the SCAG 2016–2040 RTP/SCS; AVAP policies; and State GHG-reducing regulatory programs, including those that, as the California Air Resources Board (CARB) has concluded, put California on a trajectory toward meeting the 2050 GHG reduction goals set forth in several Executive Orders. The Project's GHG emissions per service person would be less than the SCAQMD-recommended screening threshold. The Project would nonetheless emit GHGs at an estimated rate of 244,379 metric tons of carbon dioxide equivalent per year (MTCO<sub>2</sub>e/year), which would exceed the AVAQMD's threshold of 100,000 MTCO<sub>2</sub>e/year and would contribute to the global inventory of GHGs.

To date, the vast majority of other states and nations have not followed California's lead in mandating GHG-emission reductions across a broad spectrum of economic sectors and have not enacted regulations similar to those adopted in California, which already has nearly the lowest level of GHGs per capita of any state. The County of Los Angeles has no jurisdictional control or responsibility for GHG reductions in other parts of California, and certainly not in the context of global action. Therefore, because of the global context of GHG emissions and the Project's forecasted GHG emission rate, the environmental impact related to GHG emissions is considered to be cumulatively considerable, and the impact would be significant.

## 7.4 CONCLUSION

The Project's cumulative impact analysis includes the consideration of regional conditions and includes proposed and approved development throughout the Santa Clarita Valley and Southern Kern County. Table 7-3, Significant and Unavoidable Cumulative Impacts, summarizes the information provided in this section and thus identifies significant cumulative impacts that would be associated with Project implementation.

**TABLE 7-3  
SIGNIFICANT AND UNAVOIDABLE CUMULATIVE IMPACTS**

<b>Resource/Impact Category</b>	<b>Specific Impact Conclusion</b>
<b>Biological Resources</b>	As a conservative assessment, the Project would result in cumulatively significant impacts to native perennial grasslands and wildlife movement.
<b>Land Resources</b>	The on-site conversion of farmland (approximately 642 acres of Prime Farmland) is part of the total of 6,169 acres of Important Farmland that the AVAP EIR identified would be converted as part of future growth. However, the Project's contribution to conversion of agricultural resources is cumulatively considerable and is considered a significant and unavoidable impact.
<b>Traffic, Access and Circulation</b>	The Project would contribute to cumulatively significant impacts without pending improvements by Caltrans.
<b>Air Quality</b>	Because the Project would result in both significant and unavoidable construction and operational emissions in the AVAQMD and the SCAQMD, both of which are in federal nonattainment for O <sub>3</sub> and PM <sub>10</sub> , it would contribute to cumulative impacts.
<b>Noise</b>	Traffic noise increases would exceed the 3 dBA CNEL criterion at identified receptors along SR-138, resulting in a significant impact. The impact would be considered significant and unavoidable because feasible mitigation to reduce these impacts is not within County jurisdiction, and would also be considered cumulatively significant in the context of additional regional traffic along the SR-138.
<b>Visual Resources</b>	The Project would be a component of, and result in cumulatively significant changes to, long-range views from public land. The Project would also contribute to cumulatively significant light pollution ("sky glow") impacts.
<b>Solid Waste</b>	The Project's estimated annual municipal solid waste disposal would represent a nominal incremental contribution to the combined daily disposal rate for the landfills serving the Project area. However, permitted Class III landfill capacity cannot be guaranteed at the time of Project buildout and throughout the life of the Project; therefore, the Project's contribution to municipal solid waste disposal is considered a cumulatively significant impact.
<b>Water Resources</b>	With mitigation, there would be a less than significant direct impacts to groundwater supplies, groundwater recharge rates, groundwater levels, and to existing and potential future well uses. As determined during the AVAP and General Plan update CEQA review process, cumulative regional water demands could exceed existing and planned supplies under post-2035 conditions. No feasible mitigation can be incorporated at a Project level to reduce this regional impact. As a result, cumulative water supply impacts would be significant and unavoidable.
<b>Population, Housing, and Employment</b>	Population, housing and employment growth would be substantial relative to existing Project site conditions because the site is currently undeveloped and unoccupied; hence, this impact is significant.

**TABLE 7-3  
SIGNIFICANT AND UNAVOIDABLE CUMULATIVE IMPACTS**

Resource/Impact Category	Specific Impact Conclusion
<b>Climate Change</b>	Although the Project would be consistent with the Los Angeles County CCAP, the SCAG 2016 RTP/SCS, the AVAP policies, complies with GHG-reducing regulatory programs, and the GHG emissions per service person would be less than the SCAQMD-recommended screening threshold, the Project would nonetheless emit GHGs at an estimated rate of 244,379 metric tons per year that would contribute to the global inventory of GHGs. The Project's GHG efficiency would be 3.02 which would not exceed the SCAQMD-staff-proposed "plan-level" 4.1 GHG efficiency threshold, but would exceed the SCAQMD-staff-proposed "project-level" 3.0 GHG efficiency threshold. Therefore, the environmental impact related to greenhouse gas emissions is considered to be cumulatively considerable and the impact would be significant.
Caltrans: California Department of Transportation; AVAQMD: Antelope Valley Air Quality Management District; SCAQMD: South Coast Air Quality Management District; O <sub>3</sub> : ozone; PM10: respirable particulate matter with a diameter of 10 microns or less; dBA: A-weighted decibels; CNEL: Community Noise Equivalent Level; SR: State Route; AVAP: Antelope Valley Area Plan; CEQA: California Environmental Quality Act; CCAP: Community Climate Action Plan; SCAG: Southern California Association of Governments; RTP/SCS: Regional Transportation Plan/Sustainable Communities Strategy; GHG: greenhouse gas; AB: Assembly Bill	

## 7.5 REFERENCES

- California, State of. 2016 (access date). *California Code of Regulations*. Sacramento, CA: the State.  
[https://govt.westlaw.com/calregs/index?\\_lrTS=20160407175110069&transitionType=Default&contextData=\(sc.Default\)](https://govt.westlaw.com/calregs/index?_lrTS=20160407175110069&transitionType=Default&contextData=(sc.Default)).
- . 2015 (as amended). *California Public Resources Code* (Division 5, Parks and Monuments; Chapter 1.75, Native American Historical, Cultural, and Sacred Sites; Sections 5097.9–5097.991). Sacramento, CA: the State.  
[https://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=PRC&division=5.&title=&part=&chapter=1.75.&article=](https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=PRC&division=5.&title=&part=&chapter=1.75.&article=).
- . 1987. *California Health and Safety Code* (Division 7, Dead Bodies; Part 1, General Provisions; Section 7050.5). Sacramento, CA: the State.  
[http://leginfo.legislature.ca.gov/faces/codes\\_displayText.xhtml?lawCode=HSC&division=7.&title=&part=1.&chapter=2.&article=](http://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=HSC&division=7.&title=&part=1.&chapter=2.&article=).
- California Department of Transportation (Caltrans). 2016 (Copyright; last accessed April 29). *Construction Contract Standards*. Sacramento, CA: Caltrans.  
<http://www.dot.ca.gov/des/oe/construction-contract-standards.html>.
- . 2014 (September). *California County-Level Economic Forecast 2014-2040*. Sacramento, CA: Caltrans.

- California High Speed Rail Authority. 2016 (CHSRA). *Connecting and Transforming California, 2016 Business Plan, May 1, 2016*. Sacramento, CA: HSR.  
[http://www.hsr.ca.gov/docs/about/business\\_plans/2016\\_BusinessPlan.pdf](http://www.hsr.ca.gov/docs/about/business_plans/2016_BusinessPlan.pdf).
- Dea, S. 2015 (September 15). Personal communication. Email correspondence from S. Dea, Special Projects Section (County of Los Angeles Department of Regional Planning) to J. Neary, Assistant Project Manager (BonTerra Psomas) providing the list of pending and approved projects in the Antelope Valley planning area.
- Geocon, Inc. 2015 (August). *Preliminary Geologic Summary Report, Centennial – Tejon Ranch, Los Angeles County, California*. San Diego, CA: Geocon. (Appendix 5.1-A)
- Geosyntec Consultants. 2016 (February). *Centennial Project Water Quality Technical Report*. Oakland, CA: Geosyntec (Appendix 5.4-A).
- Keith, N. 2015a (April 21). Personal communication. Email correspondence from N. Keith, Project Manager, Real Estate (Tejon Ranch Company) to K. Starbird, Senior Project Manager (BonTerra Psomas) forwarding the cumulative lists prepared by Kern County.
- . 2015b (September 18). Personal communication. Email correspondence from N. Keith, Project Manager, Real Estate (Tejon Ranch Company) to J. Neary, Assistant Project Manager (BonTerra Psomas) clarifying the remaining square footage to be developed within the Tejon Ranch Commerce Center.
- Kern, County of, Planning and Community Development Department. 2017 (February 1, last accessed). *Grapevine Specific and Community Plan*. Bakersfield, CA: Kern County.  
<http://pcd.kernds.com/planning/environmental-documents/480-grapevine>.
- . 2014 (April). *Notice of Preparation of a Draft Environmental Impact Report (for EIR 04-14 Grapevine Specific and Community Plan)*. Bakersfield, CA: Kern County.
- . 2009. (May) *Tejon Mountain Village Draft Environmental Impact Report*. Bakersfield, CA: Kern County.
- . 2005. (July). *Draft Environmental Impact Report Supplemental Analysis TIC East*. Bakersfield, CA: Kern County.
- Kern County Council of Governments (Kern COG). 2014 (Adopted June). *2014 Regional Transportation Plan/Sustainable Communities Strategy*. Bakersfield, CA: Kern COG.  
[http://www.kerncog.org/images/docs/rtp/2014\\_RTP.pdf](http://www.kerncog.org/images/docs/rtp/2014_RTP.pdf).
- Lancaster, City of. 2015a (Updated June). *Residential Development Summary Report*. Lancaster, CA: the City.
- . 2015b (Updated July). *Commercial/Industrial Development Summary Report (Projects under construction, approved, pending expiration)*. Lancaster, CA: the City.

- Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.
- . 2015b (March). *Final Environmental Impact Report, Los Angeles County General Plan Update, County of Los Angeles*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan/eir>.
- . 2015c (May 27, last accessed). Los Angeles County General Plan 2035. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.
- . 2015d (August). *Unincorporated Los Angeles County Community Climate Action Plan 2020* (Prepared with assistance from: ICF International). Los Angeles, CA: DRP. [http://planning.lacounty.gov/assets/upl/project/ccap\\_final-august2015.pdf](http://planning.lacounty.gov/assets/upl/project/ccap_final-august2015.pdf).
- . 2014 (October). *Final Environmental Impact Report, Antelope Valley Area Plan, County of Los Angeles*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc/environmental/>.
- . 2011 (April) *Subdivision Committee Meeting Report: Tract Map No. 62053*. Los Angeles, CA: DRP. [http://planning.lacounty.gov/assets/upl/case/tr\\_062053\\_scm-report-20110407.pdf](http://planning.lacounty.gov/assets/upl/case/tr_062053_scm-report-20110407.pdf).
- . 2006 (December). *Gorman Post Ranch Initial Study*. Los Angeles, CA: DRP. [http://planning.lacounty.gov/assets/upl/case/tr\\_062053\\_initial-study.pdf](http://planning.lacounty.gov/assets/upl/case/tr_062053_initial-study.pdf).
- Palmdale, City of, Planning Department. 2015 (August). *Development Summary: July 2014-July 2015*. Palmdale, CA: the City.
- Peterson, D. 2015 (August 27). Personal communication. Email correspondence from D. Peterson, Assistant Planner II (City of Santa Clarita Planning Division) to D. Sarraf, Environmental Planner (BonTerra Psomas) providing the development activity spreadsheet dated June 17, 2015.
- Placeworks. 2017. *Centennial Specific Plan*. Santa Ana, CA: Placeworks (Appendix 4.0-A).
- Regional Water Management Group of the Antelope Valley Integrated Regional Water Management Plan (RWMG). 2013 (update). *Antelope Valley Integrated Regional Water Management Plan*. Palmdale, CA: RWMG. <http://www.avwaterplan.org/>.
- Southern California Association of Governments (SCAG). 2016 (December 13). Personal communication. Email from Y. Zhou (SCAG) to J. Cho (BonTerra Psomas) with an imbedded table with 2016 RTP/SCS subregional population, housing, and employment data for years 2012, 2020, 2035, and 2040.
- . 2012 (Adopted April). *2012-2035 Regional Transportation Plan/Sustainable Communities Strategy*. Los Angeles, CA: SCAG. <http://rtpscs.scag.ca.gov/Documents/2012/final/f2012RTPSCS.pdf>.

Southern California Gas Company (SoCalGas). 2006 (October 27). Letter from J. Russo, Planning Associate to BonTerra Consulting entitled "Proposed Centennial Specific Plan and Phase One Implementation Draft Environmental Impact Report".

Stantec Consulting Services, Inc. 2017 (May). *Centennial Specific Plan Traffic Study*. Irvine, CA: Stantec (Appendix 5.10-A).

Wieland Acoustics, Inc. 2011 (May). *Environmental Noise Study for the Proposed Centennial Specific Plan and Phase One Implementation in the County of Los Angeles*. Laguna Hills, CA: Wieland Acoustics (Appendix 5.12-A).

*This page intentionally left blank*



## 8.0 ALTERNATIVES TO THE PROPOSED PROJECT

### 8.1 INTRODUCED

#### 8.1.1 PURPOSE

Sections 15126.6(a) and (b) of the California Environmental Quality Act (CEQA) Guidelines (14 *California Code of Regulations* [CCR]) provide guidance on the scope of alternatives to a proposed project that must be evaluated:

- (a) Alternatives to the Proposed Project. An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives. An EIR need not consider every conceivable alternative to a project. Rather it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation. An EIR is not required to consider alternatives which are infeasible. The lead agency is responsible for selecting a range of project alternatives for examination and must publicly disclose its reasoning for selecting those alternatives. There is no ironclad rule governing the nature or scope of the alternatives to be discussed other than the rule of reason.
  
- (b) Purpose. Because an EIR must identify ways to mitigate or avoid the significant effects that a project may have on the environment (Public Resources Code Section 21002.1), the discussion of alternatives shall focus on alternatives to the project or its location which are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly.

#### 8.1.2 SUMMARY

This Alternatives section includes a history of the evolution of the proposed Project over time. This includes the Project as originally conceived in the first application to the County and the evolution to its current state based on input from the County, other agencies, organizations, and members of the public.

Following the Project history is an analysis of the Project Alternatives. The State CEQA Guidelines direct the Alternatives section to be both consistent with the objectives and “ . . . avoid or substantially lessen any of the significant effects of the project”. The following list of alternatives for the Project are included in the EIR for these purposes. The analyzed alternatives are:

1. Alternative A – No Project

2. Alternative B – Previously Proposed Project
3. Alternative C – Additional Drainage Avoidance
4. Alternative D – Infrastructure Relocation
5. Alternative E – Density Clustering/East of Aqueduct
6. Alternative F – Central EOA Development

As required by CEQA, each Alternative has a description and a summary of the impacts compared to the proposed Project, and Alternative E (Density Clustering/East of Aqueduct) is considered an environmentally superior alternative to the Project in relation to some impact topics.

### **8.1.3 SECTION FORMAT**

Due to the nature of the analysis, this section is organized differently than other sections. A description of the Project alternative is followed by its impacts under each environmental issue category as listed in Section 5 (i.e., Sections 5.1–5.21), which are listed as separate subheadings. Although the categories are listed in order of importance, the category titles match those in Section 5.0 (e.g., Land Use, Entitlements, and Planning [Section 5.8] and Land Resources [Section 5.5]). This section is arranged in the following manner:

- Introduction
  - Purpose
  - Summary
  - Section Format
  - References
- Summary of the Proposed Project
- Project History
- Alternatives to the Proposed Project
- Alternatives Considered but not Carried Forward
- Alternatives Analyzed
- Alternatives Analysis
- Environmentally Superior Alternative

### **8.1.4 REFERENCES**

All references cited for preparation of this analysis are listed in Section 8.7.

## **8.2 SUMMARY OF THE PROPOSED PROJECT**

The Project site is approximately 12,323 acres and is proposed to include developed or graded areas (6,699 acres) and preserved open space (5,624 acres). The proposed Project would allow for the development of a maximum of 19,333 dwelling units on approximately 4,987 acres. Additional land uses include approximately 7,363,818 square feet (sf) of Business Park uses on 597 acres; 1,034,550 sf of Commercial uses on 102 acres; 1,568,160 sf of Institutional/Civic uses on 110 acres; and 130,680 sf of Recreation/Entertainment uses

on 75 acres. The Project also proposes approximately 146 acres for Kindergarten through 12<sup>th</sup> grade schools and approximately 191 acres for Utility facilities. In addition, approximately 5,787 acres (approximately 47 percent) of the 12,323-acre Project site are proposed for Open Space for natural resource protection and greenways, and Parks for active and passive recreational use (i.e., 163 acres of Park Overlay) or (i.e., 5,624 acres of Open Space designation). For a complete Project description, refer to Section 4.0, Project Description.

The Project objectives are directed toward the development of a new community in a feasible, environmentally sensitive, and fiscally sound manner. The Project objectives (as included in in Section 4.3 of Section 4.0, Project Description) are as follows:

1. Implement the Antelope Valley Area Plan (AVAP) by creating an environmentally and economically sustainable master-planned community on the Project site to help accommodate planned regional population and economic growth within the West EOA.
2. Design the Project to maximize efficient utilization of regional infrastructure while preserving hundreds of thousands of acres of contiguous natural open space and important biological resources.
3. Size the Project to include a broad range of employment, residential, institutional, and recreational land uses to encourage walkability and wellness, while reducing off-site employment-related commuter trips.
4. Ensure that all Project site infrastructure and public services are funded by the Project to avoid creating any financial obligations on existing residents and other taxpayers.
5. Integrate a multi-modal transportation network, renewable energy, water conservation, community wellness, and other green development features into the Project's design, build out, and ongoing operations.

### **8.2.1 SUMMARY OF PROPOSED PROJECT IMPACTS**

The potential environmental impacts that would result from the Project have been evaluated in Sections 5.1 through 5.21 of this EIR. With implementation of the respective Project design features (PDFs) and mitigation measures (MMs) identified for each topical issue, many of the potentially significant impacts that could result from the Project would be reduced to a level considered less than significant. The impacts below would be considered significant and unavoidable after mitigation.

#### **Construction-Related Significant and Unavoidable Impacts**

**Air Resources:** Construction-related emissions of volatile organic compounds (VOC) and nitrogen oxides (NO<sub>x</sub>) would result in significant impacts. Mitigation measures would be implemented to reduce emissions; however, the impacts would remain significant and unavoidable.

Construction emissions could cause a potential temporary exceedance of federal, State, and South Coast Air Quality Management District (SCAQMD) standards for respirable particulate matter with a diameter of 10 microns or less (PM10) and fine particulate matter with a diameter of 2.5 microns or less (PM2.5) at Project residences that would be completed and occupied; this would be a significant impact. Implementation of Antelope Valley Air Quality Management District (AVAQMD) and SCAQMD dust control rules would substantially reduce dust, but it cannot be quantitatively demonstrated that the impact would be reduced to a less than significant level. This impact would be significant and unavoidable.

During construction of the Project, construction emissions of PM10 and PM2.5 could exceed the federal and State ambient air quality standards and SCAQMD-established local significance thresholds, exposing sensitive receptors to substantial pollutant concentrations. This impact would be significant and would be reduced with implementation of standard conditions and mitigation measures; however, they would not reduce impacts to a level considered less than significant.

### **Operational Significant and Unavoidable Impacts**

**Air Resources:** Long-term operational emissions of carbon monoxide (CO), VOCs, NO<sub>x</sub>, PM10, and PM2.5 would result in significant impacts. Mitigation measures would be implemented to reduce emissions; however, the impacts would remain significant and unavoidable after mitigation.

**Land Resources (Agricultural):** The Project would result in the conversion of approximately 642 acres of on-site Prime Farmland, for which there is no feasible mitigation to reduce this impact to a less than significant level. Therefore, this would be a significant and unavoidable impact related to conversion of farmland.

**Population and Growth Inducing-Impacts:** The Project would result in a maximum resident population of approximately 57,150 persons at Project buildout, which is estimated to occur in 2035. This would represent 14.1 percent of the buildout population of the Antelope Valley's unincorporated area, and would result in a population increase that would be consistent with anticipated population increases under the *Antelope Valley Area Plan* (AVAP). Implementation of the Project is considered growth accommodating rather than growth inducing at a regional level based on Southern California Association of Governments (SCAG) projections. Therefore, would be less than significant in relation to planned growth in the region. However, because the Project would substantially increase population and housing relative to the existing Project site conditions, this increase in population and housing on the Project site is considered significant and unavoidable. However, no mitigation would be appropriate because the Project is consistent with approved growth plans in the region.

Regarding growth-inducing impacts, the existence of the Project makes it reasonably foreseeable that additional development proposals seeking AVAP amendments would be made outside the West Economic Opportunity Area (EOA), which is considered a significant adverse indirect growth-inducing impact.

**Solid Waste:** The Project's incremental contribution to the County's solid waste stream during construction, which is a finite waste stream, would be nominal in comparison to available capacity (i.e., less than one percent). However, the permitted Class III landfill capacity in the County cannot be guaranteed at the time of Project buildout and through the life of the Project, which are beyond the County of Los Angeles Department of Public Works' (LACDPW's) 15-year planning horizon for solid waste disposal. Therefore, while the County is committed to handling all solid wastes generated within the County now and in the future, to be conservative, this EIR concludes that the Project buildout would result in a significant impact on the County's anticipated Class III landfill capacity. The Project would result in significant and unavoidable impact related to municipal solid waste during operation of the Project.

**Visual Resources:** The Project would result in significant and unavoidable impacts related to a change in visual character experienced from public vantage points (primarily transportation thoroughfares including State Route (SR) 138, 300th Street West, 290th Street West, and Malinda Avenue). Visual character impacts related to grading and development of the Project would be reduced through implementation of mitigation measures; however, the change of the Project site from a rural to urban condition and the varying degrees of obstruction of existing views of local foothills and the Tehachapi Mountains would be considered a significant unavoidable impact, for which no additional feasible mitigation exists. Since the Project site is in an undeveloped area with few existing light sources, implementation of the Project would result in significant and unavoidable impacts by introducing new sources of daytime and nighttime light and glare into the area. Project implementation would also cause a significant and unavoidable impact regarding a new source of sky glow, even after mitigation.

### **Significant and Unavoidable Impacts with Mitigation Outside the Control of the Lead Agency**

**Traffic, Access, and Circulation:** The on-site roadway network has been designed to accommodate projected traffic from the proposed land uses. However, if improvements at Project access points on SR-138 are not constructed by the California Department of Transportation (Caltrans), impacts would be significant and unavoidable. Also, Project buildout would result in significant traffic impacts on off-site roadways and freeways, including SR-138, I-5 mainline segments and interchange ramps, and arterial roadway intersections. Mitigation measures have been identified to reduce all significant Project impacts. However, it is outside the County's control to implement these measures. If Caltrans does not implement the needed improvements, the Project would result in significant and unavoidable impacts.

**Noise:** Increases in the ambient noise environment adjacent to SR-138 between Gorman Post Road and Old Ridge Route Road would exceed the applicable significance criterion at identified noise-sensitive receptors. Feasible mitigation measures would involve alterations to private property and/or within Caltrans' right-of-way, which are not in the County's or the Project Applicant's control. Therefore, the impact would be significant and unavoidable.

## Significant and Unavoidable Cumulative Impacts

The assessment of cumulative impacts requires forecasting future potential population and economic growth trends, and future projects, and conclusions about the significance of cumulative impacts is accordingly inherently less certain. The AVAP Environmental Impact Report (EIR) concluded that the following cumulative impacts were significant and unavoidable: agricultural resources (conversion of farmland), air quality (short-term/construction and long-term/operation), biological resources (special status species, sensitive vegetation types, wildlife movement), cultural resources (historic resources), mineral resources, noise (traffic noise), greenhouse gas emissions/climate change, traffic (mitigation outside of lead agency jurisdiction), and water supply.

Cumulative impacts of the proposed Project that are considered potentially significant and unavoidable include the following:

**Land Resources (Agricultural):** A significant, unavoidable impact on Important Farmland would occur through the Project's conversion of approximately 642 acres of Prime Farmland to urban uses. The on-site conversion of farmland is part of the total of 6,169 acres of Important Farmland the Antelope Valley Area Plan (AVAP) EIR would be converted as part of future growth consistent with the AVAP. Thus, the Project's contribution to conversion of agricultural resources is cumulatively considerable and is considered a significant and unavoidable impact.

**Air Resources:** Construction annual emissions of NO<sub>x</sub> (an O<sub>3</sub> precursor), construction daily emissions of VOC and NO<sub>x</sub> (O<sub>3</sub> precursors), and operational emissions of PM<sub>10</sub>, PM<sub>2.5</sub>, VOC, and NO<sub>x</sub>, would be directly significant and therefore cumulatively considerable and significant. Feasible mitigation measures to reduce the impacts from construction and operation emissions would be implemented for the proposed Project; however, even after mitigation, the direct and cumulative impact would be significant and unavoidable.

**Biological Resources:** Development of the Project would result in impacts on several sensitive vegetation types including oak woodlands, native grasslands, and wildflower fields. It is likely that most of the identified cumulative projects would also have impacts on sensitive vegetation types. Although cumulative impacts would occur, these are expected to be less than significant after mitigation for all but one vegetation type due to the regulatory requirements which substantially minimize such impacts. Specifically, due to the cumulative loss of native grasslands in the larger region and the State as a whole, and the lack of a widely accepted definition for "native grassland" or a published standard for a mitigation ratio, impacts on native grasslands are considered cumulatively significant after mitigation.

The Project would result in an impact on regional wildlife movement that would be reduced to a less than significant level following mitigation. Because the movement events for some larger species may occur very rarely, the success of each event may be particularly important. Due to the potentially heightened sensitivity of movement through the region for some species, the potential for a project or set of projects to substantially interfere with a wildlife corridor is greater. As such, as a conservative assessment, wildlife movement impacts are considered to be cumulatively significant for the Project.

**Noise:** The noise analyses in Section 5.12 of this EIR identify the future traffic noise exposures that would occur in the Project traffic noise study area both with and without the Project. The analysis of traffic noise is inherently a cumulative analysis because the calculation of buildout traffic noise exposures considers the anticipated future traffic volumes based on regional growth models. At the completion of Project buildout (2035), operation of the Project would expose some existing off-site noise-sensitive receptors adjacent to SR-138 between Gorman Post Road and Old Ridge Route Road to increases in exterior ambient noise levels that exceed the 3 A-weighted decibels (dBA) threshold criterion due to Project-related traffic. The impact would be considered significant and unavoidable because feasible mitigation to reduce these impacts is not within County jurisdiction. Therefore, when considering the additional regional traffic to the SR-138, the Project would contribute to a significant and unavoidable cumulative impacts to these receptors.

**Visual Resources:** The cumulative impacts on visual resources from the Project were assessed based on projected growth in Antelope Valley and projected future projects in the vicinity of the Project site (e.g., expansion of SR-138). This growth and development may not necessarily be considered adverse to the visual character of the area, since development would occur in areas planned for development (such as EOAs in the Antelope Valley and City centers). However, the Project is the development of a new community in a largely undeveloped area, and the accompanying visual change is considered significant and unavoidable after mitigation. While the related projects in the region would not all be visible within the same viewsheds as the Project, visual changes in the surrounding areas that would result from continued development would contribute to the Project's impact. Thus, cumulative impacts on visual resources would be significant and unavoidable.

Project implementation would introduce development at a scale that would result in significant increases in lighting levels, and the related projects would also increase lighting levels at individual development sites. While these related projects would not be located adjacent to the site, increases in ambient lighting levels would occur throughout the Project area. Regulations that prevent glare and light spillover into adjacent properties, including Project design standards and guidelines, would reduce impacts but increases in sky glow are expected to occur. However, this impact would be significant and unavoidable with the Project and would be cumulatively significant and unavoidable with mitigation.

**Climate Change:** The Project is consistent with each of the *Los Angeles County Community Climate Action Plan's* (CCAP's) goals and policies, with SCAG's 2012–20 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and the 2016–2040 RTP/SCS, the AVAP policies, and State regulatory programs that reduce greenhouse gas (GHG) emissions, including those that, as CARB has concluded, put California on a trajectory toward meeting the 2050 GHG reduction goals set forth in several Executive Orders. The Project would nonetheless emit GHGs at an estimated rate of 244,379 metric tons of carbon dioxide equivalent per year, and would contribute to the global inventory of GHGs. The Project's GHG efficiency would be 3.02, which would not exceed the SCAQMD-staff-proposed "plan-level" 4.1 GHG efficiency threshold, but would exceed the SCAQMD-staff-proposed "project-level" 3.0 GHG efficiency threshold. To date, the vast majority of other states and nations have not followed California's lead in mandating GHG emission reductions across a

broad spectrum of economic sectors and have not enacted regulations similar to those adopted in California, which already has nearly the lowest level of GHG per capita of any state. The County of Los Angeles has no jurisdictional control or responsibility for GHG reductions from many types of products and activities (e.g., passenger vehicles, consumer products) both on site and elsewhere in California, nor does the County have jurisdiction or control of GHG emissions outside California within or outside the United States. Therefore, because of the global context of GHG emissions and the Project's forecasted GHG emission rate, the environmental impact related to greenhouse gas emissions is considered to be cumulatively significant.

**Solid Waste:** Waste generation from new developments requiring landfill disposal are expected to decrease landfill capacity over time. There is remaining capacity of approximately 133.14 million cubic yards (mcy) at the 4 major landfills serving the Project area. Two of these landfills are expected to close by 2037, in the same timeframe as Project buildout. County of Los Angeles, County of Kern, and State waste reduction and recycling programs and regulations are expected to reduce solid waste generation, resulting in less landfill disposal demand and, in turn, extend of the life of existing landfills. However, permitted Class III landfill capacity cannot be guaranteed at the time of Project buildout and through the life of the Project, which are beyond the required 15-year LACDPW planning horizon for solid waste disposal. Therefore, while the County is committed to handling all solid waste generated within the County now and in the future, to be conservative, this EIR concludes that the Project would result in a significant impact on the County's anticipated Class III landfill capacity. The Project's contribution to solid waste disposal and associated landfill capacity would be cumulatively considerable.

**Water Resources:** As discussed in Section 5.18, Water Resources, the Project's water supplies would sustainably meet buildout potable and recycled water demands and maintain an average annual reserve supply of more than 79,000 acre-feet (af) after buildout has been achieved. Potential Project impacts to water supplies will be less than significant with mitigation. The construction of off-site systems would not result in significant impacts to water supplies and no mitigation is required. Nevertheless, as determined during the AVAP and General Plan update CEQA review process, assuming buildout of the AVAP and General Plan within the Antelope Valley, regional water demands could exceed existing and planned supplies under post-2035 conditions. The Project has sufficient supplies to meet demand, Project-level impacts to water supply are less than significant with mitigation, and the Project will result in an increment of regional growth that incorporates state of art water use and conservation measures that would reduce per capita demand below existing levels. These conservation and efficiency measures would reduce, but not eliminate, the cumulative regional water supply impacts identified in the AVAP and General Plan EIRs be significant and unavoidable.

**Traffic, Access and Circulation:** The traffic analysis indicates that, under 2035 cumulative conditions, the Project contributes to significant impacts along SR-138 in regards to the percent of time-spent-following between the Interstate (I) 5 and SR-14 interchanges, as well as increased delay for side street vehicles, traffic signal requirements and intersection capacity at multiple locations along SR-138 between the westerly access of the Project area to SR-14. Under cumulative conditions, the Project contributes to a significant cumulative



impact to the I-5 mainline freeway; the truck lane in between the Grapevine and Fort Tejon Road interchanges; the segments between SR-138 to Parker Road interchange, as well as segments from Magic Mountain Parkway and SR-14 interchange.

The Project would be fully mitigated with implementation of the Northwest 138 Corridor Project currently being advanced by Caltrans, and mitigation measures for impacts to the I-5 and off-site intersections involving fair share contributions to identified improvements would reduce all cumulative traffic impacts to a less than significant level. The proposed Centennial Transportation Improvement Program (CTIP) Agreement provides a mechanism for the needed transportation improvements to be implemented by providing advance funding for planning, design, and construction of certain improvements and establishing a funding program to collect fair shares for other improvements. With these traffic mitigation assurances, there would not be a significant cumulative impact from Project traffic. However, if Caltrans does not implement planned and needed improvements on State facilities, the Project would contribute to significant unavoidable impacts since the County (as the Lead Agency) has no control over these facilities and cannot enforce the construction of the needed improvements.

### 8.3 PROJECT HISTORY

An Application for the Centennial Project was formally submitted to the County of Los Angeles in 2003 and the Notice of Preparation (NOP) was sent out for public review in March 2004. Over time the Project Applicant changed the design in response to concerns from the County, other agencies, and members of the public over potential impacts. Development was eliminated from areas with dense woodland, pulled out of major canyons with habitat sensitivity, and designed to avoid the County Significant Ecological Area (SEA) to the south along SR-138. Additionally, off site, nearby open space was added to the mitigation package to further offset Project impacts related to the loss of native grassland. The boundary of the Specific Plan area was modified to include additional property on the east side of the Project site, which increased the acreage of the Project site. However, the Project's development footprint was reduced. Exhibit 8-1, Alternative B – Previously Proposed Project, depicts the design and land uses as described in the NOP dated March 2004.

The Project, as now proposed, is a combination of several of the Alternatives that were considered for the earlier proposed project but now conforms to the AVAP development vision for the Project site component of the West EOA. While the Project site boundary has been expanded by approximately 647 acres to include additional lands to the east of 300<sup>th</sup> Street West, the Project now proposes 3,665 fewer dwelling units and approximately 4.12 million square feet (msf) less of commercial and business park development, on a development footprint that is approximately 640 acres less than the earlier proposed project. Refer to Table 8-1 below for additional comparison data between the currently proposed Project and the previously proposed project. As the originally proposed project was in the public eye for so long, it seemed appropriate to include it in the Project Alternatives being addressed in this document.



- |  |                            |  |                                  |  |                            |
|--|----------------------------|--|----------------------------------|--|----------------------------|
|  | VL - Very Low Residential  |  | VSC, VC, CC - Commercial Centers |  | P, CP - Park               |
|  | L - Low Residential        |  | BP - Business Park               |  | CR - Commercial Recreation |
|  | M - Medium Residential     |  | I - Institutional                |  | OS - Open Space            |
|  | H - High Residential       |  | S - Schools                      |  | Minor Greenway             |
|  | VH - Very High Residential |  | U - Utility                      |  |                            |

N.A.P. - Not a Part

\*VSC - Visitor Serving Commercial  
 VC - Village Commercial  
 CC - Community Commercial

Source: The Planning Center 2011

# Alternative B- Previously Proposed Project

# Exhibit 8-1

Centennial Project



Map Not to Scale

## 8.4 ALTERNATIVES TO THE PROPOSED PROJECT

In accordance with Section 15126.6(a) of the State CEQA Guidelines (14 CCR), the discussion of alternatives in this section of the EIR focuses on a reasonable range of feasible alternatives.

Because the proposed Project was substantially reduced compared to the previously proposed project (Alternative B) in both development footprint and land use intensity to avoid and/or reduce environmental impacts, further consideration of a reduced development scenario (e.g., reduced grading footprint; reduced dwelling units; reduced non-residential square footage) was not considered reasonable. The current Project design is consistent with the Los Angeles County General Plan 2035 and the AVAP (a component of the General Plan and the applicable Area Plan for the site). Project implementation would require an amendment to the AVAP Highway Plan to show the proposed internal circulation network on the site in the Highway Plan. The Project site would also require a zone change to Specific Plan, consistent with the County's Zoning Ordinance (Title 22 of the County Code), to conform to the General Plan designation as well as the AVAP requirement for a Specific Plan for this EOA. A conditional use permit (CUP) for proposed grading quantities and another CUP for Project-related infrastructure would also be needed. However, the amendment, zone change, and CUPs would not change the land use designation; allow more development; or reduce open space areas. Thus, no conflict with local land use plans, regulations and policies would occur. In addition, the Project would be consistent with applicable SCAG plans and policies, including the 2012–2035 RTP/SCS and 2016–2040 RTP/SCS.

Any reduction in the proposed unit count or in the amount of non-residential development that would be large enough to reduce a potentially significant environmental impact would also result in a development proposal that is not consistent with the goals and policies of the AVAP related to development within the West EOA, or supportive of the Project's objectives. Thus, alternative development scenarios were eliminated from further analysis in this EIR.

The following alternatives were also considered and eliminated from further analysis for the reasons identified in Section 8.4.1 below:

- Alternative Site within or near Tejon Ranch
- Public Input Alternative

Project land use alternatives that are feasible and that are considered in detail in this EIR include:

- **Alternative A:** No Project
- **Alternative B:** Previously Proposed Project (2004 NOP Described Project)
- **Alternative C:** Additional Drainage Avoidance
- **Alternative D:** Infrastructure Relocation
- **Alternative E:** Density Clustering/East of Aqueduct
- **Alternative F:** Central Economic Opportunity Area Development

Based on studies of natural resources (e.g., wildlife habitats and species) and physical constraints (e.g., landform, presence of the California Aqueduct, and the access road to the National Cement Plant) on the Project site, the Applicant recognized that stewardship of site resources should be a major factor in the formulation of any development plan. For this reason, the selection of Project alternatives has focused largely on the identification of changes in aspects of the Project that could avoid and/or minimize impacts on Project site resources.

Although most of the Project alternatives were formulated with the primary objective of avoiding or minimizing Project impacts on natural and physical resources, it should be noted that alternatives would also avoid or reduce other significant adverse impacts of the Project that cannot be mitigated to below a level of significance (as previously described in Section 5.0). Additionally, there are three environmental issues that have mitigation measures to minimize environmental impacts, but the ability to implement the mitigation measures is outside the authority of the County of Los Angeles, the Lead Agency under CEQA.

The first issue is traffic. Implementation of the needed improvements to SR-138 and I-5 must go through Caltrans review, approval, and implementation. These improvements are currently being evaluated for implementation and are expected to be developed in the future. The Project Applicant is working with Caltrans to ensure that the improvements proceed in the needed timeframe. The second issue is noise impacts on existing noise-sensitive receptors. The Project Applicant has discussed this issue with the County, but the County has no enforcement mechanism on private properties and Caltrans right-of-way to implement noise reduction measures. The third issue relates to compliance with Assembly Bill (AB) 32. Even if the County implements measures to comply with their share of the greenhouse gas reduction, they have no control over the compliance of other areas outside the County and in other areas of the State of California. All of these issues are outside the authority of the County and the ability to mitigation to a less than significant level cannot be assured.

In summary, Project-related significant and unavoidable topical areas that are addressed by the alternatives include:

- Air Resources
- Biological Resources
- Climate Change
- Land Resources (Agricultural)
- Noise
- Population and Growth-Inducing Impacts
- Traffic, Access and Circulation
- Solid Waste
- Visual Resources
- Water Resources

## 8.4.1 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD

The planning process that formulated the Project identified a variety of alternatives that could meet most Project Objectives. The following alternatives from that group are not being carried forward as viable Project alternatives for the reasons noted.

### Alternative Site within or Near Tejon Ranch

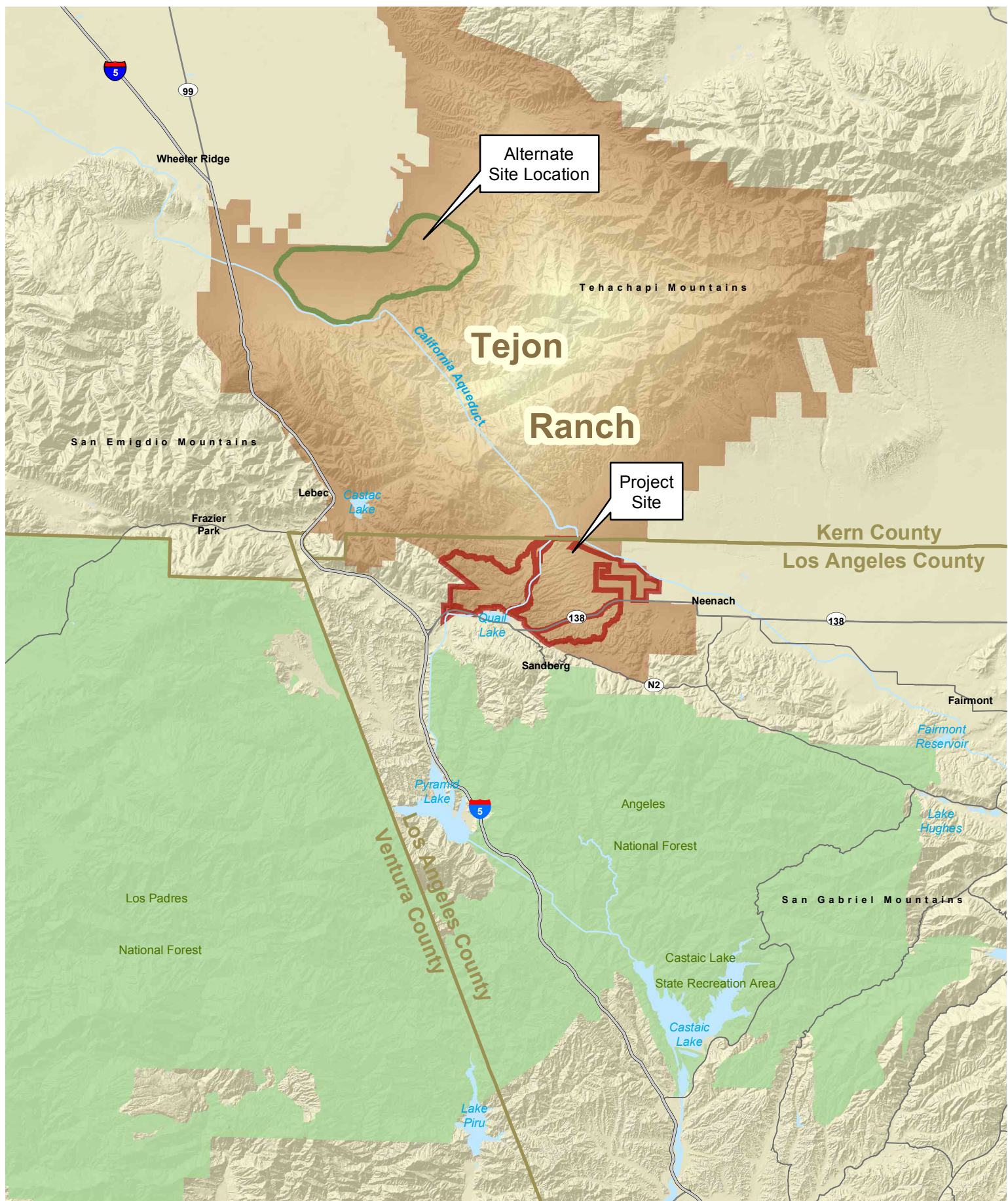
The use of an Alternative site for development of the Project would lead to the same development intensity and type of land uses as the proposed Project but on a different site within or near Tejon Ranch. The alternative site within Tejon Ranch would be the same approximate size and would be located west of the Tejon Industrial Complex Project in Kern County (See Exhibit 8-2, Alternative Site Location within Tejon Ranch).

Additional sites near the Tejon Ranch were also evaluated, including the area on the north side of SR-138 east of the proposed Project site and outside the Tejon Ranch. Much of the land in the immediate Project vicinity is currently under conservation or public ownership and is not available for development, it is already developed, or it has a development application pending for the property, limiting the options for an alternative site to areas farther east.

This alternative was not carried forward for the following reasons:

1. The biological impacts would be greater as the site within the Tejon Ranch is part of the known San Joaquin kit fox habitat area and movement corridor. The kit fox is a federally listed Endangered species and a State-listed Threatened species. Also, there are some areas east of the Project site and north of SR-138 that are within the Joshua Woodlands SEA, which would have to be avoided by the alternative site.
2. The traffic associated with these alternatives would be difficult to mitigate because regional access to the alternative site within the Tejon Ranch would need to use the Tejon Industrial Complex off-ramps from I-5, which are already planned for extensive use by the development in place and entitled for the Tejon Industrial Complex. The alternative site east of the proposed Project site would be located farther away from the I-5 and a linkage to regional traffic routes would limit accessibility.
3. The site alternative within Tejon Ranch would create greater traffic on I-5 because it would not be accessible from SR-138, a major regional route, resulting in greater traffic impacts. The alternative site east of the Project site would direct more traffic to SR-14, resulting in greater impacts to this freeway.
4. The alternative site within the Tejon Ranch would not address the projected population and housing growth in Northern Los Angeles County, as the alternative site is outside Los Angeles County, in Kern County. The other alternative site would be located outside an EOA and would not be consistent with County and regional growth projections.
5. These alternative sites are not currently zoned for the types and densities/intensities of development proposed by the Project, whereas the proposed Project is consistent with the recently adopted AVAP.



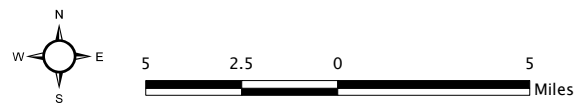


D:\Projects\3CEN\Centennial\MXDEIR\EX\_Alt\_Site\_Location\_20151124.mxd

## Alternative Site Location Within Tejon Ranch

Exhibit 8-2

Centennial Project



6. The Project's planned development is not allowed in areas east of the site that are designated as Rural Preserve Areas and Agricultural Reserve Areas by the AVAP.
7. Multiple ownerships of lands east of the site may not allow for the assembly of a contiguous 12,323-acre alternative site east of the Project site.
8. An alternative site within or near the Tejon Ranch would not lessen or avoid significant impacts to visual resources, traffic, noise, and air quality, and offers no substantial benefits that are not addressed by other alternatives.

Thus, alternative sites for the Project within or near Tejon Ranch were considered infeasible and eliminated from further consideration.

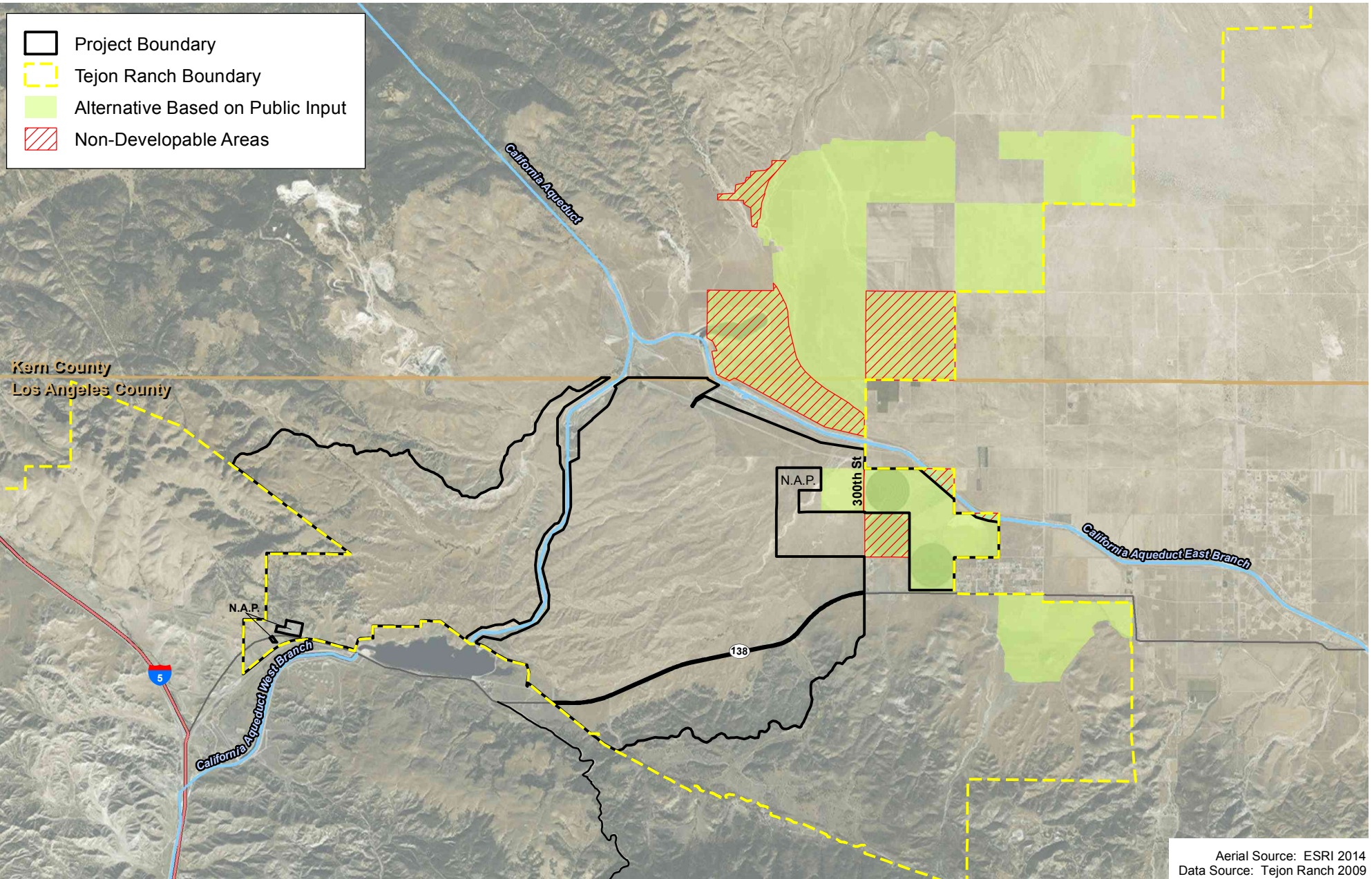
### **Public Input Alternative**

The Public Input Alternative would include the development of approximately 4,990 acres of land located east and northeast of the Project site within 5 separate and noncontiguous areas, as shown on Exhibit 8-3, Public Input Alternative. This alternative was originally suggested by the Conservation Biology Institute and South Coast Wildlands as part of a review of development proposals within the Tejon Ranch (CBI and SCW 2006), prior to approval of the AVAP. The report, entitled *Proposed Reserve Design for Tejon Ranch: A Threatened California Legacy*, indicates that the primary purpose of this approach would be to design a wildland reserve for Tejon Ranch that would conserve a connection among grassland areas in the San Joaquin Valley. The overall plan, presented as the Ranchwide Planning Analysis in the report, encompasses the entire 270,000-acre Tejon Ranch property. The Ranchwide Planning Analysis would set aside the majority of the Tejon Ranch property as open space, with only 5 parcels totaling approximately 6,820 acres identified for future development. Of the total 6,820 acres identified for development, approximately 1,835 acres were eliminated from this Alternative due to land use conflicts. Therefore, this Public Input Alternative would encompass approximately 4,990 acres of developable land as identified on Exhibit 8-3. This Alternative would reflect an approximate 33 percent decrease in developable acreage and does not provide enough acreage to include both Project-proposed land uses and on-site natural open space areas. Because of the reduction in developable acreage, and because this Alternative would leave a substantial amount of off-site land within the Ranch undeveloped, this Alternative includes no on-site natural open space preserve areas.

This alternative does not meet the objectives of the Project and is not consistent with the Land Use Policy Map of the AVAP (e.g., portions of the alternative site are designated as Open Space Conservation). This alternative would also lead to the unavoidable loss of agricultural land, similar to the Project. Therefore, it would not reduce or avoid the significant impacts of the Project and was not carried forward as a viable alternative.



D:\Projects\CEN\Centennial\MXD\EIR\Ex\_Alt\_Public\_Input\_20151124.mxd

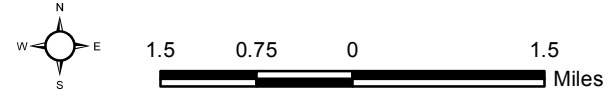


Aerial Source: ESRI 2014  
Data Source: Tejon Ranch 2009

### Public Input Alternative

### Exhibit 8-3

Centennial Project





## 8.4.2 ALTERNATIVES ANALYZED

Included among the six alternatives evaluated in this Draft EIR are: the No Project Alternative, as required by CEQA, and five development alternatives to the proposed Project. The alternatives that would involve development on the Project site have been formulated to provide distinctly different approaches to managing on-site resources and constraints. The mix of land uses proposed for each of the alternatives is generally the same, although they have different densities and/or configurations. The land uses allowed in each land use category are assumed to be the same as those described in Section 4.0, Project Description. Similarly, the restrictions associated with each of the land uses (as contained in the Specific Plan) would also apply to each of the alternatives. These alternatives are summarized in Table 8-1, Centennial Specific Plan Alternatives Comparison, and a description of each follows the table.

**TABLE 8-1  
CENTENNIAL SPECIFIC PLAN ALTERNATIVES COMPARISON**

	Centennial Project	Alternative A No Project	Alternative B Previously Proposed Project	Alternative C Additional Drainage Avoidance	Alternative D Infrastructure Relocation	Alternative E Density Clustering/East of Aqueduct	Alternative F Central EOA Development
<b>Project Site</b>	12,323 ac	12,323 ac	11,676 ac	12,323 ac	12,323 ac	12,323 ac	12,323 ac (within 23,930- ac EOA)
<b>Open Space</b>	5,624 ac	12,323 ac <sup>a</sup>	3,829 ac	5,661 ac	5,612 ac	6,280 ac	5,624 ac
<b>Residential Area</b>	4,987 ac	0 ac	3,982.5 ac	4,952 ac	4,984 ac	4,519 ac	4,987 ac
<b>Dwelling Units</b>	19,333 du	0 du	22,998 du	19,241 du	19,333 du	19,333 du	19,333 du
<b>Non-Residential Area<sup>a</sup></b>	699 ac	0 ac	884.5 ac	678 ac	699 ac	650 ac	699 ac
<b>Non-Residential Floor Area (msf)</b>	10.10 msf	0 msf	14.22 msf	9.90 msf	10.10 msf	10.10 msf	10.10 msf
<b>Civic and Institutional Uses<sup>b</sup></b>	684 ac	0 ac	943.3 ac	699 ac	720 ac	632 ac	684 ac
<b>Public Rights-of-Way<sup>c</sup></b>	327 ac	0 ac	2,036.7 ac <sup>c</sup>	327 ac	327 ac	303 ac	327 ac
EOA: Economic Opportunity Area; ac: acres; du: dwelling unit; msf: million square feet							
a includes Commercial, Business Park, and Employment areas							
b includes Schools, Golf Course, Parks, and Utilities							
c includes roads, greenways, internal slopes							
Note: Acreage for all categories is conceptual gross acreage and does not include transitional slopes and/or internal slopes. Actual totals may vary with future detailed planning. Total for Project site may not add due to rounding.							

### **Alternative A: No Project Alternative**

Alternative A assumes that existing cattle grazing and agricultural land uses would remain and that no new development would occur on the Project site.

### **Alternative B: Previously Proposed Project (2004 NOP Described Project)**

Alternative B covers approximately 11,676 acres and was proposed to include 7,847 acres of development planning areas and 3,829 acres of natural open space. Alternative B would allow for the development of a maximum of 22,998 dwelling units on approximately 3,982.5 acres; approximately 12,233,390 square feet (sf) of employment-generating uses (office, research and development, and warehousing or light manufacturing uses) on approximately 702.1 acres; and approximately 1,986,336 sf of retail-serving centers on approximately 182.4 acres. Proposed sites for civic and institutional land uses, such as schools, fire and police stations, transit centers, and a library would cover approximately 943.3 acres. Approximately 1,917.5 acres (16.4 percent) of the 11,676-acre site is for active and passive recreational use (in the form of parks, commercial recreation, greenways, and slopes) and 3,829.1 acres (approximately 32.8 percent of the site) as natural open space. Alternative B also includes vehicular and non-vehicular circulation systems and proposed improvements to SR-138, Gorman Post Road, and 300<sup>th</sup> Street West. The conceptual site plan for Alternative B, the Previously Proposed Project, is shown in Exhibit 8-1. This is a larger alternative than the proposed Project, and would have accommodated a greater share of the County's anticipated growth within the same overall urbanized area, and potentially reduce the need for urbanized development in other areas in Antelope Valley.

### **Alternative C: Additional Drainage Avoidance**

In order to lessen the significant biological resource impacts requiring mitigation, Alternative C includes additional avoidance of drainages on the site that are not being preserved as natural open space in the proposed Project. By decreasing the impact footprint to avoid some of the tributaries to Oso Canyon and the drainage channel running north of and roughly parallel to SR-138, biological resource impacts to riparian communities and wetlands, including jurisdictional resources, would be minimized. These drainages would be designated as Open Space.

Under Alternative C, the development scenario would reduce the development footprint by approximately 37 acres, mainly consisting of the following:

- Two locations in the business park area south of SR-138 (one location west of 300<sup>th</sup> Street West and the other location east of Old Ridge Route).
- Residential areas north of SR-138 and east of the Institutional/Civic Area.
- A business park area north of SR-138 and west of the Institutional/Civic Area.
- A residential area north of SR-138 near National Cement Plant Road.

- Residential areas north of SR-138 and east and west of the main entry driveway to the site.
- Residential areas west of the Aqueduct.

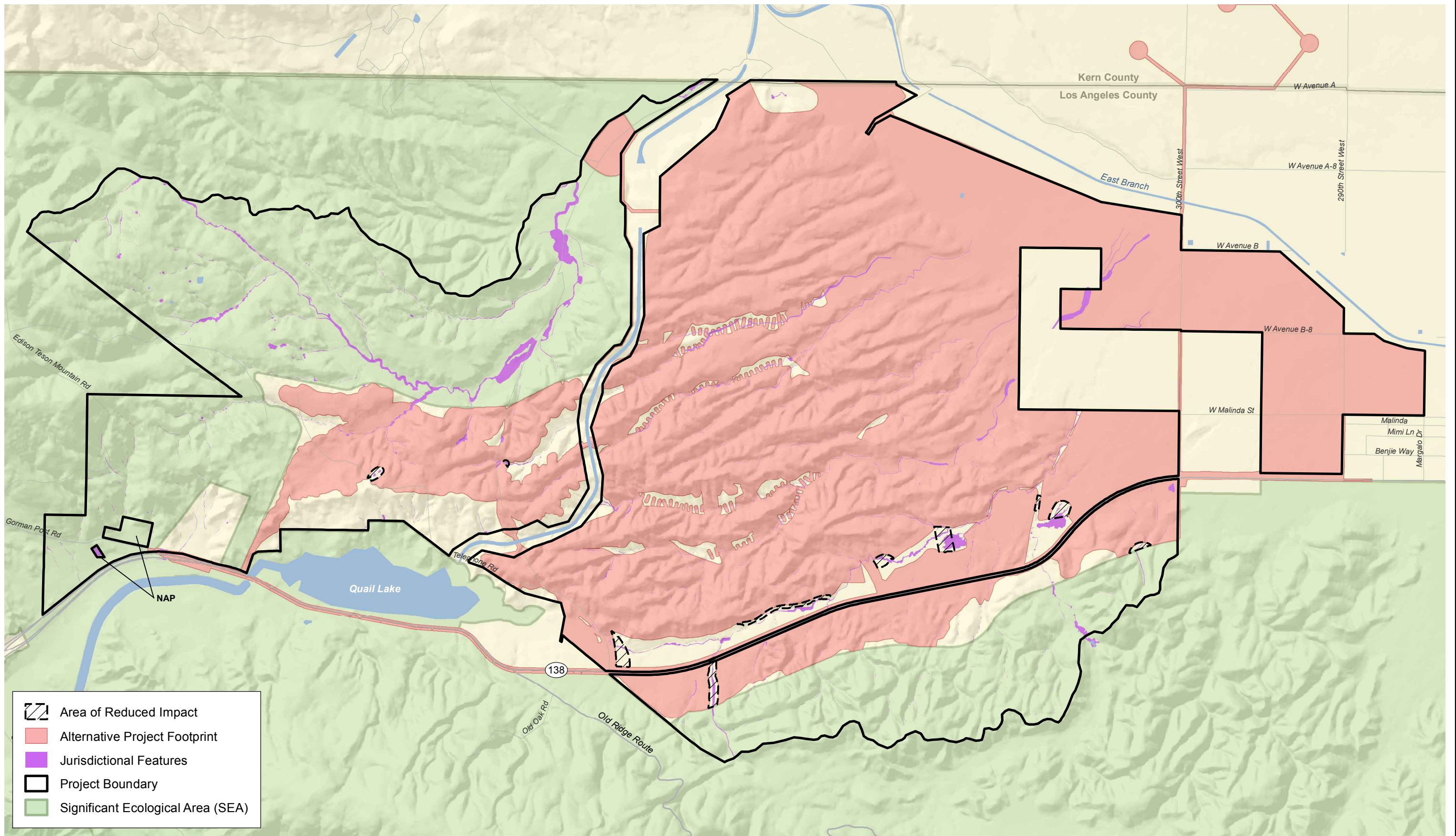
These areas cover approximately 37 acres that would not be developed and would instead be preserved as open space under Alternative C. The main benefit of Alternative C is that it would reduce impacts to jurisdictional drainages that indirectly function as wildlife movement corridors and serve important ecological functions. Alternative C focuses primarily on reducing impacts to drainages or wetlands with high habitat value or those providing connectivity with other high value open space areas. Exhibit 8-4, Alternative C – Additional Drainage Avoidance, depicts the impact and avoidance areas.






### **Alternative D: Infrastructure Relocation**

Alternative D involves the relocation of the two water tanks and the water treatment plant (WTP) to other areas on the Project site. The proposed relocated infrastructure is depicted in Exhibit 8-5, Alternative D – Infrastructure Relocation Alternative. The water tank at the western section of the Project site would be relocated to a higher elevation, west of its current location and in the San Andreas SEA. This location would eliminate the need to grade the tank site and avoid the need for a hydro-pneumatic pumping system. A hydro-pneumatic system uses more energy and also requires stable ongoing energy to avoid pump operational disruptions in the event of a power outage. This type of system has backup generators; however, it is subject to potential outages, even if temporary. Locating the tank at a higher location would result in a more reliable system due to the ability to rely on a gravity system.

The water tank in the proposed Project located to the north of SR-138 would be relocated south of the SR-138 and of the Business Park to a higher elevation, and also located within the San Andreas SEA. At the new location, the tank would be less visible from SR-138 and other areas to the north, since this location is behind a ridge. Approximately 16 acres of additional land would be disturbed and reduced from preservation.

For the water treatment facility, even though the proposed site is outside the San Andreas SEA boundaries, it is located within the Oso Creek drainage, a sensitive habitat. Alternative D would relocate the facility further south to avoid the Oso Creek drainage, thereby eliminating potential Project impacts to the creek and sensitive habitats in the creek. It would also avoid impacts associated with access roads that would be located in the creek. The new location would be at a higher elevation, which would require less pumping of water to the higher elevations, resulting in cost savings and air quality emissions and GHG reductions. While this location is within the San Andreas SEA, it supports less sensitive biological resources than the currently proposed location. No change in development capacity would occur under this Alternative.

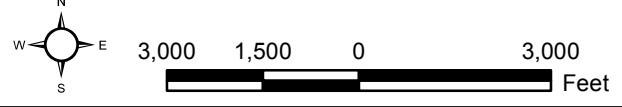


-  Area of Reduced Impact
-  Alternative Project Footprint
-  Jurisdictional Features
-  Project Boundary
-  Significant Ecological Area (SEA)

**Alternative C- Additional Drainage Avoidance**

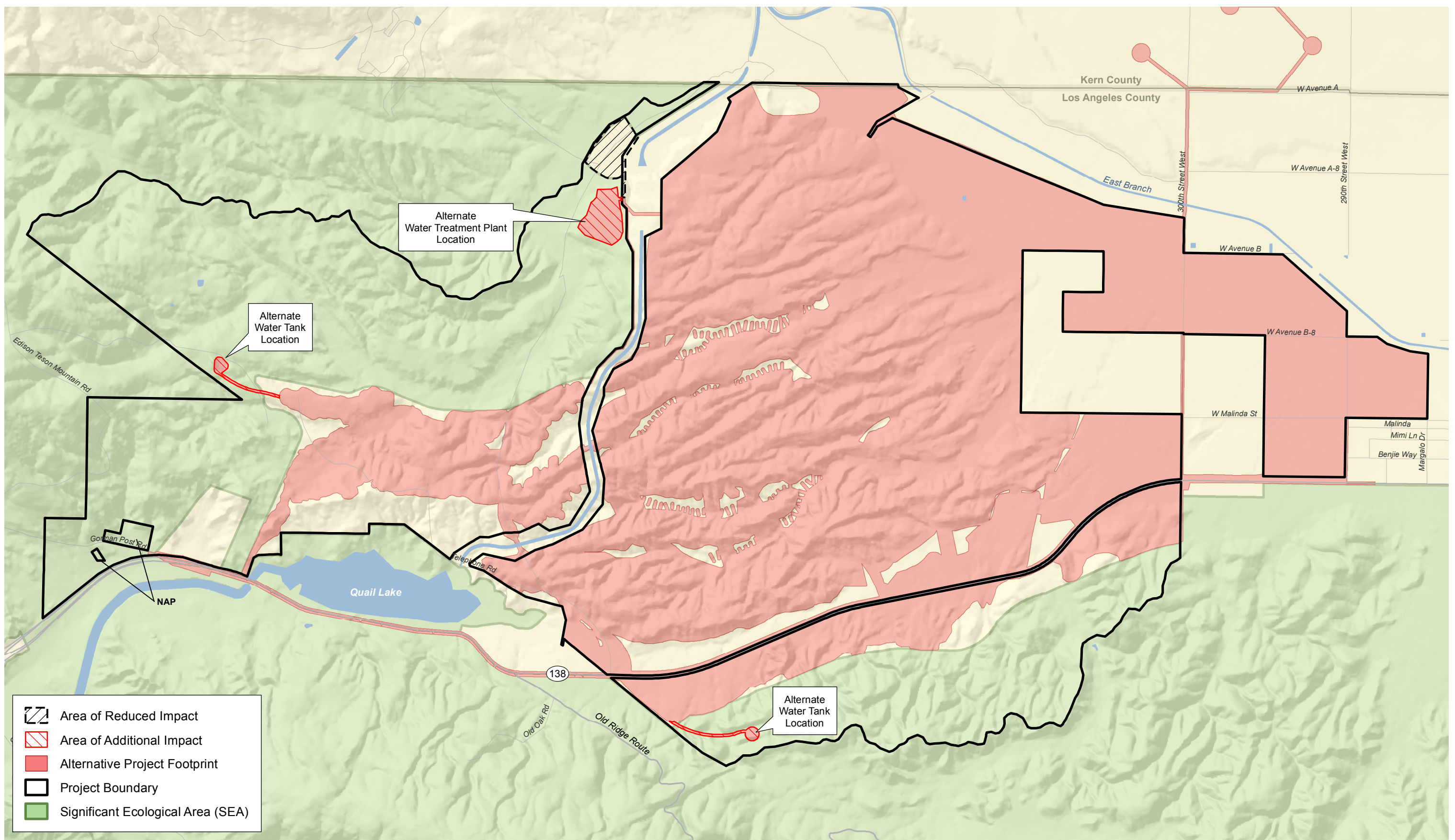
**Exhibit 8-4**






Centennial Project



D:\Projects\3\CEN\Centennial\MXD\EIR\Ex\_8-4\_alt\_juris\_20151124.mxd



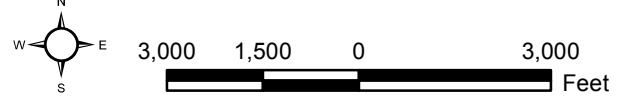


-  Area of Reduced Impact
-  Area of Additional Impact
-  Alternative Project Footprint
-  Project Boundary
-  Significant Ecological Area (SEA)

**Alternative D – Infrastructure Relocation Alternative**

**Exhibit 8-5**

Centennial Project



D:\Projects\302\CEN\Center\Map\MXD\EIR\Ex\_8-5\_infra\_20151124.mxd

## **Alternative E: Density Clustering/East of Aqueduct**

Alternative E involves relocating proposed land use development from the east and west portions of the Project site to the central portion of the site, while maintaining the same number of dwelling units, employment-generating uses, and other land uses, in a higher density cluster development pattern. As shown on Exhibit 8-6, Alternative E – Density Clustering/East of Aqueduct Alternative, all development on the west side of the California Aqueduct, except the Cement Plant Road realignment, would be transferred to the areas located east of the Aqueduct. This includes proposed Village 9 and the small area of Commercial, totaling approximately 656 acres of land that would remain undeveloped. Additionally, the new bridge crossing would be eliminated under this alternative.

To the east of 300<sup>th</sup> Street West, the Low Density Residential-designated lands would instead be designated as Very Low Density Residential. The net reduction in dwelling units and the small area of Commercial would be transferred to areas located west of 300<sup>th</sup> Street West. The transferred dwelling units would be accommodated within the existing residential land use density ranges in Village 3 (i.e., the town center); the transferred Commercial land uses would be accommodated in the Business Park designation along SR-138. The 44-acre WTP (located west of the Aqueduct) would be relocated to the westernmost portion of the 102-acre on-site water bank/infiltration basin in the Utility-designated area along the northeastern border of the Project site (refer to Exhibit 4-13, Centennial Project – Conceptual Domestic Water System).

## **Alternative F: Central Economic Opportunity Area Development**

Alternative F considers the AVAP's Central EOA as an alternative location. As shown in Exhibit 8-7, Alternative F – Central Economic Opportunity Area Development, the 23,930-acre Central EOA is an irregularly shaped area located generally between the northern boundary of the City of Lancaster and the Los Angeles County-Kern County border. It is traversed by SR-138 in an east-west direction, and by SR-14 and Sierra Highway in a north-south direction. This alternative assumes that the same types of land uses, amount of development, public facilities, and other amenities as the proposed Project (see Table 4-3 in Section 4.0, Project Description) would be developed within an approximate 12,323-acre, contiguous portion of the EOA.

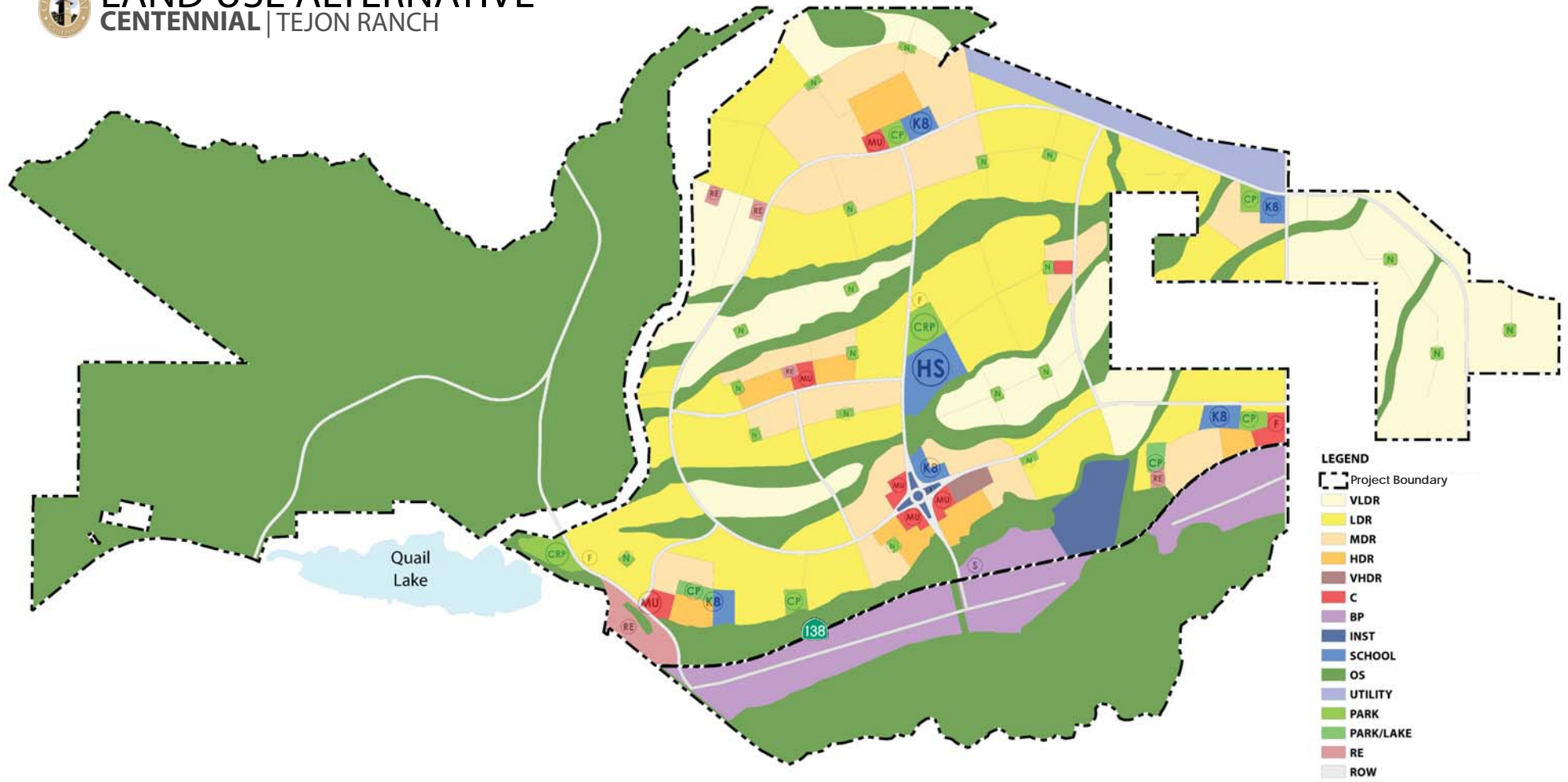
### **8.4.3 COMPARISON OF ALTERNATIVES**

Table 8-2 provides a summary comparison of each alternative's impacts to those that would occur as a result of the Project. The comparison states whether an alternative has a level of impact that is "less than", "similar" (i.e., generally similar in scale and/or scope), or "greater than" the proposed Project and also identifies each alternative's associated net level of impact: "no impact", "less than significant impact", "impact mitigated", or "significant and unavoidable". When considered together, these factors define the comparative impact for each environmental topic and those of the proposed Project.



# LAND USE ALTERNATIVE

## CENTENNIAL | TEJON RANCH



- LEGEND**
- Project Boundary
  - VLDR
  - LDR
  - MDR
  - HDR
  - VHDR
  - C
  - BP
  - INST
  - SCHOOL
  - OS
  - UTILITY
  - PARK
  - PARK/LAKE
  - RE
  - ROW

Source: Placeworks 2016, Psomas 2017

### Alternative E - Density Clustering/East of Aqueduct

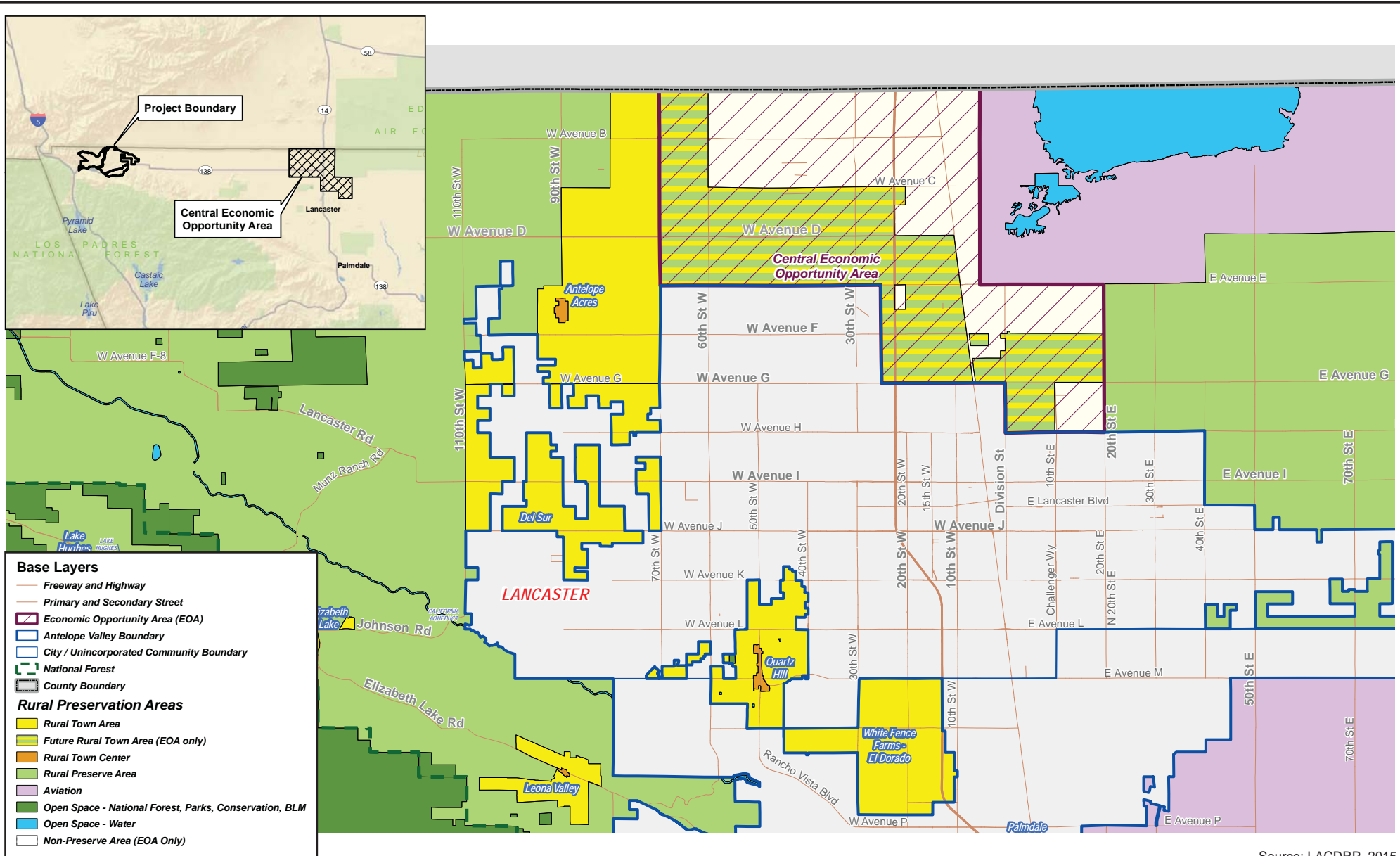
### Exhibit 8-6

Centennial Project





D:\Projects\CEN\Centennial\Graphics\EIR\EX\_AV\_AltF\_20160429.ai



**Base Layers**

- Freeway and Highway
- Primary and Secondary Street
- ▨ Economic Opportunity Area (EOA)
- ▭ Antelope Valley Boundary
- ▭ City / Unincorporated Community Boundary
- ▭ National Forest
- ▭ County Boundary

**Rural Preservation Areas**

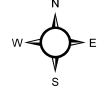
- ▭ Rural Town Area
- ▭ Future Rural Town Area (EOA only)
- ▭ Rural Town Center
- ▭ Rural Preserve Area
- ▭ Aviation
- ▭ Open Space - National Forest, Parks, Conservation, BLM
- ▭ Open Space - Water
- ▭ Non-Preserve Area (EOA Only)

Source: LACDRP 2015

# Alternative F - Central Economic Opportunity Area Development

# Exhibit 8-7

Centennial Project



**TABLE 8-2  
COMPARISON OF ALTERNATIVES' IMPACTS TO THE CENTENNIAL PROJECT**

<b>Topic</b>	<b>Centennial Project</b>	<b>Alternative A No Project</b>	<b>Alternative B Previously Proposed Project</b>	<b>Alternative C Additional Drainage Avoidance</b>	<b>Alternative D Infrastructure Relocation</b>	<b>Alternative E<sup>a</sup> Density Clustering/East of Aqueduct</b>	<b>Alternative F Central EOA Development</b>
<b>5.1 Geotechnical</b>							
Rupture of earthquake fault	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Less than/ Impact Mitigated	Less than/ Impact Mitigated
Seismic ground shaking and liquefaction, lateral spreading	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Less than/ Less than Significant
Landslides	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Less than/ Impact Mitigated
Erosion and Loss of Topsoil	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Less than/ Impact Mitigated
Unstable or expansive soils	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Conflict with hillside standards	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Less than/ No Impact
<b>5.2 Hydrology and Flood</b>							
Drainage patterns: erosion and siltation	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Less than/ Impact Mitigated
Drainage patterns: flooding	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Less than/ Impact Mitigated
Storm water runoff	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated
Conflict with LID standards	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Storm drainage capacity	Less than Significant	Less than/ No Impact	Greater than/ Less than Significant	Less than/ Less than Significant	Similar/ Less than Significant	Less than/ Less than Significant	Similar/ Less than Significant
100-Year Floodplain: housing	Impact Mitigated	Less than/ No Impact	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Greater than/ Impact Mitigated
100-Year Floodplain: structures	Impact Mitigated	Less than/ No Impact	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Greater than/ Impact Mitigated
Flooding hazards	Impact Mitigated	Less than/No Impact	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Greater than/ Impact Mitigated

**TABLE 8-2  
COMPARISON OF ALTERNATIVES' IMPACTS TO THE CENTENNIAL PROJECT**

<b>Topic</b>	<b>Centennial Project</b>	<b>Alternative A No Project</b>	<b>Alternative B Previously Proposed Project</b>	<b>Alternative C Additional Drainage Avoidance</b>	<b>Alternative D Infrastructure Relocation</b>	<b>Alternative E<sup>a</sup> Density Clustering/East of Aqueduct</b>	<b>Alternative F Central EOA Development</b>
Inundation: seiche, tsunami, or mudflow	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Standing water	Impact Mitigated	Less than/ No Impact	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
<b>5.3 Hazards and Fire Safety</b>							
Hazardous materials	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Listed on hazardous materials site	Impact Mitigated	Less than/ No Impact	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Airport or airstrip hazards	Less than Significant	Less than/ No Impact	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Greater than/ Impact Mitigated
Emergency response plan	Impact Mitigated	Less than/ No Impact	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant
Wildland fires and fire hazards	Impact Mitigated	Greater than/ Impact Mitigated	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Less than/ Impact Mitigated
<b>5.4 Water Quality</b>							
Surface water standards or waste discharge requirements	Impact Mitigated	Less than/ No Impact	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Surface water and groundwater quality	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than / Impact Mitigated	Greater than / Impact Mitigated	Less than / Impact Mitigated	Similar/ Impact Mitigated
Pollutant discharges to Areas of Biological Significance	No Impact	Less than/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact
Wastewater treatment systems	Impact Mitigated	Less than/ No Impact	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Water quality	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than / Impact Mitigated	Greater than / Impact Mitigated	Less than / Impact Mitigated	Similar/ Impact Mitigated
<b>5.5 Land Resources (Agriculture and Mineral Resources)</b>							

**TABLE 8-2  
COMPARISON OF ALTERNATIVES' IMPACTS TO THE CENTENNIAL PROJECT**

<b>Topic</b>	<b>Centennial Project</b>	<b>Alternative A No Project</b>	<b>Alternative B Previously Proposed Project</b>	<b>Alternative C Additional Drainage Avoidance</b>	<b>Alternative D Infrastructure Relocation</b>	<b>Alternative E<sup>a</sup> Density Clustering/East of Aqueduct</b>	<b>Alternative F Central EOA Development</b>
Farmland conversion	Significant and Unavoidable (direct and cumulative)	Less than/ No Impact	Less than/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable
Conflict with Williamson Act contract or zoning	Less than Significant	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact
Conflict with zoning for forest land or timberland	No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact
Loss of forest land	No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact
Indirect conversion of Farmland or Forest land	No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact
Loss of mineral resources	No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact
<b>5.6 Cultural and Tribal Resources</b>							
Historical and archaeological resources	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated
Paleontological resources	Impact Mitigated	Less than/No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated
Human remains	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated
<b>5.7 Biological Resources</b>							
Sensitive species	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Less than/ Impact Mitigated
Riparian or other sensitive community	Impact Mitigated (direct)/Significant and Unavoidable (cumulative)	Less than/ No Impact	Greater than/ Impact Mitigated (direct)/Significant and Unavoidable (cumulative)	Less than/ Impact Mitigated (direct)/Significant and Unavoidable (cumulative)	Greater than/ Impact Mitigated (direct)/Significant and Unavoidable (cumulative)	Less than/ Impact Mitigated (direct)/Significant and Unavoidable (cumulative)	Less than/ Impact Mitigated (direct)/Impact mitigated (cumulative)
Wetlands	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated	Less than/ Impact Mitigated	Less than/ Impact Mitigated
Wildlife movement	Impact Mitigated (direct)/Significant	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated	Less than/	Less than/

**TABLE 8-2  
COMPARISON OF ALTERNATIVES' IMPACTS TO THE CENTENNIAL PROJECT**

<b>Topic</b>	<b>Centennial Project</b>	<b>Alternative A No Project</b>	<b>Alternative B Previously Proposed Project</b>	<b>Alternative C Additional Drainage Avoidance</b>	<b>Alternative D Infrastructure Relocation</b>	<b>Alternative E<sup>a</sup> Density Clustering/East of Aqueduct</b>	<b>Alternative F Central EOA Development</b>
	and Unavoidable (cumulative)		(direct)/Significant and Unavoidable (cumulative)	(direct)/Significant and Unavoidable (cumulative)	(direct)/Significant and Unavoidable (cumulative)	Impact Mitigated (direct)/Significant and Unavoidable (cumulative)	Impact Mitigated (direct and cumulative)
Oak woodlands and ordinances to protect biological resources (oak trees)	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Less than/ Impact Mitigated	Less than/ Impact Mitigated
Habitat conservation plan	No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact
<b>5.8 Land Use, Entitlements, and Planning</b>							
Division of a community	No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact
Conflict with land use policies	No Impact	Similar/ No Impact	Greater than/ Less than Significant	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Greater than/ Significant and Unavoidable
Conflict with zoning	Less than Significant	Less than/ No Impact	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant
Conflict with SEA and hillside criteria	Less than Significant	Less than/ No Impact	Greater than/ Less than Significant	Similar/ Less than Significant	Greater than/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant
<b>5.9 Population, Housing, and Employment and Growth-Inducing Impacts</b>							
Induce population growth or cumulatively exceed population projections	Significant and Unavoidable	Less than/ No Impact	Greater than/ Significant and Unavoidable	Less than/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Greater than/ Significant and Unavoidable
Displace housing or people	Less than Significant	Less than/ No Impact	Similar/ Less than Significant	Similar/ Less than significant	Similar/ Less than Significant	Similar/ Less than Significant	Greater than/ Less than Significant
Growth-Inducing	Significant and Unavoidable	Less than/ No Impact	Greater than/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Greater than/ Significant and Unavoidable
<b>5.10 Traffic, Access, and Circulation</b>							
Circulation system performance	Significant and Unavoidable (direct and cumulative)	Less than/ No Impact	Greater than/ Significant and Unavoidable	Less than/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Greater than/ Significant and Unavoidable

**TABLE 8-2  
COMPARISON OF ALTERNATIVES' IMPACTS TO THE CENTENNIAL PROJECT**

<b>Topic</b>	<b>Centennial Project</b>	<b>Alternative A No Project</b>	<b>Alternative B Previously Proposed Project</b>	<b>Alternative C Additional Drainage Avoidance</b>	<b>Alternative D Infrastructure Relocation</b>	<b>Alternative E<sup>a</sup> Density Clustering/East of Aqueduct</b>	<b>Alternative F Central EOA Development</b>
CMP consistency	Significant and Unavoidable (direct and cumulative)	Less than/ No Impact	Greater than/ Significant and Unavoidable	Less than/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Greater than/ Significant and Unavoidable
Air Traffic	Less than Significant	Less than/ No Impact	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Greater than/ Less than Significant
Traffic hazards and emergency access	Impact Mitigated	Less than/ No Impact	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Alternative transportation policies	No Impact	Less than/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact
<b>5.11 Air Resources</b>							
Air quality standards	Significant and Unavoidable	Less than/ No Impact	Greater than/ Significant and Unavoidable	Less than/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Less than Significant
Sensitive receptors	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Less than Significant
Air quality plan	Less than Significant	Less than/ No Impact	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant
Odors	Less than Significant	Less than/ No Impact	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Greater than/ Less than Significant
Cumulative increase in criteria pollutants	Significant and Unavoidable	Less than/ No Impact	Greater than/ Significant and Unavoidable	Less than/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Less than Significant
<b>5.12 Noise</b>							
Noise standards	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Groundborne vibration or noise	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Permanent increase in ambient noise	Significant and Unavoidable (direct and cumulative)	Less than/ No Impact	Greater than/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable
Temporary increase in ambient noise	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Public airport noise	No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Similar/ No Impact	Greater than/ Less than Significant

**TABLE 8-2  
COMPARISON OF ALTERNATIVES' IMPACTS TO THE CENTENNIAL PROJECT**

<b>Topic</b>	<b>Centennial Project</b>	<b>Alternative A No Project</b>	<b>Alternative B Previously Proposed Project</b>	<b>Alternative C Additional Drainage Avoidance</b>	<b>Alternative D Infrastructure Relocation</b>	<b>Alternative E<sup>a</sup> Density Clustering/East of Aqueduct</b>	<b>Alternative F Central EOA Development</b>
Private airstrip noise	Less than Significant	Less than/ No Impact	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Less than/ No impact
<b>5.13 Visual Resources</b>							
Scenic vista and visual quality	Significant and Unavoidable (direct and cumulative)	Less than/ No Impact	Greater than/ Significant and Unavoidable	Less than/ Significant and Unavoidable	Less than/ Significant and Unavoidable	Less than/ Significant and Unavoidable	Similar/ Significant and Unavoidable
Views from trails	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Less than/ Impact Mitigated	Less than/ Significant and Unavoidable	Similar/ Significant and Unavoidable
Damage to scenic resources within scenic highway	Less than Significant	Less than/ No Impact	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Less than/ Less than Significant	Similar/ Less than Significant
Light and glare	Significant and Unavoidable (direct and cumulative)	Less than/ No Impact	Greater than/ Significant and Unavoidable	Less than/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Less than/ Significant and Unavoidable	Similar/ Significant and Unavoidable
<b>5.14 Recreation</b>							
Increase use of existing parks	Less than Significant	Less than/ No Impact	Greater than/ Less than Significant	Less than/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant
Recreational facilities	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated
Regional open space connectivity	Less than Significant	Less than/ No Impact	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant
Park capacity or service levels	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Greater than/ Impact Mitigated	Similar/ Impact Mitigated
<b>5.15 Education</b>							
School services	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
<b>5.16 Fire and Law Enforcement</b>							
Fire Services	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Law Enforcement Services	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated

**TABLE 8-2  
COMPARISON OF ALTERNATIVES' IMPACTS TO THE CENTENNIAL PROJECT**

<b>Topic</b>	<b>Centennial Project</b>	<b>Alternative A No Project</b>	<b>Alternative B Previously Proposed Project</b>	<b>Alternative C Additional Drainage Avoidance</b>	<b>Alternative D Infrastructure Relocation</b>	<b>Alternative E<sup>a</sup> Density Clustering/East of Aqueduct</b>	<b>Alternative F Central EOA Development</b>
<b>5.17 Other Public Services (Library, Solid Waste, Other Public Facilities)</b>							
Library Services	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Solid Waste Management	Significant and Unavoidable (direct and cumulative)	Less than/ No Impact	Greater than/ Significant and Unavoidable	Less than/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable
Other public facilities	Less than Significant	Less than/ No Impact	Greater than/ Less than Significant	Less than/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant	Similar/ Less than Significant
<b>5.18 Water Resources</b>							
Water supplies	Impact Mitigated (direct)/Significant and Unavoidable (cumulative)	Less than/ No Impact	Greater than/ Significant and Unavoidable (direct)/Significant and Unavoidable (cumulative)	Less than/ Impact Mitigated (direct)/Significant and Unavoidable (cumulative)	Similar/ Impact Mitigated (direct)/Significant and Unavoidable (cumulative)	Less than/ Impact Mitigated (direct)/Significant and Unavoidable (cumulative)	Greater than/ Impact Mitigated (direct)/Significant and Unavoidable (cumulative)
Groundwater supplies	Less than Significant	Less than/ No Impact	Greater than/ Less than Significant	Less than/ Less than Significant	Similar/ Less than Significant	Less than/ Less than Significant	Greater than/ Impact Mitigated (direct)/Significant and Unavoidable (cumulative)
<b>5.19 Wastewater</b>							
Wastewater treatment requirements	Impact Mitigated	Less than/ No Impact	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Wastewater facilities	Impact Mitigated	Less than/ No Impact	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
<b>5.20 Dry Utilities (Electricity, Fossil Fuels, Telephone, and Cable Television)</b>							
Electrical capacity	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Natural gas capacity	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Telephone service	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated
Cable services	Impact Mitigated	Less than/ No Impact	Greater than/ Impact Mitigated	Less than/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated	Similar/ Impact Mitigated



**TABLE 8-2  
COMPARISON OF ALTERNATIVES' IMPACTS TO THE CENTENNIAL PROJECT**

<b>Topic</b>	<b>Centennial Project</b>	<b>Alternative A No Project</b>	<b>Alternative B Previously Proposed Project</b>	<b>Alternative C Additional Drainage Avoidance</b>	<b>Alternative D Infrastructure Relocation</b>	<b>Alternative E<sup>a</sup> Density Clustering/East of Aqueduct</b>	<b>Alternative F Central EOA Development</b>
<b>5.21 Climate Change</b>							
Significant emissions	Significant and Unavoidable (cumulative)	Less than/ No Impact	Greater than/ Significant and Unavoidable	Less than/ Significant and Unavoidable	Less than/ Significant and Unavoidable	Similar/ Significant and Unavoidable	Similar/ Significant and Unavoidable
Conflict with a policy or regulation	Less than Significant	Less than/ No Impact	Greater than/ Impact Mitigated	Similar/ Less than Significant	Less than/ Less than Significant	Similar/ Less than Significant	Greater than/ Significant and Unavoidable
<sup>a</sup> "Environmentally Superior" as defined by CEQA. Note: Cumulative impacts for each threshold summarized above are less than significant unless otherwise indicated by notation of a cumulative significant and unavoidable impact in parentheses.							

#### **8.4.4 ALTERNATIVE A: NO PROJECT**

Alternative A assumes that existing cattle grazing and agricultural land uses would remain and that no new development would occur on the Project site.

##### **Geotechnical**

There would be no building, grading activities, or increase in residential population or development with this Alternative. While impacts to seismic hazards (e.g., ground shaking, liquefaction), geologic hazards (e.g., landslides, expansive soils), and hillside management standards would be mitigated to less than significant under the proposed Project, no impacts would occur under this Alternative.

##### **Hydrology and Flood**

Alternative A would not involve changes to the existing hydrological conditions on the site. No urban runoff would be generated. While impacts related to hydrology would be mitigated to a less than significant level under the proposed Project, no impact on the existing hydrology would occur and no development would be exposed to flood hazards under this Alternative.

##### **Hazards and Fire Safety**

###### ***Hazards and Hazardous Materials***

Because Alternative A would not involve any development on the Project site, no impacts related to hazardous material uses or exposure to hazards would occur. The risk from existing hazards, Valley Fever, and wildlife-borne disease vectors would be avoided under this Alternative. Since there would be no construction, there would not be residents or construction workers on site that are exposed to risks. While the proposed Project would result in potentially significant impacts that would be mitigated to a less than significant level, no impacts related to hazards and hazardous materials would occur with this Alternative.

###### ***Fire Safety***

The potential for wildland fire within the Project site would be greater under this Alternative than with the proposed Project because no fire prevention program would be in place. However, without development on the site, the risk of injury to persons or major damage to structures would be less. Still, while the risk to persons would not be as great under this Alternative, the overall likelihood of a wildfire on the Project site would be increased under the No Project Alternative. No development-related impacts, per CEQA, would occur given implementation of Alternative A.

##### **Water Quality**

Because Alternative A would not involve new development on the site, no impacts on existing surface or ground water quality would occur.

## **Land Resources**

### ***Agriculture***

This Alternative would allow current grazing activities to continue, it would not eliminate ongoing agricultural production on Prime Farmland. The proposed Project would result in significant and unavoidable impacts, but no impacts on farmland would result with this Alternative.

### ***Mineral Resources***

As with the Project, Alternative A would not involve the loss of availability of a known mineral resource. No impact on mineral resources would result from implementation of either the proposed Project or this Alternative.

## **Cultural and Tribal Resources**

Because Alternative A would not involve any ground disturbance on the Project site, there would be no impacts related to historical, archaeological, tribal cultural, and paleontological resources or human remains.

## **Biological Resources**

Alternative A would not involve any disturbance to the Project site, although existing agricultural activities and other on-site land uses would continue. Therefore, no impacts to biological resources would occur.

## **Land Use, Entitlements, and Planning**

Under Alternative A, no changes to existing land uses would take place and no significant physical land use impacts would occur. The No Project Alternative would not disrupt or divide a community, create on-site land use incompatibility, or allow for development to meet the future housing and employment needs in Los Angeles County; therefore, it would not further regional planning efforts. Additionally, this Alternative would not be consistent with the intent of the AVAP or the West EOA within the Project's development footprint.

## **Population, Housing, and Employment and Growth-Inducing Impacts**

This Alternative would not help meet the projected housing needs of the region and no affordable housing units would be provided on-site. With no proposed residential development, Alternative A would not generate additional population even though an increased population is projected in the region. Also, this alternative would not create any long-term employment opportunities to balance out the employment demands associated with the residential population in the vicinity. No impacts would result from implementing this Alternative with respect to exceeding population projections or displacing housing, households or businesses, or growth-inducing impacts. However, this Alternative would not support the creation of jobs-housing balance in the Antelope Valley.

## **Traffic, Access, and Circulation**

Alternative A would not generate any new off-site daily trips and there would be no impacts to regional transportation systems (e.g., freeways, interchanges and arterials). Also, no changes to existing roads or access to SR-138 would occur under this Alternative.

## **Air Resources**

Because Alternative A would not involve new development or any changes to the existing land uses on the Project site, no impacts to air quality would occur.

## **Noise**

Because Alternative A would not involve new development or any changes to the land uses on the Project site, no impacts associated with noise would occur.

## **Visual Resources**

Because Alternative A would not involve new development or any changes to the physical characteristics of the Project site, no impacts on views of the site would occur. Also, no new sources of light and glare would be introduced to the area. As such, unlike the significant and unavoidable impacts projected to occur given implementation of the proposed Project, no impact to visual resources would occur under this Alternative.

## **Parks and Recreation**

Because Alternative A would not involve the generation of new residential population, no demand for parks or recreational facilities would be generated, and no impacts would occur.

## **Education**

Because Alternative A would not involve the generation of new residential population, no impacts to schools and educational services are expected.

## **Fire and Law Enforcement Services**

Given the lack of development on the site under the No Project Alternative, no impacts to fire and law enforcement services would occur under this Alternative, unlike the proposed Project, under which the related impacts to fire and law enforcement services would be mitigated to a less than significant level.

## **Other Public Services**

Because Alternative A would not involve new development on the site or the generation of new residential or business population, no impacts to other public services (e.g., library services, solid waste management, and other public facilities) would occur.

## **Water Resources**

Because Alternative A would not involve the generation of new residential or business population, no demand for water or impacts to water resources are expected with this Alternative.

## **Wastewater**

Because Alternative A would not involve the generation of new residential or business population, no impacts related to the generation of wastewater and the need for wastewater treatment are expected.

## **Dry Utilities**

Because Alternative A would not involve the generation of new residential or business population, no impacts related to the provision of new utility infrastructure would be required, and there would be no impacts.

## **Climate Change**

Because Alternative A would not involve new development or any changes to the land uses on the Project site, no impacts associated with GHG and climate change would occur.

## **Summary Conclusion**

Implementation of Alternative A would result in fewer impacts compared to the Project because no new development would occur on the site. Alternative A would not result in significant impacts related to most of the environmental issues, except for land use and fire safety. This Alternative is not consistent with the AVAP and the development anticipated on the site for the West EOA. As indicated above, the potential for wildland fire on the Project site would be greater under this Alternative due to the presence of large areas with brush vegetation and because no fire prevention program would be put in place.

The Project is proposed with the objective of creating a self-contained, self-sustaining community in which people could live and work in the same community; however, implementation of this Alternative would not support this primary goal due to the lack of new development or provision of any housing and employment opportunities on the site.

### **8.4.5 ALTERNATIVE B: PREVIOUSLY PROPOSED PROJECT**

The site under Alternative B covers approximately 11,676 acres in the same general area as the Project site. This Alternative would allow for the development of a maximum of 22,998 dwelling units on approximately 3,982.5 acres; approximately 12,233,390 square feet (sf) of employment-generating uses (office, research and development, and warehousing or light manufacturing uses) on approximately 702.1 acres; and approximately 1,986,336 sf of retail-serving centers on approximately 182.4 acres. Proposed sites for civic and institutional land uses, such as schools, fire and police stations, transit centers, or a library would cover

approximately 943.3 acres. Approximately 1,917.5 acres (approximately 16.42 percent) of the 11,676-acre site was proposed for active and passive recreational use (in the form of parks, commercial recreation, greenways, and slopes) and 3,829.1 acres (approximately 32.79 percent of the site) as natural open space. The Previously Proposed Project Alternative also included vehicular and non-vehicular circulation systems and proposed improvements to SR-138, Gorman Post Road, and 300<sup>th</sup> Street West.

## **Geotechnical**

As with the proposed Project, development of Alternative B would be subject to the same seismic hazards (e.g., ground shaking, liquefaction), geologic hazards (e.g., landslides, expansive soils), and hillside management standards. Because Alternative B has a larger grading impact area (e.g., approximately 640 additional acres) and would have a larger population that would be exposed to geotechnical hazards, including hazards located in the northwest portion of the Project site, all impacts would be greater under Alternative B. There would be less than significant impacts with the incorporation of mitigation for seismic and geologic hazards under this Alternative, similar to the Project. Less than significant impacts with respect to hillside grading would occur under this Alternative, similar to the Project.

## **Hydrology and Flood**

Implementation of Alternative B would create more impervious area than the proposed Project and changes to the existing hydrological conditions on the site would be greater than the proposed Project. Incrementally more urban runoff would also be expected with the greater amount of development on the site. As with the proposed Project, impacts related to hydrology would be less than significant under this Alternative with mitigation. Similar to the proposed Project, impacts related to floodplains would be less than significant with mitigation.

## **Hazards and Fire Safety**

### ***Hazards and Hazardous Materials***

Risks from existing hazards, Valley Fever, wildlife-borne disease vectors, and the use of urban-related hazardous materials would be greater for Alternative B than the proposed Project, as this Alternative would result in a 19 percent increase in the number of dwelling units and a 40.8 percent increase in non-residential development (commercial and employment-generating land uses). As with the proposed Project, impacts would be mitigated to a less than significant level. Similar to the proposed Project, this Alternative would result in less than significant impacts related to airport/airstrip hazards and emergency response or emergency evacuation plans.

### ***Fire Safety***

Exposure to wildland fire risks related to location in areas designated as Very High Fire Hazard Severity Zones (VHFHSZs) and High Fire Hazard Severity Zones (HFHSZs) would be greater than those with the proposed Project, given the proposed development in hillside

areas. The implementation of a fuel modification zone established with a Fire Management Plan would mitigate impacts to a less than significant level.

## **Water Quality**

The potential surface and groundwater quality impacts associated with Alternative B would be greater than those anticipated to occur from implementation of the proposed Project since Alternative B would disturb more acres than the proposed Project and would result in more development. However, the impacts under both the proposed Project and this Alternative to water quality would be less than significant with mitigation. This Alternative would result in similar impacts related to waste discharge requirements and wastewater treatment systems, as there would be the same types of land uses and number of WRFs as the proposed Project.

## **Land Resources**

### ***Agriculture***

This Alternative would have a reduced impact to agricultural resources when compared to the proposed Project since the site for this alternative does not include existing farmlands east of 300<sup>th</sup> Street West. The proposed residential development would eliminate ongoing agricultural production on approximately 120 acres of Prime Farmland, a reduction of 522 acres compared to the proposed Project. Like the proposed Project, this Alternative would not conflict with any Williamson Act contracts. As with the proposed Project, impacts related to the conversion of farmland would be significant and unavoidable under this Alternative.

### ***Mineral Resources***

As with the proposed Project, Alternative B would not involve the loss of availability of a known mineral resource. No impacts to mineral resources would occur under this Alternative.

## **Cultural and Tribal Resources**

Alternative B would result in disturbance of a larger area and impacts on unknown archaeological, tribal cultural, and paleontological resources or human remains would be greater than the proposed Project. It is anticipated that cultural resource-related impacts from implementation of Alternative B would be mitigated in the same manner as those for the proposed Project. Impacts related to cultural resources would be mitigated to a less than significant level.

## **Biological Resources**

Alternative B would disturb a substantially larger number of acres (approximately 640 acres of additional grading) than the proposed Project. In addition to the larger total area, approximately 500 acres of impacts are of much higher biological value for a variety reasons. Alternative B would shift impacts on nearly 500 acres of agricultural area to areas composed primarily of grasslands and other native vegetation types. Total impacts on grasslands would

increase by approximately 675 acres. Alternative B would also result in increased impacts of nearly 100 acres of riparian habitat, 174 acres of oak woodland, 31 acres of jurisdictional features, and 3,486 regulated oak trees. Two additional special status plant species (i.e., Piute Mountains navarretia and Lemmon's syntrichopappus) would be directly impacted and direct impacts to other special status plant populations would be substantially increased. Wildlife species impacts would also increase in general due to the shift from low diversity agricultural lands to higher diversity grasslands and other native vegetation. Also, there would be development impacts within the San Andreas SEA lands and the total open space preserve would be reduced compared to the proposed Project. Lastly, the location of the Alternative B impact area results in a reduced buffer of open space between the Project development areas and higher biological value areas and regional wildlife movement corridors associated with the higher elevation slopes to the west of the site. This reduced buffer would result in greater indirect impacts to these areas, a loss of connectivity through Oso Canyon for local movement, and a reduction in connectivity between open space preserve areas. Like the proposed Project, this Alternative would result in no impact related to habitat conservation plans and natural community conservation plans.

### **Land Use, Entitlements, and Planning**

Implementation of Alternative B would result in the development of a new master planned community at the northwestern section of Los Angeles County. However, this Alternative is not consistent with the land use designations for the site, as contained in the AVAP. A General Plan Amendment would be needed to reflect the proposed land uses. As with the proposed Project, this Alternative would not disrupt or divide a community, but would allow for development to meet the future housing and employment needs in Los Angeles County. Alternative B would exceed the approved population, housing, and employment projections included in the AVAP for the area. As with the proposed Project, a zone change and CUPs would be required under this Alternative. Impacts would be greater under this Alternative than with the Project.

### **Population, Housing, and Employment and Growth-Inducing Impacts**

With a Project site that is 5.3 percent smaller than the proposed Project site, this Alternative may initially appear to be less impactful. However, Alternative B would have 3,665 more residential units, over 4.12 million sf more commercial and business park development, and approximately 1,795 acres less of natural open space. Alternative B would have a larger residential population than would occur with the proposed Project. With the same 10 percent of units as affordable, this Alternative would develop more affordable housing units on-site. This alternative would accommodate more population and related development in a single urbanized community which, like the proposed Project, is designed to achieve a jobs-housing balance, and accordingly could reduce demand for growth elsewhere in the Antelope Valley. This alternative has greater population-related impacts relative to the existing setting than the proposed Project. Alternative B would exceed the approved population, housing, and employment projections included in the AVAP for the area, a significant impact not found for the proposed Project. As with the proposed Project,



displacement of housing would also be less than significant. Also, this Project would result in a greater significant and unavoidable impact related to growth-inducing impacts.

### **Traffic, Access, and Circulation**

Alternative B would provide 19 percent more dwelling units and 41 percent more employment-generating uses, both of which are the primary trip-generating land uses for the proposed Project. Therefore, this Alternative would result in increased off-site vehicle trips. Because this Alternative would have higher off-site trip generation levels, impacts to freeway mainline segments, freeway ramps, and arterial highway intersections would be greater. Significant impacts to the existing transportation system and Congestion Management Plan (CMP) highways would also occur under this Alternative.

This Alternative includes improvements to SR-138, Gorman Post Road, and 300<sup>th</sup> Street West (on and near the site) and payment of fair share fees for other improvements to Caltrans facilities as mitigation for the impacts of this Alternative. While some improvements would be implemented by this Alternative, it is outside the County's control to implement the other needed highway system improvements. Thus, if Caltrans does not construct the necessary improvements, impacts would also be significant and unavoidable, similar to the Project.

As with the proposed Project, impacts related to emergency access and traffic hazards can be mitigated and impacts on air traffic would be less than significant. No conflict with alternative transportation policies would occur, similar to the Project.

### **Air Resources**

Implementation of Alternative B would require a greater amount of grading over the site with the increased amount of development proposed than the Project. As with the proposed Project, this alternative would result in significant unavoidable construction-related emissions associated with CO, VOCs, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Operational emissions would be greater when compared to the Project due to the increase in vehicular traffic. As with the proposed Project, this Alternative would also result in significant unavoidable operational emissions associated with CO, VOCs, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Consistency with the applicable Air Quality Management Plan and exposure to odors would also represent a less than significant impact under this Alternative.

### **Noise**

Development of Alternative B would involve more construction than the proposed Project, and noise impacts and exposure to groundborne vibration that would result from construction would also be greater. Impacts related to noise increases in excess of Los Angeles County standards at sensitive receptors would be significant, similar to those of the proposed Project. Mitigation would reduce these impacts to less than significant levels.

Off-site traffic noise would be increased when compared to the proposed Project because of the increase in vehicular traffic. This Alternative would also result in a greater increase in long-term stationary noise than would the proposed Project because of the increase in

development associated with this Alternative. Noise impacts on adjacent off-site residences would be significant and unavoidable under this Alternative because it is outside the County's control to implement improvements on private properties or Caltrans right-of-way. Airport noise exposure would be similar to that of the Project and considered less than significant.

## **Visual Resources**

Visual changes to the Project site associated with the implementation of Alternative B would be similar to those anticipated to occur under the proposed Project, since a smaller area would be converted from an undeveloped to a developed condition but more intensive development is proposed. Under the proposed Project and this Alternative, significant and unavoidable impacts would result with respect to alterations to a scenic vista, degradation of the visual quality of the site, and the creation of light and glare due to the size and intensity of development proposed in a largely undeveloped area. Under both the proposed Project and this Alternative, less than significant impacts would occur related to AVAP-designated scenic drives (e.g., I-5, Gorman Post Road, SR-138, Old Ridge Road [Highway N-2], and Three Points Road) This Alternative would have increased light and glare impacts, due to the greater amount of development proposed on site, when compared to the proposed Project. This impact would be significant and unavoidable even after mitigation.

## **Parks and Recreation**

Implementation of Alternative B would result in a greater demand for parks and recreational facilities due to the higher number of proposed dwelling units and anticipated resident population. As with the proposed Project, less than significant impacts would occur with the provision of on-site parks and recreational facilities. Similar to the proposed Project, Alternative B would result in a less than significant impact related to regional open space connectivity, as a connection to the proposed realignment of the Pacific Crest Trail would also be part of this Alternative.

## **Education**

The demand for school facilities and services associated with Alternative B would be greater than those of the proposed Project because of the increase in residential development. As such, more school sites would be provided on site. As with the proposed Project, impacts would be mitigated to a less than significant level under this Alternative through school facilities and funding agreements with the affected school districts.

## **Fire and Law Enforcement Services**

The demand for fire and law enforcement services associated with Alternative B would be greater than that for the proposed Project because of the increased amount of development. However, overall impacts to fire and law enforcement services would be mitigated through the provision of on-site fire stations and a Sheriff's station, similar to the proposed Project. Impacts to fire and law enforcement services would be mitigated to a less than significant level under this Alternative.

## **Other Public Services**

### ***Library***

The demand for library services under this Alternative would be greater than those of the proposed Project. With the development of 22,998 residential units on site, this Alternative would require, and include, the development of a permanent community library, as with the proposed Project. Therefore, while both the proposed Project and this Alternative would result in less than significant impact, this Alternative would require a larger library due to the increased population size.

### ***Solid Waste***

The solid waste demands associated with Alternative B would be greater than those of the proposed Project because of the increased level of development. This demand for landfill capacity would be considered significant and unavoidable because permitted landfill capacity at existing County landfills cannot be guaranteed at the time of Project buildout and through the life of the Project, which would occur beyond the required 15-year LACDPW planning horizon. Like the proposed Project, this Alternative would result in a significant and unavoidable impact related to solid waste.

### ***Other Public Facilities***

Alternative B would create a demand for County services and facilities but will be subject to the payment of fees for any needed services. Alternative B will provide a maintenance yard on the site for County use for public park and facility maintenance, County-owned roadway maintenance, public right-of-way maintenance, flood-control infrastructure maintenance, and other maintenance activities. Impacts would be less than significant, similar to the Project.

## **Water Resources**

The water demands associated with Alternative B would be greater than those of the proposed Project because of the increased level of development. Direct impacts would be greater than the proposed Project since demand would exceed available supplies and would represent a new significant and unavoidable impact. Impacts to groundwater supplies would be similar to the proposed Project and would remain less than significant. As with the proposed Project, significant unavoidable cumulative impacts to water supplies would result from Alternative B.

## **Wastewater**

Wastewater generation associated with Alternative B would be greater than the Project due to the increase in development. As such, impacts related to wastewater treatment requirements and wastewater facilities would be greater. However, both the proposed Project and this Alternative would result in less than significant impacts with the provision of an on-site sewer system and a WRF.

## **Dry Utilities**

Demands for dry utility services associated with Alternative B would be greater than those of the proposed Project because of the increased level of development. As with the proposed Project, impacts would be mitigated to a less than significant level under this Alternative.

## **Climate Change**

With an increase in development associated with Alternative B, greenhouse gas emissions would also be increased by a comparable amount. Cumulative impacts to climate change under Alternative B would be significant and unavoidable, similar to the Project. This Alternative would require a General Plan Amendment, and may result in greater impacts related to conflict with County's Climate Action Plan.

## **Summary Conclusion**

Implementation of Alternative B would result in greater impacts compared to the proposed Project due to an increased intensity of development. Thus, none of the significant and unavoidable impacts of the Project would be reduced by this Alternative. Alternative B would result in greater impacts on all issue areas, except for Agriculture Resources. Due to the exclusion of farmlands east of 300<sup>th</sup> Street West from the Project site boundaries, this Alternative would decrease the amount of farmland that would be converted to urban uses.

The Project is proposed with the objective of creating a self-contained, self-sustaining community in which people could live and work in the same community. Implementation of this Alternative would fully support this underlying goal; however, there would be greater impacts associated with the increased development under this Alternative. In addition, no significant and unavoidable impacts of the Project would be avoided, and there would be a new significant and unavoidable direct impact to water supplies.

### **8.4.6 ALTERNATIVE C: ADDITIONAL DRAINAGE AVOIDANCE**

The main benefit of Alternative C is that it would reduce impacts to jurisdictional drainages. Jurisdictional drainages are ecologically important as they indirectly function as wildlife movement corridors, among other important ecological functions. This alternative focuses primarily on reducing impacts to drainages or wetlands with high habitat value (according to the Functional Assessment) or drainages containing connectivity with other large or high value drainages. The Project development footprint would be reduced in size by avoiding natural open space area at various locations around the it's perimeter, as seen in Exhibit 8-4, Alternative C – Additional Drainage Avoidance. As such, impacts related to jurisdictional drainages would be incrementally be reduced. This Alternative would reduce impacts to jurisdictional drainages by 8 acres, and would have an overall reduction on the Project impact footprint by 37 acres. Alternative C would provide 0.5 percent fewer dwelling units (92 units less) and 2 percent fewer employment-generating uses (198,634 sf/0.2 msf).

## **Geotechnical**

As with the proposed Project, development of Alternative C would be subject to the same seismic hazards (e.g., ground shaking, liquefaction), geologic hazards (e.g., landslides, expansive soils), and hillside management standards on the site. Mitigation would reduce potential impacts to less than significant levels, similar to the Project. Impacts related to erosion, grading, and topographic changes would be less than those anticipated to occur with the proposed Project, since development would stay away from major drainage corridors on the site. However, these impacts can be mitigated to less than significant levels. Less than significant impacts would occur under this Alternative with respect to geologic hazards with the implementation of mitigation, similar to the Project.

## **Hydrology and Flood**

Implementation of Alternative C would create less impervious area than the proposed Project and changes to the existing hydrological conditions on the site would be less due to avoidance of grading and disturbance of major drainage channels. Incrementally less urban runoff would also be expected with the decrease in development on the site. As with the proposed Project, impacts related to hydrology would be less than significant under this Alternative with mitigation. Similar to the proposed Project, impacts related to conflict with Low Impact Development (LID) standards, floodplains, inundation, and standing water would be less than significant with mitigation.

## **Hazards and Fire Safety**

### ***Hazards and Hazardous Materials***

Impacts associated with hazards for Alternative C would be less than those associated with the proposed Project. The risk from existing hazards, Valley Fever, and wildlife-borne disease vectors would be less than the proposed Project, as Alternative C would result in 92 fewer dwelling units and a reduction of 198,634 sf of employment-generating land uses (e.g., commercial and business park development) and approximately 37 more acres of natural open space. As with the proposed Project, impacts would be mitigated to a less than significant level. Similar to the proposed Project, this Alternative would result in less than significant impacts with mitigation related to hazardous materials sites and less than significant impacts related to airport/airstrip hazards and emergency response or emergency evacuation plans.

### ***Fire Safety***

Exposure to wildland fire risks related to location in areas designated as Very High Fire Hazard Severity Zones (VHFHSZs) and High Fire Hazard Severity Zones (HFHSZs) would be slightly less than those with the proposed Project given the decrease in development proposed on the site. The implementation of a fuel modification zone established with a Fire Management Plan would mitigate impacts to a less than significant level.

## **Water Quality**

The potential impacts to surface water and groundwater quality associated with Alternative C would be less than those anticipated to occur from implementation of the proposed Project since Alternative C would disturb 37 acres less than the proposed Project and would result in less development. However, the impacts under both the proposed Project and this Alternative to water quality would be less than significant with mitigation. This Alternative would result in similar impacts related to waste discharge requirements and wastewater treatment systems, as there would be the same types of land uses and number of WRFs as the proposed Project.

## **Land Resources**

### ***Agriculture***

This Alternative would have similar impacts to agricultural resources as the proposed Project since the same farmlands would be converted to urban uses. The proposed residential development at the eastern section of the site would eliminate ongoing agricultural production on Prime Farmland, but would not conflict with any Williamson Act contracts. As with the proposed Project, impacts related to the conversion of farmland would be significant and unavoidable under this Alternative.

### ***Mineral Resources***

As with the proposed Project, Alternative C would not involve the loss of availability of a known mineral resource. No impacts to mineral resources would occur under this Alternative.

## **Cultural and Tribal Resources**

Alternative C would result in disturbance of a smaller area and impacts on unknown archaeological, tribal cultural, and paleontological resources or human remains would be less than the proposed Project. However, the location of existing cultural sites would still be developed under this Alternative. It is anticipated that cultural resource-related impacts from implementation of Alternative C would be mitigated in the same manner as those for the proposed Project. Impacts related to cultural resources would be mitigated to a less than significant level.

## **Biological Resources**

Alternative C would disturb approximately 37 acres less than the proposed Project. This Alternative substantially reduces impacts to drainages resulting in a reduction of impacts to jurisdictional features of eight acres. In addition, the drainages avoided are predominantly higher order channels that typically indicate a greater functional value. As a result, Alternative C reduces impacts to a number of associated functions including local wildlife movement, riparian corridor connectivity, open space connectivity, and habitat of common and special status plant and wildlife species associated with these areas. In addition, the open space preserve is larger than the proposed Project. This Alternative would result in 92

fewer dwelling units and a reduction of 198,634 sf of employment-generating land uses. Therefore, the associated population decrease and indirect impacts (e.g., light and glare; domestic pets; introduction of non-native plants and wildlife) would be incrementally decreased. Thus, there would be less mitigation required to offset Alternative C impacts.

Potentially significant direct impacts to biological resources from grading and ground disturbance would still include special status species, riparian communities, wetlands, and wildlife movement. All of these impacts would be reduced to less than significant levels after mitigation under both the proposed Project and this Alternative. No direct significant and unavoidable biological impacts related to these thresholds for Alternative C would remain after mitigation. However, like the proposed Project, Alternative C would result in significant and unavoidable cumulative impacts related to grasslands and wildlife movement. This Alternative would result in similar impacts to oak woodlands and oak trees. Like the proposed Project, this Alternative would result in no impact related to habitat conservation plans and natural community conservation plans.

### **Land Use, Entitlements, and Planning**

Implementation of Alternative C would result in the development of a new master planned community at the northwestern section of Los Angeles County. This Alternative is consistent with the land use designations for the site, as contained in the AVAP and would require the same land use approvals as the proposed Project. As with the proposed Project, this Alternative would not disrupt or divide a community, and would allow for development to meet the future housing and employment needs in Los Angeles County, although with slightly less dwelling units and non-residential development than the Project, and is therefore consistent with regional planning efforts. As with the proposed Project, an amendment to the AVAP Highway Plan, a zone change, and CUPs would be required under this Alternative. Impacts would be similar to the Project under this Alternative.

### **Population, Housing, and Employment and Growth-Inducing Impacts**

Alternative C would result in 92 fewer dwelling units and a reduction of 198,634 sf of employment-generating land uses (e.g., commercial and business park development) and approximately 37 more acres of natural open space. Alternative C would have a lower residential population than the proposed Project, and thus, less potential to induce growth in the surrounding area. Also, slightly fewer affordable housing units would be provided on-site. This alternative would create less demand for long-term employment opportunities when compared to the proposed Project. Neither the proposed Project nor this Alternative would exceed approved population projections. As with the proposed Project, less than significant impacts would result with respect to conformity with population projections, but a significant and unavoidable impact would result based on the substantial growth on the Project site relative to the existing setting. Displacement of housing would be less than significant, as with the proposed Project. This Alternative would also result in a similar, and significant and unavoidable, impact related to growth-inducing impacts.

## **Traffic, Access, and Circulation**

Alternative C would provide 0.5 percent fewer dwelling units (92 units less) and 2 percent fewer employment-generating uses (198,634 sf), both of which are the primary trip-generating land uses for the proposed Project. Therefore, this Alternative would result in decreased off-site vehicle trips. Because this Alternative would have lower off-site trip generation levels, impacts to freeway mainline segments, freeway ramps, and arterial highway intersections would be less. However, significant impacts to the existing transportation system and CMP highways would still occur under this Alternative. Payment of fair share fees for improvements to Caltrans facilities would be made as mitigation for the impacts of this Alternative, but it is outside the County's control to implement these improvements. Thus, if Caltrans does not construct the necessary improvements, impacts would be significant and unavoidable, similar to the Project.

As with the proposed Project, impacts related to emergency access and traffic hazards can be mitigated and impacts on air traffic would be less than significant. No conflict with alternative transportation policies would occur, similar to the Project.

## **Air Resources**

Implementation of Alternative C would involve less grading on the site with the decreased amount of development proposed than the Project. As with the proposed Project, this alternative would result in significant unavoidable construction-related emissions associated with CO, VOCs, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Operational emissions would be less when compared to the Project due to the decrease in vehicular traffic. However, as with the proposed Project, this Alternative would result in significant unavoidable operational emissions associated with CO, VOCs, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Consistency with the applicable Air Quality Management Plan and exposure to odors would also represent a less than significant impact under this Alternative.

## **Noise**

Alternative C would involve slightly less construction than the proposed Project, and noise impacts and exposure to groundborne vibration that would result from construction would also be less. Impacts related to noise increases in excess of Los Angeles County standards at sensitive receptors would still be significant, similar to those of the proposed Project. Mitigation would reduce these impacts to less than significant levels.

This Alternative would have fewer off-site vehicle trips due to the slight reduction in on-site population, and a corresponding slight decrease in off-site traffic noise. Noise impacts on adjacent existing residences would still be similar to the proposed Project, and would remain significant and unavoidable under this Alternative because it is outside the County's control to implement improvements on private properties or Caltrans right-of-way. Airport noise exposure would be similar to that of the Project and considered less than significant.



## **Visual Resources**

Visual changes to the Project site associated with the implementation of Alternative C would be slightly less to those anticipated to occur under the proposed Project, since a slightly smaller development footprint would be converted from an undeveloped to a developed condition. Under the proposed Project and this Alternative, significant and unavoidable impacts would result with respect to alterations to a scenic vista and degradation of the visual quality of the site due to the size and intensity of development proposed in a largely undeveloped area. Under both the proposed Project and this Alternative, less than significant impacts would occur related to AVAP-designated scenic drives (e.g., I-5, Gorman Post Road, SR-138, Old Ridge Road [Highway N-2], and Three Points Road). This Alternative would have decreased light and glare impacts, due to the decrease in development proposed on site, when compared to the proposed Project. However, this impact would be significant and unavoidable with mitigation.

## **Parks and Recreation**

Implementation of Alternative C would result in less demand for parks and recreational facilities due to the lower number of proposed dwelling units and anticipated resident population. As with the proposed Project, less than significant impacts would occur with the provision of on-site parks and recreational facilities. Similar to the proposed Project, Alternative C would result in a less than significant impact related to regional open space connectivity, as a connection to the proposed realignment of the Pacific Crest Trail would also be part of this Alternative.

## **Education**

The demand for school facilities and services associated with Alternative C would be slightly less than those of the proposed Project because of the decrease in residential development. As such, less school capacity would be needed to serve on-site residents. As with the proposed Project, impacts would be mitigated to a less than significant level under this Alternative.

## **Fire and Law Enforcement Services**

The demand for fire and law enforcement services associated with Alternative C would be less than that for the proposed Project because of the decreased amount of development. Impacts to fire and law enforcement services would be mitigated through the provision of on-site fire stations and a Sheriff's station, similar to the proposed Project. Impacts to fire and law enforcement services would be mitigated to a less than significant level under this Alternative.

## **Other Public Services**

### ***Library***

The demand for library services under this Alternative would be less than those of the proposed Project because of the decreased level of development. With 92 fewer residential units, this Alternative would require the development of a smaller community library than the proposed Project. Both the proposed Project and this Alternative would result in less than significant impacts after mitigation.

### ***Solid Waste***

The solid waste demands associated with Alternative C would be slightly less than those of the proposed Project because of the decreased level of development. This demand for landfill capacity would still be considered significant and unavoidable because permitted landfill capacity at existing County landfills cannot be guaranteed at the time of Project buildout and through the life of the Project, which would occur beyond the required 15-year LACDPW planning horizon. Like the proposed Project, this Alternative would result in a significant and unavoidable impact related to solid waste.

### ***Other Public Facilities***

Alternative C would create a demand for County services and facilities but will be subject to the payment of fees for any needed services. Alternative C will also provide a maintenance yard on the site for County use for public park and facility maintenance, County-owned roadway maintenance, public right-of-way maintenance, flood-control infrastructure maintenance, and other maintenance activities. Impacts would be less than significant, similar to the Project.

## **Water Resources**

The water demands associated with Alternative C would be less than those of the proposed Project because of the decreased level of development. As with the proposed Project, direct impacts to water supplies would be mitigated to a less than significant level under this Alternative, and there would be less than significant impacts to groundwater supplies. However, as with the proposed Project, significant unavoidable cumulative impacts to water supplies would result from Alternative C.

## **Wastewater**

Wastewater generation associated with Alternative C would be less than the Project due to the decrease in development. As such, impacts related to wastewater treatment requirements and wastewater facilities would be less. Both the proposed Project and this Alternative would result in less than significant impacts with the provision of an on-site sewer system and WRFs.

## **Dry Utilities**

Demands for dry utility services associated with Alternative C would be less than those of the proposed Project because of the decreased level of development. As with the proposed Project, impacts would be mitigated to a less than significant level under this Alternative.

## **Climate Change**

With a decrease in development associated with Alternative C, greenhouse gas emissions would also be decreased by a comparable amount. However, cumulative impacts to climate change would be significant and unavoidable, similar to the Project, because Alternative C would not substantially reduce development to a degree that could eliminate the cumulative impact. This Alternative and the proposed Project would not conflict with the County's Climate Action Plan.

## **Summary Conclusion**

Implementation of Alternative C would result in fewer impacts compared to the proposed Project due to the decreased development. Alternative C would also result in fewer impacts on riparian communities and wetlands due to the exclusion of drainages from the development footprint. The Project is proposed with the objective of creating a self-contained, self-sustaining community in which people could live and work in the same community. Implementation of this Alternative would fully support this underlying goal; however, significant and unavoidable impacts associated with air quality, agriculture resources, noise, population and growth-inducing impacts, traffic, climate change, visual resources, water supply, and solid waste would still occur under this Alternative, similar to the Project.

### **8.4.7 ALTERNATIVE D: INFRASTRUCTURE RELOCATION**

Alternative D was designed with the objectives of (1) reducing the need for pumping equipment and associated energy demands by relying upon gravity-based water systems; (2) improving the reliability of the water distribution system, especially during a power outage; and (3) reducing biological impacts to the Oso Creek. Exhibit 8-5, Alternative D – Infrastructure Relocation Alternative, shows the proposed relocation sites for the two water tanks and the water treatment plant.

The Project's proposed location of the water treatment facility is outside the boundaries of the SEA; however, it is located within Oso Creek, which contains jurisdictional features and sensitive biological resources. Alternative D would relocate the water facility slightly south to a topographically raised portion of the Project site in order to avoid Oso Creek, but would technically result in an impact to lands within the SEA.

Two water tank sites, one on the east and one of the west side of the Aqueduct, would also be relocated to lands located within the boundaries of the SEA. The location of these water tank sites would be advantageous because they would reduce long-term energy demands associated with water pumping to pressurize the water distribution system. Locating the

water tanks at higher elevations, and thereby decreasing electrical pumping demands, would result in reductions in energy consumption and air pollutants, and would also increase reliability of the system in the instance of a power outage, where back-up generation would otherwise be required to ensure the functioning of the water system. The relocated tanks would be positioned behind ridgelines to make them less visible from public vantage points than they are within the currently proposed Project.

Although Alternative D would reduce impacts on Oso Creek, it would disturb a larger area (approximately 16 acres more) and would increase impacts to SEA-designated lands (on 58 acres). However, the area of Oso Canyon that would be preserved represents an area of high biological value on the site and includes jurisdictional waters, riparian habitat, and a substantial local movement path for wildlife. The preservation of this area would also reduce fragmentation of the Oso Canyon riparian corridor. The relocation of the water treatment plant and water tanks would increase total area of impacts but is expected to affect areas of lower biological value on the site.

## **Geotechnical**

As with the proposed Project, development of Alternative D would be subject to the same seismic hazards (e.g., ground shaking, liquefaction), geologic hazards (e.g., landslides, expansive soils), and hillside management standards. Mitigation would reduce potential impacts to less than significant levels, similar to the Project. Impacts related to erosion, grading, and topographic changes would be greater than anticipated to occur with the proposed Project, since the development footprint would be increased to locate two water tanks at higher elevations on the site. These impacts can be mitigated to less than significant levels. Less than significant impacts would occur under this Alternative with respect to geologic hazards with the implementation of mitigation, similar to the Project.

## **Hydrology and Flood**

Implementation of Alternative D would create slightly more impervious area than the proposed Project and changes to the existing hydrological conditions on the site would be greater due to the increase in the development footprint. Slightly more urban runoff would be expected with the increase in the development area that would occur on the site. As with the proposed Project, impacts related to hydrology would be less than significant under this Alternative with mitigation. Similar to the proposed Project, impacts related to conflict with LID standards, floodplains, and standing water would be less than significant with mitigation.

## **Hazards and Fire Safety**

### ***Hazards and Hazardous Materials***

Impacts associated with hazards for Alternative D would be similar to those associated with the proposed Project. The risk from existing hazards, Valley Fever, and wildlife-borne disease vectors would be similar to the proposed Project, as this Alternative would result in the same number of dwelling units and amount of non-residential development (commercial

and employment-generating land uses). As with the proposed Project, impacts would be mitigated to a less than significant level. Similar to the proposed Project, this Alternative would result in less than significant impacts with mitigation related to hazardous materials sites, and less than significant impacts related to airport/airstrip hazards and emergency response or emergency evacuation plans.

### ***Fire Safety***

Exposure to wildland fire risks related to location in areas designated as Very High Fire Hazard Severity Zones (VHFHSZs) and High Fire Hazard Severity Zones (HFHSZs) would be slightly more than those with the proposed Project, given the increase in the size of the development footprint on the site. The implementation of a fuel modification zone established with a Fire Management Plan would mitigate impacts to a less than significant level.

### **Water Quality**

The potential impacts to surface water and groundwater quality associated with Alternative D would be slightly more than anticipated to occur from implementation of the proposed Project since Alternative D would disturb 16 acres more than the proposed Project but would result in the same development. However, the impacts under both the proposed Project and this Alternative to water quality would be less than significant with mitigation. This Alternative would result in similar impacts related to waste discharge requirements and wastewater treatment systems, as there would be the same types of land uses and number of WRFs as the proposed Project.

### **Land Resources**

#### ***Agriculture***

Alternative D would have similar impacts to agricultural resources as the proposed Project since the same farmlands would be converted to urban uses. The proposed residential development at the eastern section of the site would eliminate ongoing agricultural production on Prime Farmland but would not conflict with any Williamson Act contracts. As with the proposed Project, impacts related to the conversion of farmland would be significant and unavoidable under this Alternative.

#### ***Mineral Resources***

As with the proposed Project, Alternative D would not involve the loss of availability of a known mineral resource. No impacts to mineral resources would occur under this Alternative.

### **Cultural and Tribal Resources**

Alternative D would result in disturbance of a slightly larger area where unknown archaeological, tribal cultural, and paleontological resources or human remains may be present, as compared to the proposed Project. Impacts to cultural resources from

implementation of Alternative D would be mitigated in the same manner as those for the proposed Project. Impacts would be less than significant after mitigation.

## **Biological Resources**

Alternative D would disturb approximately 16 acres more than the proposed Project and would locate the water treatment plant and water tanks within 58 acres of the San Andreas SEA. While the water treatment plant would be relocated to a site within the SEA, this new location is lower in biological value than the location proposed by the Project. Similarly, the water tank locations would increase disturbance within the SEA but would largely avoid more sensitive resource areas such as jurisdictional features and riparian habitat. Existing ranch and utility access roads could be used for construction access to the new water tank sites and only minor grading and access improvements would be required. However, improvements to portions of some of the access roads would impact native vegetation and would result in slight increase in quantity of impacts on vegetation and potentially special status species. Consequently, there would be a need for an increased acreage of mitigation to offset some of these impacts. All of these impacts would be reduced to less than significant levels after mitigation under both the proposed Project and this Alternative.

This Alternative would result in the same development on the site. Potentially significant direct impacts to biological resources from grading and ground disturbance would still include special status species, riparian communities, wetlands, and wildlife movement. Also, the introduction of residents to the area and associated indirect impacts on biological resources (e.g., light and glare; domestic pets; introduction of non-native plants and wildlife) would be similar to the Project. All of these impacts would be reduced to less than significant levels after mitigation under both the proposed Project and this Alternative. No direct significant and unavoidable biological impacts would remain after mitigation. However, like the proposed Project, Alternative D would result in significant and unavoidable cumulative impacts related to grasslands and wildlife movement. This Alternative would result in similar impacts to oak woodlands and oak trees. Like the proposed Project, this Alternative would result in no impacts related to habitat conservation plans or natural community conservation plans.

## **Land Use, Entitlements, and Planning**

Implementation of Alternative D would result in the development of a new master planned community at the northwestern section of Los Angeles County. This Alternative is consistent with the land use designations for the site, as contained in the AVAP and would require the same land use approvals as the proposed Project. As with the proposed Project, this Alternative would not disrupt or divide a community and would allow for development to meet the future housing and employment needs in Los Angeles County; it is therefore consistent with regional planning efforts. As with the proposed Project, an amendment to the AVAP Highway Plan, a zone change, and two CUPs would be required under this Alternative. Impacts would be similar to the Project under this Alternative for these thresholds. However, this Alternative would result in a greater impact related to conflict with the SEA Ordinance and hillside management standards, based on the location of the relocated infrastructure in higher elevation sites (i.e., hillside management areas) and within

58 acres of the San Andreas SEA. This impacts would be reduced to a less than significant level with mitigation.

### **Population, Housing, and Employment and Growth-Inducing Impacts**

Alternative D would have the same number of residential units and commercial and business park development but approximately 16 fewer acres of natural open space. Alternative D would have the same residential population than the proposed Project, and thus, the same potential to induce growth in the surrounding area. This Alternative would not exceed approved population projections. As with the proposed Project, less than significant impacts would result with respect to conformity with population projections, but a significant and unavoidable impact would result based on the substantial growth on the Project site relative to the existing setting. Displacement of housing would be less than significant, as with the proposed Project. This Alternative would also result in a similar, and significant and unavoidable, impact related to growth-inducing impacts.

### **Traffic, Access, and Circulation**

Alternative D would provide the same number of dwelling units and employment-generating uses, both of which are the primary trip-generating land uses for the proposed Project. Therefore, this Alternative would result in the same off-site vehicle trips. With the same off-site trip generation, impacts to freeway mainline segments, freeway ramps, and arterial highway intersections would be similar to the proposed Project. Significant impacts to the existing transportation system and CMP highways would occur under this Alternative. Payment of fair share fees for improvements to Caltrans facilities would be made as mitigation for the impacts of this Alternative, but it is outside the County's control to implement these improvements. Thus, if Caltrans does not construct the necessary improvements, impacts would be significant and unavoidable, similar to the Project.

As with the proposed Project, impacts related to emergency access and traffic hazards can be mitigated and impacts on air traffic would be less than significant. No conflict with alternative transportation policies would occur, similar to the Project.

### **Air Resources**

Implementation of Alternative D would involve slightly more grading on the site with the increase in the development footprint, when compared to the Project. As with the proposed Project, this alternative would result in significant unavoidable construction-related emissions associated with CO, VOCs, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. However, long-term operational emissions would be the less when compared to the Project due to the reduction in the need of pumping water. Back-up diesel generators would be required under the Project and under Alternative D; however, in the event of a power outage, substantially more energy and diesel emissions would be required to maintain the functioning of the water system. This Alternative would have the same land use development and would generate the same amount of vehicular traffic; therefore, vehicular emissions would not change. As with the proposed Project, this Alternative would result in significant unavoidable operational emissions associated with CO, VOCs, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Consistency with the applicable

Air Quality Management Plan and exposure to odors would also represent a less than significant impact under this Alternative.

## **Noise**

Alternative D would involve the same construction as the proposed Project, with similar impacts and exposure to groundborne vibration resulting from construction. Impacts related to noise increases in excess of Los Angeles County standards at sensitive receptors would be significant, similar to those of the proposed Project. Mitigation would reduce these impacts to less than significant levels.

Off-site traffic noise would be the same when compared to the proposed Project because of the same off-site vehicular traffic generation. Noise impacts on adjacent existing residences would be significant and unavoidable under this Alternative because it is outside the County's control to implement improvements on private properties or Caltrans right-of-way. Airport noise exposure would be similar to that of the Project and considered less than significant.

## **Visual Resources**

Visual changes to the Project site associated with the implementation of Alternative D would be slightly less than those anticipated to occur under the proposed Project, since the water tanks would be located at higher elevations but behind ridgelines. Thus, they would be less visible from public roadways and trails. Under the proposed Project and this Alternative, significant and unavoidable impacts would result with respect to alterations to a scenic vista, degradation of the visual quality of the site, and the creation of new sources of light and glare due to the size and intensity of development proposed in a largely undeveloped area. Under both the proposed Project and this Alternative, less than significant impacts would occur related to an AVAP-designated scenic drive.

## **Parks and Recreation**

Implementation of Alternative D would result in the same demand for parks and recreational facilities since the same number of dwelling units is proposed, resulting in the same resident population. As with the proposed Project, less than significant impacts would occur with the provision of on-site parks and recreational facilities. Similar to the proposed Project, Alternative D would result in a less than significant impact related to regional open space connectivity, as a connection to the proposed realignment of the Pacific Crest Trail would also be part of this Alternative.

## **Education**

The demand for school facilities and services associated with Alternative D would be similar to those of the proposed Project because the same residential development is proposed. As such, schools needed to serve on-site residents would also be the same. As with the proposed Project, impacts would be mitigated to a less than significant level under this Alternative.



## **Fire and Law Enforcement Services**

The demand for fire and law enforcement services associated with Alternative D would be similar to that for the proposed Project because the same amount of development is proposed. Impacts to fire and law enforcement services would be mitigated through the provision of on-site fire stations and a Sheriff's station, similar to the proposed Project. Impacts to fire and law enforcement services would be mitigated to a less than significant level under this Alternative.

## **Other Public Services**

### ***Library***

The demand for library services under Alternative D would be similar to those of the proposed Project. With the same number of residents on site, this Alternative would require the development of the same size community library as the proposed Project. Both the proposed Project and this Alternative would result in less than significant impacts after mitigation.

### ***Solid Waste***

The solid waste demands associated with Alternative D would be similar to those of the proposed Project because the same development is proposed. Also, the demand for landfill capacity would be considered significant and unavoidable because permitted landfill capacity at existing County landfills cannot be guaranteed at the time of Project buildout and through the life of the Project, which would occur beyond the required 15-year LACDPW planning horizon. Like the proposed Project, this Alternative would result in a significant and unavoidable impact related to solid waste.

### ***Other Public Facilities***

Alternative D would create a demand for County services and facilities but would be subject to the payment of fees for any needed services. Alternative D would also provide a maintenance yard on the site for County use for public park and facility maintenance, County-owned roadway maintenance, public right-of-way maintenance, flood-control infrastructure maintenance, and other maintenance activities. Impacts would be less than significant, similar to the Project.

## **Water Resources**

The water demands associated with Alternative D would be similar to those of the proposed Project because the same development is proposed. There would be no landscaping or irrigation associated with the relocation infrastructure sites. As with the proposed Project, direct impacts to water supplies would be mitigated to a less than significant level under this Alternative, and there would be less than significant impacts to groundwater supplies. However, as with the proposed Project, significant unavoidable cumulative impacts to water supplies would result from Alternative D.

## **Wastewater**

Wastewater generation associated with Alternative D would be similar to the Project due to the same development. As such, impacts related to wastewater treatment requirements and wastewater facilities would also be less. Both the proposed Project and this Alternative would result in less than significant impacts with the provision of an on-site sewer system and a WRF.

## **Dry Utilities**

Demands for dry utility services associated with Alternative D would be similar to the proposed Project, except electrical demand. While the same development is proposed on site, the location of the water tanks at higher elevations would reduce the pumping needs and result in a more efficient water distribution system. This Alternative would reduce electrical power demands over those of the Project. As with the proposed Project, impacts would be mitigated to a less than significant level under this Alternative.

## **Climate Change**

With the same development associated with Alternative D, greenhouse gas emissions from development would be similar to the Project. However, the use of less energy for water pumping based on the location of the water tanks at higher elevations would slightly reduce GHG emissions. However, cumulative impacts to climate change under Alternative D would be significant and unavoidable, similar to the Project. This Alternative and the proposed Project would be consistent with the County's Climate Action Plan.

## **Summary Conclusion**

Implementation of Alternative D would result in the same effects to most of the population-driven impacts (e.g., noise, traffic, water supply, public services, and utility demands) as the proposed Project since the same development is proposed on site. However, Alternative D would result in decreased impacts to visual resources, energy demands, and climate change. Although the relocation of the water treatment plant would avoid sensitive drainage areas, Alternative D would disturb approximately 16 more acres of biological resources and would locate the water treatment plant and water tanks within 58 acres of the San Andreas SEA. The Project was developed with the objective of creating a self-contained, self-sustaining community in which people could live and work in the same community. Implementation of this Alternative would fully support this underlying goal; however, significant and unavoidable impacts associated with air quality, agriculture resources, noise, population and growth-inducing impacts, traffic, visual resources, climate change, water supply, and solid waste would still occur under this Alternative, similar to the Project.

### 8.4.8 ALTERNATIVE E: DENSITY CLUSTERING/EAST OF AQUEDUCT

This Alternative focuses on increasing the density of development on the east side of the California Aqueduct and 300<sup>th</sup> Street West, by decreasing development in the easternmost and westernmost portions of the site. The proposed Project development footprint would be reduced by approximately 656 acres under this Alternative, while maintaining the same number of dwelling units (19,333 units), employment-generating uses (10,097,208 sf/10.10 msf), and other land uses. Alternative E reflects an approximate 4 percent increase (from approximately 46 percent to 50 percent) in conserved natural open space which does not include parks, greenways, and other types of urban open space. Exhibit 8-6, Alternative E – Density Clustering/East of Aqueduct Alternative, depicts the conceptual land use plan for this Alternative.

On the west side of the Aqueduct, all development except for the Cement Plant Road realignment would be transferred to the central portion of the site. This includes 1,574 dwelling units and 87,120 sf of Commercial uses. The 44-acre WTP proposed west of the Aqueduct would be relocated by converting 44 acres of Low-Density Residential land use to Utility, extending the existing U-designated area along the northeastern border of the Project site. This conversion would require the transfer of 147 low-density dwelling units, which would be readily accommodated throughout the remainder of Village 5. Additionally, relocation of the WTP to the east side of the Aqueduct would require a pipeline to be installed from the Aqueduct turnout, located slightly north of the proposed WTP location, across the Aqueduct and to the WTP site. However, the new bridge crossing to land uses on the west side of the Aqueduct would be eliminated under this Alternative.

On the east side of 300<sup>th</sup> Street West, the Low Density Residential-designated lands would be designated as Very Low Density Residential resulting in a net reduction of 603 dwelling units. These units and 108,900 sf of Commercial uses would be transferred to the central portion of the site. Specifically, all 2,177 transferred dwelling units (not including the 147 units in Village 5) would be accommodated in Village 3—the town center—and all or most transferred Commercial uses (196,020 sf) would instead be accommodated in the Centennial Commerce District (CCD) along SR-138 without changing the conceptual land use plan in these areas.

### Geotechnical

As with the proposed Project, development of Alternative E would be subject to the same seismic hazards (e.g., ground shaking, liquefaction), geologic hazards (e.g., landslides, expansive soils), and hillside management standards. Impacts due to ground rupture related to the two unnamed faults on the Project site and erosion, grading, and topographic changes would be less than those anticipated to occur with the proposed Project due to the transfer of land uses on the west side of the California Aqueduct (except the Cement Plant Road realignment) and associated 656-acre reduction in the development footprint. Less than significant impacts would occur under this Alternative with respect to geologic hazards with the implementation of mitigation, similar to the Project.

## **Hydrology and Flood**

Implementation of Alternative E would create less impervious area than the proposed Project and changes to the existing hydrological conditions on the site would be less due to the transfer of land uses on the west side of the California Aqueduct (except the Cement Plant Road realignment) and associated 656-acre reduction in the development footprint. Incrementally less urban runoff would also be expected with the decrease in development on the site. As with the proposed Project, impacts related to hydrology would be less than significant under this Alternative with mitigation. Similar to the proposed Project, impacts related to conflict with LID standards, floodplains, inundation, and standing water would be less than significant with mitigation.

## **Hazards and Fire Safety**

### ***Hazards and Hazardous Materials***

Impacts associated with hazards for Alternative E would be similar to those associated with the proposed Project. The risk from existing hazards, Valley Fever, and wildlife-borne disease vectors would be similar to the proposed Project, as this Alternative would result in the same number of dwelling units and amount of non-residential development. As with the proposed Project, impacts would be mitigated to a less than significant level. Similar to the proposed Project, this Alternative would result in less than significant impacts with mitigation related to hazardous materials sites, and less than significant impacts related to airport/airstrip hazards and emergency response or emergency evacuation plans.

### ***Fire Safety***

Exposure to wildland fire risks related to location in areas designated as Very High Fire Hazard Severity Zones (VHFHSZs) and High Fire Hazard Severity Zones (HFHSZs) would be less than those with the proposed Project, given the decrease in development proposed on the site. The implementation of a fuel modification zone established with a Fire Management Plan would mitigate impacts to a less than significant level, as with the proposed Project.

## **Water Quality**

The potential impacts to surface water and groundwater quality associated with Alternative E would be less than those anticipated to occur from implementation of the proposed Project since Alternative E would disturb 656 acres less than the proposed Project. However, this Alternative would result in development of the same types and quantity of land uses as the proposed Project within the reduced footprint. The impacts under both the proposed Project and this Alternative to water quality would be less than significant with mitigation. This Alternative would result in similar impacts related to waste discharge requirements and wastewater treatment systems, as there would be the same types of land uses and number of WRFs as the proposed Project.

## **Land Resources**

### ***Agriculture***

This Alternative would have similar impacts to agricultural resources as the proposed Project since the same farmlands would be converted to urban uses. The proposed residential development at the eastern section of the site would eliminate ongoing agricultural production on Prime Farmland, but would not conflict with any Williamson Act contracts. As with the proposed Project, impacts related to the conversion of farmland would be significant and unavoidable under this Alternative.

### ***Mineral Resources***

As with the proposed Project, Alternative E would not involve the loss of availability of a known mineral resource. No impacts to mineral resources would occur under this Alternative.

## **Cultural and Tribal Resources**

Alternative E would result in disturbance of a smaller area and impacts on unknown archaeological, tribal cultural, and paleontological resources or human remains would be less than the proposed Project. The significant cultural resource sites west of the Aqueduct would not be directly impacted by grading activity. These sites would be located within open space areas under this Alternative; there would be significant indirect impacts to these sites, same as the proposed Project. The location of cultural sites to the east of the Aqueduct would still be developed under this Alternative, and result in the same impacts as the Project. It is anticipated that cultural resource-related impacts from implementation of Alternative E would be mitigated in the same manner as those for the proposed Project. Impacts related to cultural resources would be mitigated to a less than significant level under this Alternative.

## **Biological Resources**

Alternative E would disturb approximately 656 acres less than the proposed Project, and would increase the acreage of open space and preserved lands by approximately 4 percent compared to the proposed Project (from approximately 46 percent to approximately 50 percent). Under this Alternative, no different areas or additional acres would be impacted that would have the potential to result in new or more significant biological resources impacts, despite an overall reduction in the development footprint. The reduced impact area would result in an incremental comparable reduction in impacts to various biological resources including vegetation types, potentially suitable habitat for special status plant and wildlife species, and jurisdictional drainages. Thus, there would be less mitigation required to offset Alternative E impacts. Furthermore, the additional preservation area would increase the buffer area between the development footprint and other on- and off-site preserved lands thereby reducing indirect impacts to biological resources. Consequently, no additional impacts would occur and no additional mitigation would be required with Alternative E.

Potentially significant direct impacts to biological resources from grading and ground disturbance would still include special status species, riparian communities, wetlands, and wildlife movement. All of these impacts would be reduced to less than significant levels after mitigation under both the proposed Project and this Alternative. No significant and unavoidable biological impacts related to these thresholds for Alternative E would remain after mitigation. However, like the proposed Project, Alternative E would result in significant and unavoidable cumulative impacts related to grasslands and wildlife movement. This Alternative would result in similar impacts to oak woodlands and oak trees. Like the proposed Project, this Alternative would result in no impact related to habitat conservation plans and natural community conservation plans.

### **Land Use, Entitlements, and Planning and Growth-Inducing Impacts**

As with the proposed Project, implementation of Alternative E would result in the development of a new master planned community at the northwestern section of Los Angeles County. This Alternative is consistent with the land use designations for the site, as contained in the AVAP and would require the same land use approvals as the proposed Project. Like the proposed Project, this Alternative would not disrupt or divide a community, and would allow for development to meet the future housing and employment needs in Los Angeles County; it is, therefore, consistent with regional planning efforts. As with the proposed Project, an amendment to the AVAP Highway Plan, a zone change, and CUPs would be required under this Alternative. Impacts would be similar under this Alternative as the same land use approvals would be required, and this Alternative would equally allow for development to meet planned growth. Because this Alternative has land dedicated to public parks, roads and infrastructure facilities, it could result in lower costs for public infrastructure categories that correlate with acreage (e.g., road maintenance), and could result in higher costs for public infrastructure categories that correlate with intensity of uses (e.g., sports playfields in parks). This Alternative would lessen, but not avoid, the significant impacts of the proposed Project.

### **Population, Housing, and Employment and Growth-Inducing Impacts**

Alternative E would have the same number of residential units and commercial and business park development within a smaller development footprint, by approximately 656 acres. Alternative E would have the same residential population than the proposed Project, and thus, the same potential to induce growth in the surrounding area. As with the proposed Project, less than significant impacts would result with respect to conformity with population projections, but a significant and unavoidable impact would result based on the substantial growth on the Project site relative to the existing setting. Displacement of housing would be less than significant, similar to the proposed Project. This Alternative would also result in a similar, and significant and unavoidable, impact related to growth-inducing impacts.

### **Traffic, Access, and Circulation**

Alternative E would provide the same number of dwelling units and employment-generating uses, both of which are the primary trip-generating land uses for the proposed Project.

Therefore, this Alternative would result in the same off-site vehicle trips, although the transfer of commercial development would result in reduced crossings across 300<sup>th</sup> Street and SR-138. With the same off-site trip generation, impacts to freeway mainline segments, freeway ramps, and arterial highway intersections would be similar to the proposed Project. Increased density may also influence on-site travel mode selection (e.g., reduce car trips within the Project site area).

This Alternative would not result in a significant change to how Project-related traffic accesses SR-138, nor would it change the overall distribution of Project-related traffic. While the amount of traffic generated by this Alternative would be identical to the proposed Project, there would be a corresponding increase to the volume of traffic on the central and western intersections with SR-138. However, the overall increase to these roadways would be minor and would be accommodated by augmenting the capacity of these roadways and their intersections with SR-138 (Stantec 2016a). These augments would be feasible within the limits of the Conceptual Land Use Plan and associated grading plan. Therefore, significant impacts to the existing transportation system and CMP highways would occur under this Alternative, similar to the proposed Project. Payment of fair share fees for improvements to Caltrans facilities would be made as mitigation for the impacts of this Alternative, but it is outside the County's control to implement these improvements. Thus, if Caltrans does not construct the necessary improvements, impacts would be significant and unavoidable, similar to the Project.

As with the proposed Project, impacts related to emergency access and traffic hazards can be mitigated and impacts on air traffic would be less than significant. No conflict with alternative transportation policies would occur, similar to the Project.

## **Air Resources**

Implementation of Alternative E would involve less grading on the site commensurate with the 656-acre reduction in the development footprint. However, the SCAQMD thresholds are based on daily construction emissions, and this Alternative would implement the same daily construction activities as the Project. Therefore, as with the proposed Project, this Alternative would result in significant unavoidable construction-related emissions associated with CO, VOCs, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Because increased density may result in further mode shifts (e.g., reduce use of cars and increased walking or biking) within the Project site itself, this Alternative could result in a corresponding decrease in air emissions from avoided on-site vehicle trips. However, since the same land uses and trip generation would occur, the primary vehicular-related emissions occur from offsite trips, operational emissions would be similar but slightly lower than the proposed Project, and would continue to result in significant unavoidable operational emissions associated with CO, VOCs, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Consistency with the applicable Air Quality Management Plan and exposure to odors would remain a less than significant impact under this Alternative.

## **Noise**

Alternative E would involve less grading on the site commensurate with the 656-acre reduction in the development footprint, and noise and groundborne vibration that would

result from construction would also be less. However, there would be no receptors in the area with less noise and vibration on the west side of the Aqueduct. Noise generation related to building construction would be similar to the proposed Project, as the same amount of development is proposed. Therefore, impacts related to noise increases in excess of Los Angeles County standards at sensitive receptors would still be significant, similar to those of the proposed Project. Mitigation would reduce these impacts to less than significant levels.

Off-site traffic noise would be the same when compared to the proposed Project because of the same vehicular traffic generation. Noise impacts on adjacent existing residences would be similar, and would remain significant and unavoidable under this Alternative because it is outside the County's control to implement improvements on private properties or Caltrans right-of-way. Airport noise exposure would be similar to that of the Project and would be considered less than significant.

## **Visual Resources**

Visual changes to the Project site associated with implementation of Alternative E would be reduced to the west of the Aqueduct, with the realigned Cement Plant Road remaining as the only land use change. However, under the proposed Project and this Alternative, significant and unavoidable impacts would result with respect to alterations to a scenic vista; degradation of the visual quality of the site; and the creation of light and glare due to the size and intensity of development that would be proposed in a largely undeveloped area. Under both the proposed Project and this Alternative, less than significant impacts would occur related to AVAP-designated scenic drives (e.g., I-5, Gorman Post Road, SR-138, Old Ridge Road [Highway N-2], and Three Points Road). This Alternative would have decreased light and glare impacts, due to the decrease in the development footprint, when compared to the proposed Project. However, this impact would be significant and unavoidable with mitigation.

## **Parks and Recreation**

Implementation of Alternative E would result in the same demand for parks and recreational facilities since the same number of dwelling units is proposed, resulting in the same resident population. However, the transfer of development to the west of the Aqueduct eliminates 13.1 acres of Park Overlay and 5.6 acres of the Recreation/Entertainment land use designation. This Alternative would also provide on-site parks and recreation amenities that would meet and exceed County and State parkland standards, when considering both the park acreage and acreage equivalencies (e.g., public park development costs, private recreation facilities) and result in a less than significant impact. However, this Alternative would result in a higher population per acre of parkland than the proposed Project. The higher population per acre of parkland would require more efficient use of parkland space and amenities, with the potential for both lower costs (e.g., from developing and maintaining fewer acres) partly offset by the potential for increased costs (e.g., from more active maintenance required for high-use park areas such as sports playfields). Alternative E would result in a less than significant impact related to regional open space connectivity, as a connection to the proposed realignment of the Pacific Crest Trail would also be part of this Alternative.



## **Education**

The demand for school facilities and services associated with Alternative E would be similar to those of the proposed Project because the same residential development is proposed. However, the transfer of development to the west of the Aqueduct eliminates 11 acres of School Overlay (a K-5 elementary school), which would have to be provided to the east side of the Aqueduct. Any future school development within the Project site would require coordination with and agreement of the affected school districts, as described in the mitigation program. Therefore, as with the proposed Project, impacts would be mitigated to a less than significant level under this Alternative.

## **Fire and Law Enforcement Services**

The demand for fire and law enforcement services associated with Alternative E would be similar to that for the proposed Project because the same amount of development is proposed. Impacts to fire and law enforcement services would be mitigated through the provision of on-site fire stations and a Sheriff's station, similar to the proposed Project. Emergency response times would be slightly improved given the smaller development footprint of this Alternative. Impacts to fire and law enforcement services would be mitigated to a less than significant level under this Alternative.

## **Other Public Services**

### ***Library***

The demand for library services under Alternative E would be similar to those of the proposed Project. With the same number of residents on site, this Alternative would require the development of the same size community library as the proposed Project. Both the proposed Project and this Alternative would result in less than significant impact after mitigation.

### ***Solid Waste***

The solid waste demands associated with Alternative E would be similar to those of the proposed Project because the same development is proposed. Also, the demand for landfill capacity would be considered significant and unavoidable because permitted landfill capacity at existing County landfills cannot be guaranteed at the time of Project buildout and through the life of the Project, which would occur beyond the required 15-year LACDPW planning horizon. Like the proposed Project, this Alternative would result in a significant and unavoidable impact related to solid waste.

### ***Other Public Facilities***

Alternative E would create a demand for County services and facilities but would be subject to the payment of fees for any needed services. Alternative E would also provide a maintenance yard on the site for County use for public park and facility maintenance, County-owned roadway maintenance, public right-of-way maintenance, flood-control

infrastructure maintenance, and other maintenance activities. Impacts would be less than significant, same as the Project.

## **Water Resources**

The water demands associated with Alternative E would be less than the proposed Project because the elimination of development to the west of the Aqueduct would reduce the amount of landscaping and its associated irrigation demands. As with the proposed Project, direct impacts to water supplies would be mitigated to a less than significant level under this Alternative, and there would be less than significant impacts to groundwater supplies. However, as with the proposed Project, significant unavoidable cumulative impacts to water supplies would result from Alternative E.

## **Wastewater**

Wastewater generation associated with Alternative E would be similar to the Project due to the same development. As such, impacts related to wastewater treatment requirements and wastewater facilities would also be less. Both the proposed Project and this Alternative would result in less than significant impacts with the provision of an on-site sewer system and a WRF.

## **Dry Utilities**

Demands for dry utility services associated with Alternative E would be similar to those of the proposed Project because the same development is proposed. As with the proposed Project, impacts would be mitigated to a less than significant level under this Alternative.

## **Climate Change**

With the same development associated with Alternative E, greenhouse gas emissions from development would be similar to the Project. Cumulative impacts to climate change under Alternative D would be significant and unavoidable, similar to the Project. Greenhouse gas emissions from vehicle use would be slightly lower based on projected mode shifts (i.e., reduced use of fossil-fired vehicles) for on-site trips as described in Air Quality, above. This Alternative and the proposed Project would result in less than significant impacts at the project-level related to climate change policies.

## **Summary Conclusion**

Implementation of Alternative E would result in similar or slightly reduced effects to most of the population-driven impacts (e.g., noise, traffic, public services, and utility demands) as the proposed Project since the same development, and related population, is proposed on site. However, Alternative E would result in decreased impacts to grading-driven impacts (e.g., biological resources, cultural resources, and visual resources) and would reduce some on-site automobile-driven impacts (e.g., air quality, greenhouse gas emissions).

The Project was developed with the objective of creating a self-contained, self-sustaining community in which people could live and work in the same community. Implementation of this Alternative would fully support this underlying goal; however, significant and unavoidable impacts associated with air quality, agriculture resources, noise, population and growth-inducing impacts, traffic, visual resources, climate change, water supply, and solid waste would still occur under this Alternative, similar to the Project.

#### **8.4.9 ALTERNATIVE F: CENTRAL ECONOMIC OPPORTUNITY AREA DEVELOPMENT**

This Alternative considers the AVAP's Central EOA as an alternative location. As shown in Exhibit 8-7, Alternative F – Central Economic Opportunity Area Development, the 23,930-acre Central EOA is an irregularly shaped area located generally between the northern boundary of the City of Lancaster and the Los Angeles County-Kern County border. It is traversed by SR-138 in an east-west direction, and by SR-14 and Sierra Highway in a north-south direction. This alternative assumes that the same types and numbers of land uses, public facilities, and other amenities as the proposed Project (see Table 4-3 in Section 4.0, Project Description) would be developed within an approximate 12,323-acre, contiguous portion of the EOA.

#### **Geotechnical**

The majority of the Central EOA has not been evaluated under the Alquist-Priolo Earthquake Fault Zoning Act or the Seismic Hazards Mapping Act. The nearest known active fault to the Central EOA is the San Andreas Fault, located approximate nine miles to the southwest at the nearest point along the foothills of the San Gabriel Mountains. Due to this distance from the nearest known fault, impacts related to seismic hazards (e.g., fault rupture, ground shaking, ground failure) would be less under Alternative F when compared to the proposed Project. Additionally, this Alternative would eliminate development adjacent to the unnamed faults on the Project site. Topographically, the Central EOA is relatively flat with a slope generally towards the east-northeast (i.e., towards Rosamond Lake). There are very limited areas with slopes that are at least 25 percent, and these are related to existing development within the EOA along SR-14 and at the Lancaster Landfill and Recycling Center. As such, the risk of landslides is reduced when compared to the proposed Project. There may be liquefaction and/or other soil engineering constraints present within the Central EOA, but it is expected these would be mitigated with appropriate design and construction methods. As with the proposed Project, there would be less than significant geology and soils impacts through compliance with applicable regulations.

#### **Hydrology and Flood**

Implementation of Alternative F would create a similar extent of pervious and impervious areas as the proposed Project. Based on review of aerial photographs, there is one apparent drainage feature, extending in a southwest-northeast direction towards Rosamond Lake from near the intersection of SR-14 and the southern EOA boundary. Because there are less defined drainage channels within the Central EOA compared to the Project site, impacts

related to changes in drainage patterns would be less than the proposed Project. However, the amount of storm water runoff generated would be similar to the Project and would be managed through compliance with LID standards and other regulations. As with the proposed Project, impacts related to hydrology, including storm drainage capacity, would be less than significant under this Alternative with mitigation.

The Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map designates an approximate one-mile-wide floodplain for this drainage and essentially the entirety of the Central EOA north of SR-138 as within an "A" zone, which has a one percent annual chance of flooding. Similar to the proposed Project, impacts related to floodplains would be less than significant with mitigation. Similar to the proposed Project, impacts related to inundation and standing water would be less than significant with mitigation.

## **Hazards and Fire Safety**

### ***Hazards and Hazardous Materials***

Impacts associated with hazards for Alternative F would be similar to those associated with the proposed Project, as both locations are within the Antelope Valley. Specifically, the risk from Valley Fever and wildlife-borne disease vectors would be similar to the proposed Project, as this Alternative would result in the same number of dwelling units and amount of non-residential development requiring ground disturbance in an area with a potential for Valley Fever spores. The precise location and nature of existing hazards within the Central EOA are not known. It is documented that a portion of Edwards Air Force Base (EAFB) is a federally listed Superfund site and is undergoing remediation. However, the extent of groundwater contaminant plume is mapped as being more than 23 miles to the east-northeast of the Central EOA (DTSC 2016). Therefore, this would not represent a hazard for the EOA. For all hazards, impacts would be mitigated to a less than significant level, same as the proposed Project.

As discussed above under "Traffic, Access, and Circulation", the southwestern portion of the Central EOA is within the Airport Influence Area Boundary of the Fox Airfield, and land use compatibility zones C, D, and E overlap the EOA. Therefore, there would be greater impacts associated with hazards due to proximity to a public airport. However, through compliance with Federal Aviation Administration (FAA) regulations and/or avoidance of the Fox Airfield's Airport Influence Area in the hypothetical placement of the alternative location within the EOA, there would be less than significant impacts with this mitigation. As noted above, EAFB is also adjacent to the Central EOA; however, the Central EOA is not within an area with any land use compatibility restrictions (Perry 2016). Therefore, there would be less than significant impacts related to airport/airstrip hazards, similar to the proposed Project. As with the proposed Project, this Alternative would result in less than significant impacts related emergency response or emergency evacuation plans.

### ***Fire Safety***

The majority of the Central EOA is designated as a Moderate Fire Hazard Severity Zones, with the remainder not designated as a fire hazard zone. Therefore, exposure to wildland fire risks would be reduced under this Alternative compared to the proposed Project. The

implementation of a fuel modification zone established with a Fire Management Plan would mitigate impacts to a less than significant level with the proposed Project. Alternative F would not require implementation of fuel modification.

## **Water Quality**

The potential impacts to surface water and groundwater quality associated with Alternative F would be similar to the proposed Project because the same development area and land uses would be implemented. However, the Project site would not have ready access to the Project's water supplies or banking infrastructure, this alternative would have a greater impact on regional water supplies relative to the proposed Project. Impacts under both the proposed Project and this Alternative to water quality would be less than significant with mitigation. This Alternative would result in similar impacts related to waste discharge requirements and wastewater treatment systems, as there would be the same types of land uses and number of WRFs as the proposed Project.

## **Land Resources**

### ***Agriculture***

The Central EOA contains approximately 469 acres of Prime Farmland, 132 acre of Farmland of Statewide Important, 69 acres of Unique Farmland, and 622 acres of Grazing Land. Dependent on the placement of the contiguous 12,323-acre site within the larger Central EOA, this Alternative has the potential to convert up to 670 acres of Farmland. This Alternative could result in less conversion of Prime Farmland compared to the proposed Project (642 acres), but would result in a similar amount of Farmland whose loss is considered significant under CEQA. As with the proposed Project, conversion of Grazing Land is not considered a significant impact. Therefore, impacts related to the conversion of farmland would be also be significant and unavoidable under this Alternative.

### ***Mineral Resources***

As with the proposed Project, Alternative F would not involve the loss of availability of a known mineral resource. No impacts to mineral resources would occur under this Alternative.

## **Cultural and Tribal Resources**

Alternative F would result in disturbance of the same development footprint acreage, where unknown archaeological, tribal cultural, and paleontological resources or human remains may be present, as with the proposed Project. Impacts to cultural resources from implementation of Alternative F would be mitigated in the same manner, or in a different but appropriate manner depending on the resources, as those for the proposed Project. Impacts would be less than significant after mitigation.

## Biological Resources

Alternative F would result in the same development footprint acreage within the Central EOA. Although specific details regarding the biological resources occurring within the Central EOA are not known, a review of the California Department of Fish and Wildlife's California Natural Diversity Database (CNDDDB) and aerial photographs can provide sufficient information for a preliminary determination regarding potential impacts of this Alternative. In general, the impact on some biological resources would be reduced. For example, the Central EOA is expected to contain fewer jurisdictional drainages due to the flatter terrain with fewer topographic changes; this impact would be less than significant after mitigation, same as the proposed Project. Oak trees and oak woodlands are not likely to be present on the Central EOA, which may indicate impacts to oak trees and oak woodlands would be reduced. Other special status vegetation types (such as alkaline sink) or associated plants, however, are known to be present in the Central EOA but not the Project site. Due to the fairly extensive distribution in the Central EOA, these resources would likely be impacted by Alternative F. As a result, impacts would increase in some regard to those resources that are different from the Project site. Consequently, there would be a need for different mitigation areas to offset these impacts. It is expected that these impacts would be reduced to less than significant levels after mitigation under this Alternative, same as the proposed Project. With regard to cumulative impacts to special status vegetation types, it is expected this impact would be less than the proposed Project and would be less than significant with mitigation based on the existing disturbance of the lands surrounding the alternative location. Additionally, this Alternative would result in a reduced impact to wildlife movement compared to the proposed Project, based on the continuity of the terrain immediately surrounding the Central EOA.

## Land Use, Entitlements, and Planning

The Central EOA is anticipated to have a much lower amount of future development than the West EOA, even when considering buildout of the entire 23,930 acres within the Central EOA, based on the 2016–2040 RTP/SCS as well as the AVAP land use designations and zoning. The majority of the Central EOA has Rural Land designations and an associated agricultural zoning. Alternative F is not consistent with the pattern of land use designations in the Central EOA, as contained in the AVAP. Therefore, this is a new significant impact of this Alternative. Implementation of Alternative F would require a General Plan amendment and a zone change for the entirety of the 12,323-acre footprint within the Central EOA. Like the proposed Project, with adoption of appropriate land use approvals, there would be a less than significant impact. This Alternative would not involve development within an SEA, like the proposed Project, and would not include hillside management areas. Therefore, Alternative F would not conflict with applicable land use criteria, similar to the Project.

Based on the 2016–2040 RTP/SCS, the maximum growth within the Central EOA is estimated at 24,015 people, 8,233 jobs, and 9,505 households (i.e., dwelling units) (Stantec 2016b). Therefore, this alternative would exceed the regional growth projections for this EOA by 33,135 people, 15,442 jobs, and 9,828 dwelling units. Therefore, development of the equivalent land use plan within the Central EOA would be inconsistent with the adopted

RTP/SCS, which is the region's approved land use and transportation plan pursuant to the Sustainable Communities and Climate Protection Act of 2008 (Senate Bill [SB] 375). This inconsistency would represent a new significant and unavoidable impact compared to the proposed Project. Furthermore, the approximate 11,607 acres remaining in the Central EOA with development of the Project's land uses on 12,323 acres, would still be available for development. This would hypothetically result in even higher total development within the Central EOA of the AVAP. In terms of land use compatibility, and as discussed further under relevant topics below, there are two air traffic facilities proximate to the site, the General William J. Fox Airfield (Fox Airfield) immediately to the south and EAFB immediately to the northeast. There would be greater land use and planning impacts under this Alternative, and a new significant and unavoidable impact.

## **Population, Housing, and Employment and Growth-Inducing Impacts**

This Alternative would result in an increase in population, housing stock, and employment that is similar to the Project. As discussed above under Land Use, Entitlements, and Planning, this Alternative would exceed approved growth projections for the Central EOA. Additionally, this Alternative would have a greater potential to induce growth in the surrounding area because the restrictions to development present proximate to the Project site, including topography and presence of public lands, are absent at this alternative location. Therefore, this Alternative would result in a new significant and unavoidable impact with respect to conformity to population projections, and a greater significant and unavoidable impact with respect to growth-inducing impacts. As with the Project, there would be a significant and unavoidable impact based on the substantial growth on the alternative location relative to the existing setting.

There is existing residential and non-residential (primarily the Lancaster Water Reclamation Plant and Lancaster Landfill and Recycling Center) development within the Central EOA. In order to develop a contiguous 12,323-acre site, it is expected that existing households in the scattered residences within the Central EOA would have to be displaced. The proposed Project would result in displacement of one household, which was concluded not be substantial and therefore less than significant. Implementation of this Alternative would likely result in displacement of a greater number of existing households. As such, this would be a greater impact than the proposed Project, but would be also less than significant with implementation of appropriate regulations.

## **Traffic, Access, and Circulation**

Alternative F would generate the same number of off-site vehicle trips as the proposed Project, but these trips would be distributed on SR-138 (in the EOA vicinity), SR-14, Sierra Highway, and local streets within and proximate to the Central EOA. As discussed above under Land Use, Entitlements, and Planning, development of an equivalent land use plan within the Central EOA is inconsistent with the approved 2016–2040 RTP/SCS. As such, it is expected that accommodating the number of off-site vehicle trips would require substantial transportation capacity improvements to the local and regional network beyond that anticipated by regional plans. Construction and use of transportation capacity improvements not anticipated as part of the RTP/SCS would result in greater air quality and

GHG emissions than expected and thereby reduces the ability of the County and the State to achieve its GHG reduction targets under AB 32, as implemented through SB 375.

As with the proposed Project, significant impacts to the existing transportation system and CMP highways would occur under this Alternative. Payment of fair share fees for improvements to Caltrans facilities would be made as mitigation for the impacts of this Alternative, but it is outside the County's control to implement these improvements. Thus, if Caltrans does not construct the necessary improvements, impacts would be significant and unavoidable, similar to the Project.

Impacts on air traffic would be greater than the proposed Project due to the proximity of the General William J. Fox Airfield (Fox Airfield) approximately 1.25 miles to the south at the nearest point. The southwestern portion of the Central EOA is within the Airport Influence Area Boundary of the Fox Airfield, and land use compatibility zones C, D, and E overlap the EOA. These zones represent limitations on land use development, due to flight paths, noise, accidents, risks, and other issues, to maintain compatibility with the airport operations. Although there would be greater constraints related to air traffic than the proposed Project, through compliance with FAA regulations and/or avoidance of the Fox Airfield's Airport Influence Area in the hypothetical placement of the alternative location within the EOA, there would be less than significant impacts, same as the proposed Project. EAFB is also adjacent to the Central EOA. EAFB was contacted to request its Air Installation Compatible Use Zone (AICUZ), if applicable, and/or other information on land use compatibility planning. The EAFB staff reports the Central EOA is not within an area with any land use compatibility restrictions (Perry 2016). It is assumed this is due to the distance between the active EAFB operations and the Central EOA. As such, there would be less than significant impacts related to EAFB.

As with the proposed Project, impacts related to emergency access and traffic hazards can be mitigated. No conflict with alternative transportation policies would occur, similar to the Project.

## **Air Resources**

Implementation of Alternative F would involve the same grading and construction activity, and associated criteria pollutant emissions, as the proposed Project. The entirety of the Central EOA is located within the AVAQMD. Because the AVAQMD thresholds are based on annual construction emissions, with implementation of mitigation (i.e., use of Tier 4 construction equipment) emissions would be less than significant for both the average construction year and peak construction year. Therefore, this alternative would avoid the significant and unavoidable construction-related impacts associated with CO, VOCs, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions.

This Alternative would have the same land use development and would generate the same amount of vehicular traffic; therefore, vehicular emissions would not change. As with the proposed Project, this Alternative would result in significant unavoidable operational emissions associated with CO, VOCs, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> pursuant to AVAQMD thresholds. Consistency with the applicable Air Quality Management Plan would represent a



less than significant impact under this Alternative, similar to the proposed Project. Based on the presence of the Lancaster Water Reclamation Plant, which has large open basins as part of its facilities, it is unclear whether exposure to odors would also be a less than significant impact under this Alternative.

## Noise

Alternative F would involve the same construction as the proposed Project, with the same noise impacts and exposure to groundborne vibration resulting from construction. Impacts related to noise increases in excess of Los Angeles County standards at sensitive receptors, including existing residences within and immediately adjacent to 12,323-acre alternative location within the Central EOA, would likely be significant, similar to those of the proposed Project. Mitigation would reduce these impacts to less than significant levels.

Off-site traffic noise would be the same when compared to the proposed Project because of the same vehicular traffic generation. Noise impacts on existing residences along roadways that would have much higher capacity would likely also be significant and unavoidable under this Alternative because it is outside the County's control to implement improvements on private properties or Caltrans right-of-way.

Airport noise exposure would be greater than the Project due to the proximity of Fox Airfield; however, as discussed above under "Traffic, Access, and Circulation", through compliance with FAA regulations and/or avoidance of the Fox Airfield's Airport Influence Area in the hypothetical placement of the alternative location within the EOA, there would be less than significant impacts, similar to the proposed Project.

## Visual Resources

Visual changes to the Project site associated with the implementation of Alternative F would be greater than those anticipated under the proposed Project because the Central EOA is more visible from public roadways, and from a farther distance because of the flat topography of the EOA and surrounding areas. Like the proposed Project, impacts with respect to alterations to a scenic vista and degradation of the visual quality of the site would be significant and unavoidable. This Alternative would also result in significant and unavoidable impacts related to creation of new sources of light and glare.

The AVAP identifies scenic drives on roadways that are two miles from the Central EOA boundary at the nearest point (i.e., 90<sup>th</sup> Street West). Under both the proposed Project and this Alternative, less than significant impacts would occur related to a scenic highway corridor since the site is planned for development in the AVAP, though not at the intensity envisioned under the Conceptual Land Use Plan, and based on the distance to the scenic drives.

## Parks and Recreation

Implementation of Alternative F would result in the same demand for parks and recreational facilities since the same number of dwelling units is proposed, resulting in the same resident

population. As with the proposed Project, less than significant impacts would occur with the provision of on-site parks and recreational facilities. This Alternative would also provide on-site trails that may connect to existing County or regional trails; however, this alternative site is not proximate to regional open space (e.g., National Forests, realigned Pacific Crest Trail) in the same manner as the Project site. Regardless, this would remain a less than significant impact, similar to the proposed Project.

## **Education**

The demand for school facilities and services associated with Alternative F would be similar to those of the proposed Project because the same residential development is proposed. As such, schools needed to serve on-site residents would also be the same. This Alternative would require school services from the Lancaster Elementary School District, Westside Union Elementary School District and the Antelope Valley Union High School District. As with the proposed Project, impacts would be mitigated to a less than significant level under this Alternative through school facilities and funding agreements with the affected school districts.

## **Fire and Law Enforcement Services**

The demand for fire and law enforcement services associated with Alternative F would be similar to that for the proposed Project because the same amount of development is proposed. Impacts to fire and law enforcement services would be mitigated through the provision of on-site fire stations and a Sheriff's station, similar to the proposed Project. Impacts to fire and law enforcement services would be mitigated to a less than significant level under this Alternative.

## **Other Public Services**

### ***Library***

The demand for library services associated with Alternative F would be similar to those of the proposed Project. With the same number of residents, this Alternative would require the development of the same size community library as the proposed Project. Both the proposed Project and this Alternative would result in less than significant impact after mitigation.

### ***Solid Waste***

The solid waste demands associated with Alternative F would be similar to those of the proposed Project because the same development is proposed. Also, the demand for landfill capacity would be considered significant and unavoidable because permitted landfill capacity at existing County landfills cannot be guaranteed at the time of Project buildout and through the life of the Project, which would occur beyond the required 15-year LACDPW planning horizon. Like the proposed Project, this Alternative would result in a significant and unavoidable impact related to solid waste.

### **Other Public Facilities**

Alternative F would create a demand for County services and facilities but would be subject to the payment of fees for any needed services. Alternative F would also provide a maintenance yard on the site for County use for public park and facility maintenance, County-owned roadway maintenance, public right-of-way maintenance, flood-control infrastructure maintenance, and other maintenance activities. Impacts would be less than significant, similar to the Project.

### **Water Resources**

The water demands associated with Alternative F would be similar to those of the proposed Project because the same amount of development is proposed. Unlike the Project site, there is no existing water supply infrastructure (i.e., water bank) and associated water rights to support development of the proposed master-planned community. Therefore, this Alternative would result in greater direct impacts than the proposed Project. It is expected there would not be feasible mitigation to accommodate the water demands of the Conceptual Land Use Plan without the existing water resources associated with the Project site, resulting in a new significant and unavoidable impact. Also, as with the proposed Project, significant unavoidable cumulative impacts to water supplies would result from Alternative F.

### **Wastewater**

Wastewater generation associated with Alternative F would be similar to the Project due to the same development. As such, impacts related to wastewater treatment requirements and wastewater facilities would also be less. Both the proposed Project and this Alternative would result in less than significant impacts with the provision of an on-site sewer system and WRFs.

### **Dry Utilities**

Demands for dry utility services associated with Alternative F would be similar to those of the proposed Project because the same development is proposed. As with the proposed Project, impacts would be mitigated to a less than significant level under this Alternative.

### **Climate Change**

With the same development associated with Alternative F, greenhouse gas emissions from development would be similar to the Project. As discussed above under “Land Use, Entitlements, and Planning”, development of an equivalent land use plan within the Central EOA is inconsistent with the approved 2016–2040 RTP/SCS, which is the region’s approved land use and transportation plan pursuant to SB 375). Accordingly, development of a master planned community on lands not anticipated as part of the RTP/SCS thereby reduces the ability of the County and the State to achieve its GHG reduction targets under AB 32, as implemented through SB 375. Therefore, Alternative F would result in impacts related to climate change would be greater under Alternative F, and would result in a greater significant and unavoidable impact related to climate change impacts.

## Summary Conclusion

Implementation of Alternative F would result in similar impacts as the proposed Project related to land resources, geotechnical, hydrology and flood, water quality, air resources (operation only), noise, cultural resources, parks and recreation, hazards, fire and law enforcement services, other public services, dry utilities, wastewater, and education. Alternative F would result in increased impacts related to land use and planning; population, housing, and employment and growth-inducing impacts; traffic, access, and circulation; visual resources; water resources; and climate change. This Alternative would result in decreased impacts related to air resources (construction only) and wildland fire risk. Regarding biological resources, this Alternative would result in similar impacts related to sensitive plant and wildlife species (impact mitigated) and habitat conservation plans (no impact), and would result in reduced impacts related to sensitive vegetation communities, wetlands, oak trees and oak woodlands, and wildlife movement. This Alternative would avoid significant and unavoidable cumulative impacts to sensitive vegetation communities and wildlife movement, as it is anticipated these impacts would be cumulatively less than significant with mitigation. Like the proposed Project, this Alternative would also result in significant and unavoidable impacts associated with air quality, agriculture resources, noise, traffic, visual resources, climate change, water supply, and solid waste.

## 8.5 ABILITY OF ALTERNATIVES TO MEET OBJECTIVES

Table 8-3 provides a brief discussion of how each alternative meets the Project objectives. For review of all Project objectives, please refer to Section 4.0, Project Description, of this Draft EIR.

**TABLE 8-3  
ABILITY OF EACH ALTERNATIVE TO MEET THE PROJECT OBJECTIVES**

<p>Implement the Antelope Valley Area Plan (AVAP) by creating an environmentally and economically sustainable master-planned community on the Project site to help accommodate planned regional population and economic growth within the West EOA.</p>	<p>All of the alternatives except for Alternatives A and F would meet this objective. Alternative A would not meet this objective since no development is proposed on the site.</p> <p>Alternative B would meet the objective for an environmentally and economically sustainable master-planned community, but would not be consistent with the land use designations for the site, as contained in the AVAP.</p> <p>Alternatives C, D, and E would also meet the objective for an environmentally and economically sustainable master plan while also being largely consistent with the land use designations for the site.</p> <p>However, Alternatives C and D would provide less development than the Project. Under these alternatives, the County would not be able to achieve housing and employment levels anticipated by the AVAP and associated with the adopted growth projections unless development occurs in excess of projections in other areas of the Antelope Valley,</p>
---	--

**TABLE 8-3  
ABILITY OF EACH ALTERNATIVE TO MEET THE PROJECT OBJECTIVES**

	<p>which would result in similar or greater impacts than the proposed Project.</p> <p>Alternative F would not meet this objective because locating the proposed master-planned community in the Central EOA would not be environmentally sustainable, as indicated by the analysis above, nor would it be consistent with the land use designations and associated population, housing, and employment levels anticipated for this area of the Antelope Valley by the AVAP. This Alternative would also exceed SCAG's regional growth projections.</p>
<p>Design the Project to maximize efficient utilization of regional infrastructure while preserving hundreds of thousands of acres of contiguous natural open space and important biological resources.</p>	<p>All of the alternatives except for Alternatives A and F would meet this objective.</p> <p>All of the alternatives except for Alternatives A and F would utilize the northwest segment of SR-138 as primary access to future development, and would preserve in perpetuity the on-site natural open space areas that connect to the approximate 240,000-acre Tejon Ranch Conservancy lands.</p> <p>Alternatives B and D include less open space areas than the proposed Project, while Alternatives A, C, and E would have more open space areas. However, Alternative A would not involve stewardship of the on-site resources to restore and/or create habitats, and the existing grazing activities would continue.</p> <p>Alternatives A and F would not utilize existing (i.e., I-5 and the California Aqueduct) and planned regional infrastructure (i.e., the Northwest 138 Corridor) to the same extent as the Project. Additionally, Alternative F would result in less efficient use of regional transportation infrastructure than Alternative A because accommodating this Alternative would require substantial transportation capacity improvements to the local and regional network beyond that anticipated by regional plans.</p>
<p>Size the Project to include a broad range of employment, residential, institutional, and recreational land uses to encourage walkability and wellness, while reducing off-site employment-related commuter trips.</p>	<p>All of the alternatives except for Alternative A would meet this objective, to varying degrees. Alternative A would not meet this objective since no development is proposed on the site.</p> <p>Alternatives B through F would provide a range of land uses, balanced to encourage alternative transportation (e.g., walking, bicycling) as well as wellness through provision of abundant recreational facilities; walkable and interconnected village centers; and on-site employment.</p> <p>Alternative B includes more land use development than the proposed Project, and Alternative C includes less. Alternative F would include the same types and amounts of land uses, but would not be located adjacent to existing open space and recreation features (e.g., National Forests) and would not be in a location that can connect to the Pacific Crest Trail. Alternative F is, however, situated closer to existing employment-generating land uses in the City of Lancaster and at EAFB, as it relates to commute lengths.</p>

**TABLE 8-3  
ABILITY OF EACH ALTERNATIVE TO MEET THE PROJECT OBJECTIVES**

Ensure that all Project site infrastructure and public services are funded by the Project to avoid creating any financial obligations on existing residents and other taxpayers.	All of the alternatives except for Alternatives A and E would meet this objective. This objective is not applicable to Alternative A since no development is proposed on the site. However, Alternative E would not have ready access to the Tejon Ranch water resource infrastructure or the California Aqueduct.
Integrate a multi-modal transportation network, renewable energy, water conservation, community wellness, and other green development features into the Project's design, build out and ongoing operations.	<p>All of the alternatives except for Alternatives A and F would meet this objective. Alternative A would not meet this objective since no development is proposed on the site.</p> <p>Alternatives B through F would provide essentially the same green development features within the Project site boundaries. However, Alternative F would not meet this objective because development of the equivalent land use plan within the Central EOA would be inconsistent with the adopted RTP/SCS. This, in turn, reduces the ability of the County and the State to achieve its GHG reduction targets under AB 32, as implemented through SB 375. Development that is substantially inconsistent with the primary State and regional land use plans related to sustainability outweighs the benefits of the green development features that would be implemented within this Project location.</p>

## 8.6 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

CEQA requires that an EIR identify the environmentally superior alternative. Section 15126.6 of the State CEQA Guidelines (14 CCR) identifies the following factors that may be used to eliminate alternatives from detailed consideration in an EIR: (1) failure to meet most of the basic Project objectives, (2) infeasibility, or (3) inability to avoid significant environmental impacts. These factors are considered in the selection of the environmentally superior alternative.

The analysis of the potential impacts associated with the proposed Project and the alternatives addressed in this EIR indicate that Alternative A, the No Project Alternative, has the least environmental impact since no development is proposed on site. However, the No Project Alternative would not meet any of the Project objectives. Section 15126.6 of the State CEQA Guidelines states "If the environmentally superior alternative is the 'no project' alternative, the EIR shall also identify an environmentally superior alternative among the other alternatives" (14 CCR 15126.6).

Alternative B would meet most of the Project Objectives but would result in greater impacts on most issues due to the increase in development proposed on a smaller site. It would also not avoid any of the significant impacts of the Project. The currently proposed Project is an amended proposal from a 2003 application submitted to the County of Los Angeles, as described in the NOP dated March 2004. Based on the AVAP community outreach, environmental review, and County approval process, the Project was redesigned to be

consistent with the 2015 AVAP. The current Project has 3,665 fewer dwelling units and 4.12 million sf less of commercial and business park development, on a development footprint that is approximately 640 acres less than the earlier proposed project. The proposed Project is a significantly better and environmentally superior design compared to the earlier proposal.

Alternative C would meet the Project Objectives and would reduce impacts to major drainages on the site as well as other environmental factors due to the reduction in dwelling units (92 fewer units) and commercial and institutional development (198,634 sf less). This Alternative would reduce both its grading-driven impacts (e.g., biological resources, cultural resources, visual resources) and population-driven impacts (e.g., air quality, climate change, noise, traffic, water supply, public services and utility demands). However, it would not avoid any of the significant and unavoidable impacts of the Project.

Alternative D would meet the Project Objectives and would relocate water tanks and the water treatment plant to improve the water system and reduce energy demands for water distribution. It would also reduce its visual impacts, but would increase impacts on biological resources, with 58 acres of the San Andreas SEA disturbed. Since this Alternative would not change the development on the site, it would not avoid any of the significant and unavoidable impacts of the Project.

Alternative E would meet the Project Objectives and would result in decreased impacts to grading-driven impacts (approximately 656 fewer graded acres), increased preservation of open space, as well as reduced impacts to visual resources. This Alternative would result in the same or similar impacts to population-driven impacts and would not avoid any of the significant and unavoidable impacts of the Project.

Alternative F would not meet three of the five Project Objectives, and would result in additional significant and unavoidable impacts to related to land use, population projections, and water supply and greater significant and unavoidable impacts related to growth-inducing impacts and climate change. However, Alternative F would avoid significant and unavoidable impacts to sensitive vegetation communities and wildlife movement, as it is anticipated these impacts would be cumulatively less than significant with mitigation.

Based on the analysis for each Alternative above, although no alternative would entirely avoid any of the significant and unavoidable impacts of the proposed Project, Alternative E, Density Clustering/East of Aqueduct is considered the environmentally superior alternative to the Project in relation to some impact topics. Alternative E would result in a reduced grading footprint of approximately 656 acres; would have a corresponding increase in open space; and would meet all the Project Objectives.

## 8.7 REFERENCES

California, State of. 2016 (access date). *California Code of Regulations* (Title 14, Natural Resources; Division 6, Resources Agency; Chapter 3, Guidelines for Implementation of the California Environmental Quality Act). Sacramento, CA: the State.

Conservation Biology Institute and South Coast Wildlands (CBI and SCW). 2006 (May). *Proposed Reserve Design for Tejon Ranch: A Threatened California Legacy*. Fair Oaks, CA: CBI and SCW.

California Department of Toxic Substances Control (DTSC). 2016 (Last accessed May 3). *Envirostor Hazardous Waste and Substances Site List: Edwards Air Force Base – IR/MMRP (15970001)*. Sacramento, CA: DTSC. [http://www.envirostor.dtsc.ca.gov/public/profile\\_report.asp?global\\_id=15970001](http://www.envirostor.dtsc.ca.gov/public/profile_report.asp?global_id=15970001).

Los Angeles County Department of Regional Planning (DRP). 2015a (June). *Antelope Valley Area Plan: Town & Country*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc>.

———. 2015b (May 27, last accessed). *Los Angeles County General Plan 2035*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/generalplan>.

———. 2014 (October). *Final Environmental Impact Report, Antelope Valley Area Plan, County of Los Angeles*. Los Angeles, CA: DRP. <http://planning.lacounty.gov/tnc/environmental/>.

Perry, M. 2016 (May 2). Personal communication. Telephone correspondence between M. Perry (U.S. Air Force, Edwards Air Force Base Community Planner) and J. Kurtz (Director, Air Quality and Acoustical Programs).

Stantec. 2016a (April 29). Personal communication. E-mail correspondence from D. Zerfass (Principal, Transportation Planning & Traffic Engineering, Stantec) to J. Neary (Assistant Project Manager, Psomas).

———. 2016b (April 26). Personal communication. E-mail correspondence from D. Zerfass (Principal, Transportation Planning & Traffic Engineering, Stantec) to N. Keith (Director of Planning, Real Estate, Tejon Ranch Company).



*This page intentionally left blank*

## 9.0 CEQA MANDATED SECTIONS

### 9.1 IRREVERSIBLE CHANGES DUE TO THE PROJECT

Pursuant to Section 15126.2(c) of the California Environmental Quality Act (CEQA) Guidelines, this Draft Environmental Impact Report (EIR) must consider significant irreversible environmental changes that would be caused by the Project, should it be implemented. The Project would result in irreversible environmental changes related to topography/landform, site character, loss of open space, and commitment to non-renewable resources. The analysis and determination of the significance of these changes is discussed below.

#### 9.1.1 TOPOGRAPHY

The existing topography on the Project site would be irreversibly changed with implementation of the Project. Manufactured slopes would be constructed; contoured to conform to the existing topography to the greatest extent feasible; and landscaped to help reduce visual impacts from the change in topography. However, as discussed in Section 5.13, Visual Resources, the Project would result in significant and unavoidable impacts related to a change in visual character of the Project site, in part due to the alteration of topography. Accordingly, the required changes to the existing topography would be considered a significant irreversible environmental change.

#### 9.1.2 SITE CHARACTER AND LOSS OF OPEN SPACE

The overall character of the Project site would be irreversibly changed through conversion from rural, agricultural, and natural open space areas to urban development. Developed portions of the property would no longer be available for grazing activities or other existing rural and agricultural land uses. These changes would also affect the visual character of the site as seen from surrounding properties and public roadways.

Of the 12,323-acre Project site, approximately 5,624 acres are designated as Open Space. Of the 5,624 acres of designated Open Space, approximately 5,116 acres (42 percent of the site) would (1) remain in their original natural condition; (2) be restored; and/or (3) be enhanced by weed abatement, fencing, and native species planting, among other means. Of this amount, approximately 3,861 acres are designated as Significant Ecological Area (SEA) 17 to be preserved in perpetuity within the Project site boundaries. Additionally, approximately 23,547 acres of off-site areas would be set aside for preservation to mitigate impacts to biological resources (see Section 5.7, Biological Resources) to ensure preservation of the total 27,412-acre open space preserve in perpetuity. Some open space would be re-created through the development of the passive open space areas, parks, and a greenway trails and other trails on the Project site. However, the rural character of the site and open space areas being developed would be irreversibly altered. As discussed above, there would be significant and unavoidable impacts to the visual character of the Project site. Accordingly, the change from a rural or urban character and the loss of open space is considered a significant irreversible environmental change.

### 9.1.3 NON-RENEWABLE RESOURCES

Non-renewable resources, such as construction aggregate (e.g., sand, gravel) and fossil fuels, would be committed to the Project, which future generations would be unable to reverse. Non-renewable materials would be used in the construction of the Project; fossil fuels would be used in the construction phase of the Project and would be consumed by the Project inhabitants over the long term.

However, the Project's residential and other land uses are proposed in order to fill an existing need that is based on estimates of future population growth; it would not be creating a need for jobs or housing. Therefore, the non-renewable resources that would be used in the construction of the Project would be expected to be consumed by housing and land development in other locations to eventually fulfill the housing and employment demand that is anticipated, and that is still unfilled, for Los Angeles County. Additionally, the land uses proposed are not unusually wasteful or excessive in terms of construction materials and fossil fuel use. Further, the Project takes advantage of the potential for protecting natural resources, increasing energy efficiency, and promoting sustainable development, through the creation of a master planned community that would include a variety of housing types, business and employment opportunities and a range of civic and recreation uses. Therefore, the Project's consumption of non-renewable resources is not considered a significant irreversible environmental change.

## 9.2 SUMMARY OF PROJECT IMPACTS

A summary of the impacts of each category are below.

### 9.2.1 LESS THAN SIGNIFICANT IMPACTS

Through the analysis presented in this EIR, many environmental factors were found to be less than significant with the implementation of Project Design Features. No mitigation measures are required for these issues, which include:

- Land Resources (forest land/timberland; mineral resources)
- Land Use, Entitlements, and Planning
- Geotechnical
- Population, Housing, and Employment (household displacement)
- Visual Resources (scenic highways)
- Water Resources (groundwater)

### 9.2.2 LESS THAN SIGNIFICANT IMPACTS WITH MITIGATION

The environmental factors that were found to be significant or potentially significant prior to mitigation include the following:

- Hydrology and Flood

- Hazards and Fire Safety
- Water Quality
- Cultural and Tribal Resources
- Biological Resources
- Noise (except traffic noise along segments of State Route [SR] 138)
- Visual Resources (views from trails/bikeways, scenic highways)
- Parks and Recreation
- Education
- Fire and Law Enforcement Services
- Other Public Services (libraries and County facilities)
- Water Resources (water supply)
- Wastewater
- Dry Utilities

However, these direct and/or indirect impacts would be mitigated to a less than significant level with incorporation of the recommended mitigation measures.

### **9.2.3 SIGNIFICANT AND UNAVOIDABLE IMPACTS**

Through the analysis contained in this EIR, the environmental factors that were found to be directly and/or indirectly significant and unavoidable even with the incorporation of mitigation include following:

- Land Resources (loss of Prime Farmland)
- Air Resources (short-term VOC and NO<sub>x</sub>; short-term PM<sub>10</sub>, and PM<sub>2.5</sub> [near previously completed residences only]; and long-term CO, VOC, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions)
- Noise (traffic noise along segments of SR-138)
- Population, Housing, and Employment (population and housing growth; growth-inducing impacts)
- Traffic, Access and Circulation (mitigation outside jurisdiction of Lead Agency)
- Visual Resources (visual character, nighttime light and glare)
- Other Public Services (solid waste)
- Water Resources (regional water supplies beyond 2035)
- Climate Change

Regarding the analysis of traffic impacts, mitigation measures have been established to reduce the Project's significant impacts; as such, these impacts may be considered less than significant with mitigation. However, these mitigation measures call for improvements to California Department of Transportation (Caltrans) facilities, which are outside the control of the County of Los Angeles. The proposed Centennial Transportation Improvement Program (CTIP) Agreement provides a mechanism that makes it reasonably likely that such improvements will be implemented by providing advance funding for planning, design, and construction of certain improvements and establishing a funding program to collect fair share for other improvements.

Accordingly, pursuant to Section 21081 of CEQA, the County determines the following:

- (a) Changes or alterations have been requested or incorporated into the Project which mitigate the traffic effects to a less than significant level, and
- (b) The mitigations are within the responsibility and jurisdiction of Caltrans and can and should be adopted by Caltrans.

It is recognized that, if Caltrans does not implement the improvements outlined in the mitigation measures in the manner or within the timeframe needed to serve the Project, significant and unavoidable direct impacts to traffic circulation may result.

The anticipated significant and unavoidable impacts of the Project are further detailed in Section 1.0, Executive Summary. As stated in Section 15093 of the State CEQA Guidelines, when a lead agency approves a project that would result in significant effects that are not avoided or substantially lessened by feasible mitigation measures, the lead agency shall, based on substantial evidence in the record, state in writing the specific reasons to support its action despite these effects. This document is called a Statement of Overriding Considerations and shall be required for the significant and unavoidable impacts identified above.

#### **9.2.4 CUMULATIVELY SIGNIFICANT IMPACTS**

Through the analysis contained in this EIR, the environmental factors that were found to be cumulatively significant and unavoidable include following:

- Biological Resources (regional wildlife movement, loss of native grasslands)
- Land Resources (loss of Prime Farmland)
- Population, Housing, and Employment (population and housing growth)
- Traffic, Access and Circulation (mitigation outside jurisdiction of Lead Agency)
- Air Resources (short-term VOC and NO<sub>x</sub>; and long-term CO, VOC, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions)
- Noise (traffic noise along segments of SR-138)
- Visual Resources (visual character, nighttime light and glare)
- Other Public Services (solid waste)

- Water Resources (regional water supplies beyond 2035)
- Climate Change

Regarding the analysis of traffic impacts, it is recognized that, if Caltrans does not implement the improvements outlined in the mitigation measures in the manner or within the timeframe needed to serve the Project, significant and unavoidable cumulative impacts to traffic circulation may result.

### 9.3 MITIGATION OUTSIDE THE AUTHORITY OF THE LEAD AGENCY

The environmental impacts below were found to be significant, or potentially significant, prior to mitigation, but the implementation of the needed mitigation in these cases is outside the jurisdiction of the lead agency. If the applicable jurisdictional agency decides to adopt mitigation, these impacts would be less than significant. These impacts include the following, as discussed above:

- Traffic, Access, and Circulation (cumulatively significant without pending highway and freeway improvements by Caltrans).

*This page is intentionally left blank.*

## 10.0 DOCUMENT PREPARERS

### 10.1 EIR PREPARERS

#### 10.1.1 BONTERRA PSOMAS (EIR PREPARATION)

Joan Patronite Kelly, AICP ..... Principal-in-Charge  
 Kristin Starbird..... Project Manager  
 Josephine Alido, AICP..... Environmental Planner  
 Angie Schnapp ..... Environmental Planner  
 Jillian Neary..... Environmental Planner  
 Daria Sarraf..... Environmental Planner  
 James Kurtz ..... Air Quality/Greenhouse Gas Emissions/Noise Specialist  
 Tin Cheung..... Air Quality/Greenhouse Gas Emissions/Noise Specialist  
 Marc Blain..... Senior Biologist  
 Brian Daniels ..... Senior Biologist/Ornithologist  
 Richard Lewis, III..... Restoration Biologist  
 Sarah Thomas..... Biologist  
 Patrick Maxon, M.A., RPA ..... Cultural Resources Specialist  
 David Smith ..... Archaeologist  
 Chris Starbird..... GIS Specialist  
 Sheryl Kristal..... Word Processor  
 Julia Black..... Technical Editor

#### 10.1.2 REPORT CONTRIBUTORS

Company	Report Title/Date	Preparers/Contributors
<b>ASM Affiliates, Inc.</b>	Phase I Survey of 768 Acres And Phase II Test Excavation of 20 Archaeological Sites, Centennial Project (September 2015)	David S. Whitley, PhD, RPA, Principal Investigator Peter Carey, MA, RPA, Associate Archaeologist Robert Azpitarte, B.A., Associate Archaeologist
<b>Paul Beier</b>	Linkage Analysis for the Southernmost Portion of the Linkage from Sierra Madre to Sierra Nevada (April 2003)	Paul Beier, Principal Biologist
<b>BJ Palmer &amp; Associates, Inc.</b>	Dry Utilities Analysis: Centennial (August 2015, study update)	Bruce J. Palmer, President



Company	Report Title/Date	Preparers/Contributors
<b>Bloom Biological</b>	California Condor Environmental Assessment of the Centennial Specific Plan Project (July 2009)	Peter H. Bloom, Ornithologist
<b>BonTerra Consulting/ BonTerra Psomas</b>	Special Status Plant Survey Report for Centennial Specific Plan (August 2015)	Marc Blain, Biological Resources Manager Jordan Zylstra, Lead Botanist Sarah Thomas, Biologist Katie Gallagher, Biologist Ian Cain, Biologist Jennifer Pareti, Biologist Allison Rudalevige, Biologist David Bramlet, Consulting Biologist Mike Couffer, Consulting Biologist Chez Brungraber, , Consulting Biologist Griffin Brungraber, Consulting Biologist Michelle Cloud-Hughes, Consulting Biologist Sandy Leatherman, Consulting Biologist Kier Morse, Consulting Biologist Cecile Shohet, Consulting Biologist Cedrick Villaseñor, Consulting Biologist
	California Condor Assessment Update Memorandum (October 2015)	Marc Blain, Senior Biologist Jonathan Feenstra, Senior Ornithologist
	Jurisdictional Delineation Update and Functional Assessment (November 2015)	Marc Blain, Biological Resources Manager David T. Hughes, Regulatory Specialist Nathan Moffett, Biologist Sarah Thomas, Biologist
	Tricolored Blackbird Survey Report for the Centennial Specific Plan (October 2015)	Marc Blain, Senior Biologist Brian Daniels, Senior Ornithologist Jonathan Feenstra, Senior Ornithologist Steven Morris, Biologist Sarah Thomas, Biologist
	Swainson's Hawk Survey Report (October 2013)	Marc Blain, Biological Resources Manager Brian Daniels, Senior Biologist/Ornithologist Samuel Stewart, Senior Biologist Sarah Thomas, Biologist
	Results of Mountain Plover Survey on the Centennial Specific Plan Site (April 2010)	Marc Blain, Biological Resources Manager Brian Daniels, Senior Biologist/Ornithologist

Company	Report Title/Date	Preparers/Contributors
<b>BonTerra Consulting/ BonTerra Psomas (cont.)</b>	Oak Tree Supplemental Report: Centennial Specific Plan (May 2009)	Marc Blain, Biological Resources Manager David Hughes, Certified Arborist Jeff Crain, Certified Arborist Andrea Edwards, Botanist Kimberly Oldehoeft, Ecologist Lindsay Messett, Ecologist Richard Lewis, III, Ecologist Allison Rudalevige, Ecologist Alex Aftandilians, Environmental Planner
	Results of Special Status Plant Surveys for Portions of the Centennial Specific Plan Project Site (August 2009)	Marc Blain, Biological Resources Manager Andrea D. Edwards, Project Botanist Jeff Crain, Botanist David Hughes, Ecologist
	Results of Focused Presence/Absence Surveys for the Southwestern Willow Flycatcher and Least Bell's Vireo on the Centennial Specific Plan Project Site (August 2008)	Marc Blain, Biological Resources Manager Brian Daniels, Senior Biologist
	Results of Focused Presence/Absence Surveys for the California Spotted Owl on the Centennial Plan Project Site (September 2006)	Marc Blain, Senior Biologist Jeff Wheater, Ecologist
	Results of Focused Surveys for the Southwestern Willow Flycatcher and Least Bell's Vireo on the Centennial Project Site (September 2006)	Marc Blain, Biological Resources Manager Brian Daniels, Senior Biologist
	Results of Focused Presence/Absence Surveys for the Western Spadefoot on the Approximate 2,855-acre Survey Area of the 11,676-acre Centennial Specific Plan Project Site (December 2005)	Marc Blain, Biological Resources Manager Mike Robson, PhD, Senior Scientist Samuel Stewart, Biologist Jeff Wheater, Ecologist
<b>Brueya Biological Consulting</b>	Sensitive Insect Survey for Centennial Project (October 2004)	Guy P. Brueya, Entomologist/Principal Biologist Dave Crawford, Senior Biologist, Impact Sciences
	Sensitive Insect Survey for Centennial Project (August 2003)	Guy P. Brueya, Entomologist/Principal Biologist David C. Hawks, Biologist
	Results of Butterfly Survey for Rolling Meadows Project (August 2001)	Guy P. Brueya, Entomologist/Principal Biologist Dave Crawford, Senior Biologist, Impact Sciences
<b>Converse Consultants</b>	Limited Phase II Environmental Site Assessment – Drum Sampling; Centennial Park Site, Lot 1760California (June 2008)	Michael Van Fleet, PG, Senior Geologist Laura Tanaka, REA, Principal Environmental Scientist
	Phase I Environmental Site Assessment Report: Agricultural Areas East of 300th Street W, Assessor's Parcel Numbers 3275-007-014, 3275-006-006 and 3275-008-001 (August 2015)	Norman Eke, Senior Vice President/Managing Officer Laura Tanaka, Principal Environmental Scientist Spencer Wagner, Senior Staff Environmental Scientist

Company	Report Title/Date	Preparers/Contributors
<b>Converse Consultants (cont.)</b>	Mitigation Measures, Centennial Project Area (August 2015)	Norman Eke, Senior Vice President/Managing Officer Laura Tanaka, Principal Environmental Scientist
	Memorandum of Clarification, Centennial Project Area (August 2015)	Norman Eke, Senior Vice President/Managing Officer Laura Tanaka, Principal Environmental Scientist
<b>Dave Crawford</b>	Results of Small Mammal Trapping Surveys Conducted at the Centennial Project Site (June 2003)	Dave Crawford, Principal Biologist
<b>Ecological Sciences</b>	A Focused Survey for the Tehachapi Pocket Mouse ( <i>Perognathus alticola inexpectatus</i> ), Centennial Specific Plan (September 2006)	Scott Cameron, Principal Biologist
	Results of Small Mammal Trapping Survey, Centennial Site (January 2005)	Scott Cameron, Principal Biologist
<b>ENVIRON International Corporation</b>	Air Quality Analysis for Stationary Sources Allowed by the Centennial Specific Plan (September 2009)	Shari Libicki, Principal, Air Quality Service Leader
	Centennial Supplemental Air Quality Analysis (June 2009)	Shari Libicki, Principal, Air Quality Service Leader
<b>Environmental Science Associates</b>	Gorman Properties, Preliminary Biological Assessment (September 1989)	Assigned Staff
<b>Geocon, Inc.</b>	Preliminary Geologic Summary Report, Centennial – Tejon Ranch, Los Angeles County, California (August 2015)	Troy K. Reist, Senior Project Geologist Rodney C. Mikesell, Senior Engineer
<b>Geosyntec Consultants</b>	Centennial Project Water Quality Technical Report (February 2016)	Lisa Austin, Associate
	Centennial Project Hydromodification Technical Report (March 2016)	Judd Goodman, Project Water Resources Engineer
<b>Glenn Lukos Associates</b>	Wetland Functional Assessment for Areas within the Jurisdiction of the United States Army Corps of Engineers and the California Department of Fish and Game (2009)	Ingrid Chlup, Biologist
	Project-Level Delineation For the Centennial Property at Tejon Ranch (August 2009)	Ingrid Chlup, Regulatory Specialist
	Report of a Dry Season Survey for Vernal Pool Branchiopod Cysts for Tentative Tract Maps 60020, 60021 and 60023 (March 2007)	Ingrid Chlup, Biologist
	90-Day Report for a Wet-Season Presence/Absence Survey for Listed Branchiopods Conducted for Tentative Tract Maps 60020, 60021 and 60023 (August 2006)	Ingrid Chlup, Biologist
	Hybrid Wetland Functional Assessment for Areas Within the Jurisdiction of the United States Army Corps of Engineers and the California Department of Fish and Game, Tejon Ranch (November 2006)	Ingrid Chlup, Biologist
	Project-Level Delineation for Tentative Tract Maps 60020, 60021 and 60023 of the Centennial Property (January 2006)	Ingrid Chlup, Regulatory Specialist
	Results of a Dry Season Survey for Branchiopod Cysts for Two Seasonal Ponds at the Centennial Project Site (January 2006)	David F. Moskovitz, Biologist
	90-day Report for a Wet-Season Presence/Absence Survey for Listed Branchiopods Conducted for Two Seasonal Ponds at the Centennial Project Site (July 2005)	David F. Moskovitz, Biologist Cindy Hopkins, Biologist, Xeric Specialties Consulting

<b>Company</b>	<b>Report Title/Date</b>	<b>Preparers/Contributors</b>
<b>Glenn Lukos Associates (cont.)</b>	Results of Fairy Shrimp Habitat Assessment for the 3,000-Acre Centennial Project Study Area (October 2005)	Ingrid Chlup, Biologist
	Planning-Level Delineation For Areas Within The Centennial Property Boundary That Were Excluded From The Previous Impact Sciences Jurisdictional Delineation (November 2005)	Ingrid Chlup, Regulatory Specialist
<b>Golden Valley Municipal Water District</b>	Centennial Specific Plan Water Supply Assessment (May 2011)	Assigned Staff
<b>Impact Sciences</b>	90-day Protocol Survey Report for U.S. Fish and Wildlife Service Listed Vernal Pool Branchiopods (July 2011)	Assigned Staff
	2003-2004 Biological Evaluation of Bird Species For Centennial Study Area (July 2004)	Assigned Staff
	DRAFT Focused Surveys for Western Spadefoot Toad (June 2004)	Assigned Staff
	Centennial Biota Report (October 2003)	Assigned Staff
	Biological Constraints Analysis, Centennial Project (December 2002)	Assigned Staff
	Jurisdictional Delineation: Waters of the United States and Streambeds, Centennial Project (February 2002)	Assigned Staff
	DRAFT Focused Surveys for California Red-Legged Frogs (September 2001)	Assigned Staff
	DRAFT Interim Wildlife Movement Corridor Assessment (September 2001)	Assigned Staff
	Fairy Shrimp Observations (April 2001)	Assigned Staff
	Draft Summary of Special-Status Biological Surveys (2001)	Assigned Staff
	Preliminary Amphibian Surveys (April 2001)	Roy Bridgman Larry Lodwick Wendy Weber Jeff Alvarez Holly Hill
	Biological Reconnaissance: Survey Results (September 1999)	Roy Bridgman Pam Lindsay
	<b>M.N. Josselyn, D.D. Murphy, and B.M. Pavlik</b>	Technical Memo: Inter-Annual Variation in the Distribution of Native Perennial Grasses and Forbs at Centennial (September 2009)
<b>Kennedy/Jenks Consultants</b>	Peer Review of the Water Supply and Demand Assessment (January 2017)	Assigned Staff
	Peer Review of the Wastewater Treatment Report (April 2017)	Assigned Staff
<b>D.D. Murphy</b>	Biotic Conditions on the Proposed Centennial Development Site and Conservation Planning Considerations (December 2002)	Dennis D. Murphy, PhD, Director, Graduate Program in Ecology, Evolution, and Conservation Biology
<b>Natural Resource Consultants</b>	Methods, Results, and Conclusions of 2008 Focused Special Status Plant Surveys on the Approximately 11,700-acre Centennial Specific Plan Area and North and South Mitigation Areas (June 2008)	Andrew Sanders, Director, U.S. Riverside Herbarium David A. Levine, Principal
	2008 Assessment of the Native Perennial Bunchgrass Model for the Centennial Specific Plan Area Site (June 2008)	David A. Levine, Principal

Company	Report Title/Date	Preparers/Contributors
<b>Natural Resource Consultants (cont.)</b>	2007 Grassland and Wildflower Community Composition and Distribution in the South Tehachapi Regional Study Area (July 2007)	Andrew Sanders, Director, U.S. Riverside Herbarium Bruce Pavlik, PhD
	2006 Field Studies, Statistical Analyses and Modeling of Native Perennial Bunchgrass Distribution and Quality (March 2007)	Andrew Sanders, Director, U.S. Riverside Herbarium David A. Levine, Principal Marcus C. England, Senior Biologist
	Within and Between-Year Assessment of the 2006 Native Perennial Bunchgrass Model (June 2007)	David A. Levine, Principal
	2006 Perennial Grassland Studies (March 2006)	Marcus C. England, Senior Biologist David Levine, Principal Aaron Keller
	Methods, Results, and Conclusions of Focused Sensitive Plant Surveys on the Approximately 11,700-acre Centennial Specific Plan (October 2006)	David Levine, Principal
	Status of Burrowing Owl ( <i>Athene cunicularia</i> ) on the 11,700-acre Centennial Specific Plan (October 2006)	Marcus C. England, Senior Biologist
<b>Paleo Environmental Associates</b>	Paleontologic Resource Inventory and Impact Assessment Technical Report (April 2009)	E. Bruce Lander, PhD, Principal Investigator Mark A. Roeder, Field Supervisor David A. Alexander, Field Technician
<b>Pioneer Environmental Services</b>	FINAL Evaluation of Potential Population Isolation for Wildlife at Tejon Ranch (July 2004)	Assigned Staff
<b>Placeworks</b>	Draft Centennial Specific Plan (May 2017)	Randy Jackson, President Suzanne Schwab, Associate
<b>Psomas</b>	Potable Water, Wastewater, and Recycled Water Demands and System Plan (February 2017)	Mike Swan, PE
	Centennial Specific Plan Development Impacts on Infiltration and Groundwater Recharge Memorandum (February 2017)	Ross Barker, PE
	Centennial Master Plan Hydrology (May 2017)	Mike Daly, Senior Project Manager John Oliver Ross Barker, PE
	Wastewater Treatment Report, Centennial Project (April 2017)	Mike Swan, PE
<b>Stantec</b>	Centennial Specific Plan Traffic Study (May 2017)	Daryl Zeffass, PE, PTP, Principal/Project Manager Maria Manalili, PTP, Senior Transportation Planner Charlie Ho, PE, Transportation Engineer Ashley Day, EIT, Travel Demand Modeler Kendall Elmer, Transportation Specialist
<b>Tree Life Concern</b>	(Addendum 1) Oak Tree Report (July 2008)	Robert W Wallace, Registered Consulting Arborist
	Oak Tree Report: "Centennial" (December 2003)	

Company	Report Title/Date	Preparers/Contributors
<b>Vollmar Consulting</b>	2003/2004 Botanical Survey Report; Landscape Setting, Special-Status Plant Surveys, and Perennial Bunchgrass Community Study (December 2004, revised in May 2006)	John Vollmar, Project Manager/ Senior Field Botanist John Hale, Senior Field Botanist Jon Kelsey, Senior Field Botanist Shannon Hickey, Assistant Field Botanist Vir McCoy, Assistant Field Botanist Gretchen Vos, Assistant Field Botanist Jeffrey Congero, Assistant Field Botanist Michele Disney, Assistant Field Botanist Shannon Hickey, Biologist Jake Schweitzer, GPS and GIS Data Richard Gilligan, Logistical Support Pauline Alessi, Logistical Support
<b>W&amp;S Consultants</b>	Addendum Phase II Test Excavation and Determinations of Significance Within the Centennial Study Area (April 2007)	David S. Whitley, PhD, Principal Investigator
	Phase II Test Excavations and Determinations of Significance at 12 Sites in the Centennial Project Area (September 2004)	David S. Whitley, PhD, Principal Investigator
	Phase I Archaeological Survey of the Centennial Study Area (May 2002)	David S. Whitley, PhD, Principal Investigator Joseph M. Simon Tamara K. Whitley, M.A. Robert Snibbly Viki McFadden Vee Fignole
<b>Wieland Acoustics</b>	Environmental Noise Study (May 2011)	David L. Wieland, Principal Consultant

*This page intentionally left blank*

## 11.0 LIST OF ACRONYMS AND ABBREVIATIONS

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
<b>A</b>	
A	Agricultural Opportunity Areas
AAM	annual arithmetic mean
AB	Assembly Bill
ac	acre
AC	alternating current (electricity)
ACR	aluminum conductor, steel reinforced
ADA	Americans with Disabilities Act
ADT	average daily traffic (or average daily trips)
AEG	Aspen Environmental Group
af	acre-feet
AFB	Air Force Base
afy	acre-feet per year
AGL	above ground level
AGM	Annual Geometric Mean
AIDS	Acquired Immune Deficiency Syndrome
AM	morning (before noon)
AMP	Adaptive Management Plan
ANF	Angeles National Forest
ANPR	Advanced Notice of Proposed Rulemaking
ANSI	American National Standards Institute
AOU	American Ornithologists' Union
AP	Alquist-Priolo
AP Act	Alquist-Priolo Earthquake Fault Zoning Act
APCD	Air Pollution Control District
APHIS	Animal and Plant Health Inspection Service
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ASCE	American Society of Civil Engineers
ASR	Aquifer Storage and Recovery
ASTM	American Society of Testing and Materials
ATV	All-terrain Vehicles
AV	Antelope Valley
AVAB	Antelope Valley Air Basin
AVAGP	<i>Antelope Valley Areawide General Plan</i>
AVAP	<i>Antelope Valley Area Plan</i>
AVAQMD	Antelope Valley Air Quality Management District



<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
AVCCD	Antelope Valley Community College District
AVECC	Antelope Valley Environmental Collection Center
AVEK	Antelope Valley – East Kern Water Agency
avg	average
AVGB	Antelope Valley Groundwater Basin
AVGP	Antelope Valley General Plan
AVIRMP	Antelope Valley Integrated Regional Water Management Plan
AVO	Average Vehicle Occupancy
AVUHSD	Antelope Valley Unified High School District
<b>B</b>	
BACT	Best Available Control Technology
B/C	benefit to cost ratio
BARBD	Building America Research Benchmark Definition
BAT	Best Available Technology Economically Achievable
BAU	Business As Usual
BCHP	Big Creek Hydroelectric Project
BCT	Best Conventional Pollutant Control Technology
BDCP	Bay-Delta Conservation Plan
bgs	below ground surface
BiOp	Biological Opinion (USFWS)
BLM	Bureau of Land Management
BLS	United States Bureau of Labor Statistics
BMPs	Best Management Practices
BOD	Biochemical Oxygen Demand
BP	Before Present
BP	Business Park
BSC	(California) Building Standards Commission
<b>C</b>	
C	carbon
°C	degrees Celsius
CA	California
CAA	Clean Air Act (federal)
CAAQS	California Ambient Air Quality Standards
CADD	Computer-aided Design
C&D	construction and demolition
C <sub>2</sub> F <sub>6</sub>	hexafluorethane
CA HSRA	California High-speed Railway Authority
CAFE	Corporate Average Fuel Economy
CalOSHA	California Occupational Safety and Health Administration

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CAO	Cleanup and Abatement Orders
CAP	Corrective Action Plan/Program
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAT	Climate Action Team
CATV	Cable Television
CBC	California Building Code
CBECS	Commercial Buildings Energy Consumption Survey
CC	Community Commercial
CC&Rs	Conditions, Covenants, and Restrictions
CCAA	California Clean Air Act
CCAR	California Climate Action Registry
CCCC	California Climate Change Center
ccf/yr	hundred cubic feet per year
CCR	California Code of Regulations
CCTP	U.S. Climate Change Technology Program
CD	Compact disk
CDC	United States Center for Disease Control and Prevention
CDD	Cooling Degree days
CDE	California Department of Education
CDF	California Department of Forestry and Fire Protection
CDFA	California Department of Food and Agriculture
CDFG	California Department of Fish and Game
CDFW	California Department of Fish and Wildlife
CDHS	California Department of Health and Safety
CDP	census-designated place
CDPR	California Department of Parks and Recreation
CE	California Endangered species
CEC	California Energy Commission
CE	carbon equivalents
CEF	California Economic Forecast
CEQA	California Environmental Quality Act of 1970
CESA	California Endangered Species Act
CEV	Controlled Environmental Vaults
cf	cubic feet
CF <sub>4</sub>	tetrafluoromethane
CFC	chlorofluorocarbon
CFL	compact fluorescent light
CFR	Code of Federal Regulations
cfs	cubic feet per second
CFU	colony forming units
CGS	California Geological Survey

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
CH	chlorinated herbicide
CH <sub>4</sub>	methane
CHHSLs	California Human Health Screening Levels
CHP	California Highway Patrol
CHP	Combined Heat and Power
CII	Commercial, industrial, and institutional
CIMIS	California Irrigation Management Information System
cis-1, 2-DCE	cis-1, 2-dichloroethylene
CIWMA	California Integrated Waste Management Act
CIWMB	California Integrated Waste Management Board
CIWMP	California Integrated Waste Management Plan
CKD	cement kiln dust
CLAOTO	County of Los Angeles Oak Tree Ordinance
CLOMR	Conditional Letter of Map Revision
CLSRA	Castaic Lake State Recreation Area
cm	centimeter
CMOM	Capacity Assurance, Management, Operation, and Maintenance Program
CMP	Congestion Management Program
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalency Level
CNG	compressed natural gas
CNGA	California Native Grass Association
CNPS	California Native Plant Society
Co	Chino loam
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
CO <sub>2</sub> e	CO <sub>2</sub> equivalents
COC	constituents of concern
CoHb	Carboxyhemoglobin
CORP	California Outdoor Recreation Plan
County	County of Los Angeles
County DPR	Los Angeles County Department of Parks and Recreation
CPI	Consumer Price Index
CPUC	California Public Utilities Commission
CR	Commercial Recreation
CR	Community Recreation
CRHR	California Register of Historic Resources
CRWQCB	California Regional Water Quality Control Board
CSA	Condor Study Area
CSC	California Species of Special Concern
CSD	Community Services District
CSFM	California State Fire Marshal
CSO	Community Service Organization
CSRA	Castaic Lake State Recreation Area

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
CTMP	Centennial Transportation Mitigation Program
CWP	Center Watershed Protection
CT	California Threatened Species
CT	Census Tract
CT	current transformer
CTM	Centennial Traffic Model
CTR	California Toxics Rule
CUP	Conditional Use Permit
CVWD	Coachella Valley Water District
CVP	Central Valley Project
CWA	Clean Water Act, Federal (1977)
CWRCB	California Water Resources Control Board
cu	cubic
cy	cubic yards
<b>D</b>	
D	Urban and Built Up Land
DAFIF	Digital Aeronautical Flight Information File
DAWN	Domestic Agricultural Waste Network
dB	decibel
dBA	decibel, A-weighted
dbh	diameter at Breast Height
DCE	dichloroethylene
DCIA	Directly Connected Impervious Area
DDE	Dichlorodiphenyl Dichloroethylene
DDT	Dichlorodiphenyl Trichloroethane (insecticide)
DEIR	Draft EIR
DHS	California Department of Health Services
DHW	Domestic Hot Water
Diesel PM	Diesel Particulate Matter
District	Los Angeles County flood Control District
DMV	Department of Motor Vehicles, State of California
DOC	California Department of Conservation
DOD	U.S. Department of Defense
DOE	Department of Energy
DOF	Department of Finance, California
DOGGR	California Department of Conservation, Division of Oil, Gas and Geothermal Resources
DOT	Department of Transportation
DOVA	Department of Veteran Affairs
DPA	Debris Potential Area
DPH	Department of Public Health Services

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
DPFG	Development Planning and Financing Group
DPW	Department of Public Works
DRMS	Delta Risk Management Study
DTSC	Department of Toxic Substances Control, State of California
du	dwelling unit
du/ac	dwelling units per acre
DWR	California Department of Water Resources
<b>E</b>	
e/o	east of
E85	ethanol blend
EAVTAM2	East Antelope Valley Traffic Analysis Model Version 2
EC	electrical conductivity
ECI	Earth Consultants International
EDB	ethylene dibromide
EDBs	Extended Detention Basins
EDD	Employment Development Department
EDR	Environmental Data Resources
ED	Extended Detention
EEMIS	Enterprise Energy Management Information System
EER	energy efficiency ratio
EGRID	Generation Resource Integrated Database
EIA	United States Energy Information Administration
EIR	Environmental Impact Report (CEQA)
EIS	Environmental Impact Study
EISA	Energy Independence and Security Act of 2007
EMC	Event Mean Concentrations
EMF	electromagnetic field
EMFAC	Emissions Estimation Software Programs
EMS	Emergency Medical Services
ENVIRON	ENVIRON International Corporation
Ep	erosion potential
EPA	Environmental Protections Agency
ESA	Environmental Site Assessment
ET	evapotranspiration
ETo	measurement of evapotranspiration
<b>F</b>	
°F	degrees Fahrenheit
F	Farmland of Statewide Importance
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FC	Fecal Chloroform
FCAA	Federal Clean Air Act
FCU	Functional Capacity Units

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
FCV	fuel cell vehicle
FDC	flow-duration control
FE	Federally Endangered species (USFWS)
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FFV	flexible fuel vehicle
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide & Rodenticide Act 1994
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FONSI	Finding of No Significant Impact
FSRS	Fire Suppression Rating Schedule
ft/sec	feet per second
FTA	Federal Transit Administration
<b>G</b>	
G	Grazing Land
G	Greenways
G	Gauss (measurement of EMF strength)
g	percent of gravity (a measurement of earthquake acceleration)
GaE2	Gaviota rocky sandy loam
GAP	Gap Analysis Project
GAP	(California) GAP Analysis Projection
GC	Government code
GCM	General Circulation Model
GDP	Gross Domestic Product
GGE	greenhouse gas equivalent
GHG	Greenhouse Gases
GIS	Geographic Information System
GLA	Glen Lukos Associates
GLC	Gorman Learning Center
GMC	Growth Management Chapter
GPA	General Plan Amendment
gpcpd	gallons per capita per day
GPD	gallons per day
gpd/ac	gallons per day/acre
gpd/du	gallons per day/dwelling unit
GPF	gallons per flush
GPM	gallons per minute
GRP	General Reporting Protocol
gsf	gross square feet
Gt	gigatonnes
GWh	gigawatt/hour
GWP	Global Warming Potential

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
<b>H</b>	
H	high
H <sub>2</sub> O	water vapor
H <sub>2</sub> S	hydrogen sulfide
H <sub>2</sub> SO <sub>3</sub>	sulfurous acid
H <sub>2</sub> SO <sub>4</sub>	sulfuric Acid
HAP	hazardous air pollutant
HARP	Hot Spots Analysis Reporting Program
HAZMAT	hazardous materials
HCD	Department of Housing and Community Development, State of California
HCM	Highway Capacity Manual
HCOC	Hydrologic Conditions Concern
HCP	Habitat Conservation Plan
HDD	Heating Degree Days
HFA	Hybrid Functional Assessment
HFCs	hydrofluorocarbons
HGM	Hydrogeomorphic Modeling
HHWE	Household Hazardous Waste Element
HI	hazard indices
HM/A	Hillside Management/Agriculture Area
HMA	Hillside Management Areas
HOA	Homeowners Association
HOV	High Occupancy Vehicle
hp	Horse-power
HPA	Health Protection Agency
HPS	Hantavirus Pulmonary Syndrome
hr	hour
HRA	health risk analysis/assessment
HRCQ	Highway Route Controlled Quantities
HS	High School
HUD	U.S. Department of Housing and Urban Development
HVAC	Heating, Ventilation, and Air Conditioning
HVLP	High Volume Low Pressure
HVOCs	Halogenated Volatile Organic Compounds
HWY	Highway
Hz	Hertz

**I**

I	Institutional
IB	Infiltration Basin
IBC	International Building Code
ICBO	International Conference of Building Officials
ICF	insulated concrete forming systems
ICU	Interstate Capacity Utilization

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
IDA	International Dark-sky Association
IECC	International Energy Conservation Code
IFC	Insulate Concrete Forming System
in/sec	inches per second
IPCC	Intergovernmental Panel on Climate Change
IPM	Integrated Pest Management
IPS EH AL	International pipe standard extra heavy aluminum
IR	Instrument Flight Routes
IRWD	Irvine Ranch Water District
IRWM	Integrated Regional Water Management
IRWMP	Integrated Regional Water Management Plan
IS	Initial Study
ISCST3	Industrial Source Complex, Short Term Version 3
ISD	Climate Change Internal Services Department
ISO	Insurance Service Office
ITE	Institute of Transportation Engineers
ITP	Incidental Take Permit
ITS	Intelligent Transportation Systems
IWRMS	Integrated Water Resources Management Strategy

**J**

JPA	Joint Powers Authority
JSA	Jones and Stokes Assoc., Inc.

**K**

K	Kindergarten
K-6	Kindergarten through sixth grade
K-8	Kindergarten through eighth grade
K-12	Kindergarten through twelfth grade
k8	school
KCAPCD	Kern County Air Pollution Control District
KCFD	Kern County Fire Department
KCOG	Kern County Council of Governments
kcmil	thousand circular mils
KCWA	Kern County Water Agency
KFE	Kern Fan Element
kg	kilogram
kV	kilovolt
kVAR	kilovolt ampere reactive
KWBA	Kern Water Bank Authority
kWh	kilowatt hours
kW/h	kilowatts per hour



<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
<b>L</b>	
L	Farmland of Local Importance
L	liter
L	low
LA	Los Angeles
LACDPW	Los Angeles County Department of Public Works
LACDRP	Los Angeles County Department of Regional Planning
LACFD	Los Angeles County Fire Department
LACSD	Sanitation Districts of Los Angeles County
LADPH	Los Angeles Department of Public Health
LADPW	County of Los Angeles Department of Public Works
LAFCO	Local Agency Formation Commission
LAGP	Los Angeles General Plan
LARWQCB	Los Angeles Regional Water Quality Control Board
lbs	pounds
lbs/yr	pounds per year
LCA	California Land Conservation Act (aka The Williamson Act)
LCA	Life Cycle Assessment
LCFS	Low Carbon Fuel Standard
LCID	Littlerock Creek Irrigation District
LDA	Light-duty Auto
L <sub>dn</sub>	day-night average sound level
LDT1	Light-duty Truck
LDT2	Light-duty Truck 2
LEED	Leadership in Energy and Environmental Design
LEFMF	Law Enforcement Facilities Mitigation Fee
L <sub>eq</sub>	noise level equivalent
LEV	Low-Emission Vehicle
LID	Low Impact Design
LID	Low Impact Development
LIM	Land Inventory and Monitoring
L <sub>max</sub>	maximum noise level
LMD	Landscape Maintenance District
LOS	Level of Service (traffic flow rating)
LPNF	Los Padres National Forest
LRWQCB	Lahontan Regional Water Quality Control Board
LST	Localized Significance Threshold
LULUCF	Land Use, Land Use Change, and Forestry
LUP	Linear Underground Permit
LUST	leaking underground storage tanks
LWCF	Land and Water Conservation Fund
LWRP	Lancaster Water Reclamation Plant

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
<b>M</b>	
m	meter
M	medium
M&I	Municipal and Industrial
MAC	Market Advisory committee
MATES	Multiple Air Toxics Exposure Study
MBAS	Methylene Blue Activated Substances
MBR	membrane bioreactor
MBTA	Migratory Bird Treaty Act
mbtu	million British thermal units
mbtu/hr	million British thermal units per hour
mcf/d	million cubic feet per day
MCL	maximum allowable contaminant level
MCWRA	Monterey County Water Resources Agency
MDAB	Mojave Desert Air Basin
MEER	mechanical-electrical equipment room
MEI	Maximally Exposed Individual
MEL	miscellaneous energy load
MEP	Maximum Extent Practicable
MFR	Multi-Family Residential
mG	milligauss
MG	million gallon
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mgd	million gallons per day
MhE2, MhF2	Millsholm rocky loam
mi	miles
min/hr	minutes per hour
ml	milliliter
MLD	most likely descendent
mm	millimeter
MM	Mitigation Measure
MMP	Mitigation Monitoring Program
MMRP	Mitigation Monitoring and Reporting Program
MMTCO <sub>2e</sub>	million metric tonnes of CO <sub>2</sub> equivalent
MND	Mitigated Negative Declaration (CEQA)
MOA	military operating area
MOU	Memorandum of Understanding
mpg	miles per gallon
mph	miles per hour
MPN	Most Probable Number
MPO	Metropolitan Planning Organization
MRF	Materials Recovery Facility
MRZ	Mineral Resource Zone

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
MS4	Municipal Separate Storm Sewer System
MSHCP	Multiple Species Habitat Conservation Plan
msl	mean sea level
MTA	Metropolitan Transportation Authority
MTC	Metropolitan Transportation Commission
MTCO <sub>2e</sub>	Metric tonnes of CO <sub>2</sub> equivalent
MTR	Military Training Route
MTYRE	Multi-Track Year Round Education
MVA	megavolt ampere
MW	megawatt
MW	Monitoring Well
MWH	megawatt hour
<b>N</b>	
N	north
N.A.P.	Not a Part
N/A	not available or not applicable
n/o	north of
N <sub>2</sub> O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAHB	National Association of Home Builders
NAHC	Native American Heritage Commission
NAICS	North America Industry Classification System
NAS	Naval Air Station
NASA	National Aeronautics and Space Administration
NCCC	National Cement Company of California
NCCP	Natural Community Conservation Plan
NCDC	National Climatic Data Center
NCP	National Contingency Plan
ND	not detected
NDFE	Non-Disposal Facility Element
NEC	No Exposure Certification
NEV	Neighborhood Electric Vehicles
NH <sub>3</sub> -N	ammonia
NHMLAC	Natural History Museum of Los Angeles County
NHTSA	National Highway Traffic Safety Administration
NIMBY	Not In My Back Yard
NLACWC	North Los Angeles County Water Company
nm	Nautical Mile
NMOGs	Non-Methane Organic Gases
NO	nitric oxide
NO <sub>2</sub>	nitrogen dioxide
NOA	Notice of Availability (CEQA)
NOAA	National Oceanic and Atmospheric Administration

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
NOD	Notice of Determination (CEQA)
NOI	Notice of Intent
NOP	Notice of Preparation (CEQA)
NOx	oxides of nitrogen (nitric oxide and nitrogen dioxide)
NPBG	Native Perennial Bunchgrasses
NPDES	National Pollutant Discharge Elimination System
NPDWR	National Primary Drinking Water Regulations
NPS	National Park Service
NRC	Natural Resources Consultants
NRCS	Natural Resources Conservation Service
NRDC	Natural Resources Defense Council
NROSMP	Natural Resource/Open Space Management Plan
NSDWR	National Secondary Drinking Water Regulations
NSR	New Source Review
NTP	National Toxicology Program
NTU	Nephelometric Turbidity Units
NVUM	National Visitor Use Monitoring
NWI	National Wetlands Inventory

**O**

O <sub>2</sub>	oxygen
O <sub>3</sub>	ozone
OaC	Oakdale sandy loam
OCLI	Official California Legislative Information
OCPs	organochlorine pesticides
OdA, OdC	Oak Glen loam
OEHHA	Office of Environmental Health Hazard Assessment
OHM-cm	a measure of resistancy
OHMVR	Off-highway Motor Vehicle Recreation
OHV	Off-highway Vehicle
OHWM	ordinary high water mark
OLR	optimal location review
OMR	Old and Middle Rivers
OPR	Office of Planning and Research
OS	Open Space
OSHA	Occupational Safety and Health Agency

**P**

P	Park
P	Prime Farmland
PA	Planning Area
PA	public address
PA/ED	Project Approval/Environmental Documentation
PAH	Polycyclic Aromatic Hydrocarbons

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
PAOT	persons at one time
Pb	lead
P-C Region	Production-Consumption Region
PC	passenger car
PC/LDT1	Passenger car/light duty truck
PCB	polychlorinated biphenyls
PCE	tetrachloroethane
PCL	Planning and Conservation League
PCM	Parallel Climate Model
PCT	Pacific Crest Trail
PCTA	Pacific Crest Trail Association
PDF	Project Design Feature
PEA	Paleo Environmental Associates
PEAR	Preliminary Environmental Analysis Report
PFC	perfluorocarbon
PG&E	Pacific Gas and Electric
pH	Potential of Hydrogen
PHEV	plug-in hybrid electric vehicle
PHG	Public Health Goal
PID	photoionization detection
PIPP	Public Information and Participation Program
PM	evening (after noon)
PM10	respirable particulate matter less than 10 micrometers in diameter
PM2.5	respirable particulate matter less than 2.5 micrometers in diameter
PMI	Point of Maximum Impact
ppb	parts per billion
ppm	parts per million; used interchangeably with mg/L (milligrams per liter)
PRC	Public Resources Code
PRG	Preliminary Remediation Goal
PRMP	Paleontological Resource Monitoring Plan
psf	per square foot
PSR/PDS	Project Study Report/Project Development Support
PTD	Proprietary treatment device
PTMP	Paleontological Treatment and Monitoring Plan
PUC	Public Utility Commission
PUMS	Public Use Micro-Data Sample
PUP	Power/Utility Protocol
PVC	polyvinyl chloride
PWD	Palmdale Water District
<b>Q</b>	
Q	flow rate
Qc	Colluvium (Surficial Units)
Qls	Landslide Debris (Surficial Units)

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
Qoal	Older Alluvium (Surficial Units)
QHWD	Quartz Hill Water District
<b>R</b>	
R	non-urban
R&D	Research & Development
RACT	Reasonable Available Control Technology
RCBP	recycled content building products
RCP	Regional Comprehensive Plan
RCP	Regional Comprehensive Plan
RCSD	Rosamond Community Services District
RC <sub>x</sub>	Facility Retrocommissioning Program
RdE2, ReC	Ramona coarse sandy loam and gravely sandy loam
REA	Recreation Enhancement Act
REA	Registered Environmental Assessor
RECs	recognized environmental conditions
RECS	Residential Energy Consumption Survey
RELS	reference exposure levels
RFS	Renewable Fuel Standard
RGGI	Regional Greenhouse Gas Initiative
RHNA	Regional Housing Needs Assessment
ROD	Record of Decision
ROG	Reactive Organic Gas
ROW	Right-of-Way
RPC	Regional Planning Commission
RPPI	Reason Public Policy Institution
RPS	Renewables Portfolio Standard
RPZ	Root Protection Zone
RSABG	Rancho Santa Ana Botanical Garden
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
RWMP	Ranch-Wide Management Plan
RWQCB	Regional Water Quality Control Board

<b>S</b>	
S	school
S	south
s/o	south of
SANDAG	San Diego Association of Governments
SAOT	Skiers at One Time
SAR	Second Assessment Report
SB	Senate Bill
SB	soil boring

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
SB	Southbound
SC	Standard Condition
SCA	Standard Condition of Approval
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCCIC	South Central Coastal Information Center
SCE	Southern California Edison
SCH	Screencheck
SCS	Soil Conservation Service
SCVCTM	Santa Clarita Valley Consolidated Traffic Model
SDC	Standard Development Conditions
SDWA	Safe Drinking Water Act
SEA	Significant Ecological Area
SEATAC	SEA Technical Advisory Committee
SEER	Seasonal Energy Efficiency Ratio
SEIR	Supplemental Environmental Impact Report
SEL	Single Noise Event Level
SEL	Sound Exposure Level
sf	square foot (or feet)
SF <sub>6</sub>	sulfur hexafluoride
SFA	Single-family attached
SFD	Single-family detached
SGF	Student Generation Factors
SHP	State Historic Park
SHPO	State Office of Historic Preservation
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SIPs	structural insulated panels
SLF	Sanitary Landfill
SMA	Special Management Area
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMARA	Surface Mining and Reclamation Act
SMCL	secondary maximum contaminant level
SO <sub>2</sub>	sulfur dioxide
SO <sub>3</sub>	sulfur trioxide
SO <sub>4</sub>	sulfates
SOAR	Save Our Agricultural Resources
SoB	Soboba cobbly loamy sand
SoCAB	South Coast Air Basin
SoCalGas	Southern California Gas Company
SO <sub>x</sub>	sulfur oxide
SQMP	Stormwater Quality Management Program
SR	State Route
SR-126	State Route 126

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
SR-138	State Route 138
SR-14	State Route 14
SR-58	State Route 58
SR-99	State Route 99
SRA	State Recreation Area
SRRE	Source Reduction and Recycling Element
SUA	Special Use Airspace
SUSMP	Standard Urban Stormwater Mitigation Plans
SVOC	Semi-volatile organic compound
SVRA	State Vehicular Recreation Area
SWP	State Water Project
SWPPP	Storm Water Pollution Prevention Plan
SWQCB	State Water Quality Control Board
SWRCB	State Water Resources Control Board

**T**

T-BACT	best available control technology for toxics
TAC	Toxic Air Contaminant
TAR	Third Assessment Report
TAZ	Traffic Analysis Zone
TCE	trichloroethylene
TCM	Transportation Control Measures
TCR	The Climate Registry
TDF	tire-derived-fuel
TDM	Transportation Demand Management
TDS	total dissolved solids
TDV	Time Dependent Valuation
TIC	Tejon Ranch Industrial Complex
TKN	Total Kjeldahl Nitrogen
TLBWS	Tulare Lake Basin Water Storage District
TMA	Transportation Management Association
TMDL	Total Maximum Daily Load
TMV	Tejon Mountain Village
Tonnes	Metric tonnes; 1,000 kilograms
Toc	Oso Canyon Formation
TON	Threshold Odor Numbers
Tons	Short tons; 2,000 pounds
Tons/yr	Tons per year
TP	Total Phosphorus
tpd	tons per day
TPH	Total Petroleum Hydrocarbons
TPH-cc	Total Petroleum Hydrocarbon carbon chain
TPL	Trust for Public Land
TPTP	Temporary Package Treatment Plant



<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
tpy	tons per year
Tql	Quail Lake Formation
TRB	Transportation Research Board
TRC	Tejon Ranch Company
TRCRWA	Tejon Ranch Conservation and Land Use Agreement
TRM	turf reinforcement matting
TS	Transfer Station
TsF	Terra Escarpment
TSS	Total Suspended Solids
TTP	Tertiary Treatment Plant
TUMSHCP	Tehachapi Upland Multiple Species Habitat Conservation Plan
Tva	Neenach Volcanic Formation
TWRF	Temporary wastewater reclamation facility
<b>U</b>	
U	Unique Farmland
U	Utility
UA	Urbanized Area
UBC	Uniform Building Code
UC	Urban Cluster
UN	United Nations
UNEP	United Nations Environment Programme
UNFCCC	United Nation Framework Convention on Climate Change
URBEMIS	Urban Emissions Model
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USDA	U.S. Department of Agriculture
USDOI NPS	U.S. Department of Interior, National Park Service
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Survey
USOSM	Office of Surface Mining
UST	underground storage tanks
UV	ultraviolet
UWMP	Urban Water Management Plan
<b>V</b>	
V/C	volume-to-capacity ratio
VAMP	Vernalis Adaptive Management Plan
VbA	Vernalis loam
VC	Village Commercial
VCAPCD	Ventura County Air Pollution Control District

<b>Acronym</b>	<b>Acronym and Abbreviation Description</b>
VH	very high
VHFHSZ	Very High Fire Hazard Severity Zone
VL	very low
VMT	vehicle miles traveled
VOC	volatile organic compounds
VR	Visual Flight Routes
VSC	Visitor Serving Commercial
VTPM	Vesting Tentative Parcel Map
VTTM	Vesting Tentative Tract Map
<b>W</b>	
w/o	west of
WAVGB	Western Antelope Valley Groundwater Basin
WCB	Wildlife Conservation Board
WCI	Western Regional Climate Action Initiative
WDID	Waste Discharge Identification
WDR	Waste Discharge Requirements
WMA	Watershed Management Areas
WMC	Watershed Management Committees
WM	Waste Management, Inc.
WMO	World Meteorological Organization
WRC	Water Reclamation Criteria
WRCC	Western Regional Climate Center
WRF	Wastewater Reclamation Facilities
WRF	Wastewater Recycling Facilities
WRI	World Resource Institute
WRP	Wastewater Reclamation Plant
WRP	Water Reclamation Plant
WSA	Water Supply Assessment
WSC	W & S Consultants
WTF	water treatment facility
WTP	Wastewater Treatment Plant
WTRS	waste water treatment plant
WUESD	Westside Union Elementary School District
WUHSD	Westside Union High School District
WWTP	Wastewater Treatment Plant
<b>X</b>	
X	Other Land
<b>Y</b>	
YBP	Years Before Present
yd	Yard

**Acronym                      Acronym and Abbreviation Description**

**Z**

ZEV                      Zero Emission Vehicle

**SYMBOLS**

$\mu\text{g}/\text{kg}$                       micrograms per kilogram  
 $\mu\text{g}/\text{m}^3$                       micrograms per cubic meter  
 $\mu\text{g}/\text{L}$                       micrograms per liter  
 $\mu\text{ohms}/\text{cm}$                       microohms per centimeter

---

## 12.0 GLOSSARY

**A-Weighted Decibel Sound Level (dBA):** See decibel, A-Weighted

**Acceptable Risk:** A hazard deemed to be a tolerable exposure to danger given the expected benefits to be obtained. Different levels of acceptable risk may be assigned according to the potential danger and the criticalness of the threatened structure. The levels may range from "near zero" for nuclear plants and natural gas transmission lines to "moderate" for open space, ranches and low-intensity warehouse uses.

**Access/Egress:** The ability to enter a site from a roadway and exit a site onto a roadway by motorized vehicle.

**Acoustics:** (1) The science of sound, including the generation, transmission, and effects of sound waves, both audible and inaudible. (2) The physical qualities of a room or other enclosure (such as size, shape, amount of noise) that determine the audibility and perception of speech and music.

**Acre:** A unit of land equal to 43,560 square feet.

**Acre-Foot:** The amount of water needed to cover an acre (approximate a football field) to a depth of one foot, or 325,900 gallons. One acre-foot can support the annual indoor and outdoor needs of between one and two households per year and, on average, three acre-feet are needed to irrigate one acre of farmland.

**Acre, Gross:** The total area within the lot lines of a lot of land before public streets, easements or other areas to be dedicated or reserved for public use are deducted from such lot, and not including adjacent lands already dedicated for such purposes. Most communities calculate gross acreage to the centerline of proposed bounding streets and to the edge of the right-of-way of existing or dedicated streets.

**Acre, Net:** The portion of a site that can actually be built upon. The following generally are not included in the net acreage of a site: public or private road right-of-ways, public open space, and flood ways.

**Active Fault:** The Alquist-Priolo Earthquake Fault Zoning Act defines an active fault as one that has evidence of rupture within the last 11,000 years (Holocene time). The Alquist-Priolo Zone only applies to surface traces of faults that the State Geologist considers "active" and the Zone itself does not define a potentially active fault. However, a potentially active fault is commonly considered to be a fault that shows evidence of movement within Quaternary time (within the last 1.8 million years) but not within recent (Holocene) time.

**Addendum:** A lead agency or responsible agency can prepare an addendum to a previously certified EIR or an addendum to an adopted negative declaration/mitigated negative declaration if some changes or additions are necessary but none of the conditions described in Section 15162 of the State CEQA Guidelines calling for preparation of a subsequent EIR

have occurred. An Addendum does not need to be circulated for public review (State CEQA Guidelines, Section 15164).

**Adjudication:** The action of a court as in making an order, judgment, or decree.

**Adsorption:** The accumulation of gases, liquids, or solutes on the surface of a solid or liquid.

**Adverse Impact:** A term used to describe unfavorable, harmful, or detrimental environmental changes. Adverse impacts may be significant or not significant (See Significant Impact).

**Affordable Housing:** Housing capable of being purchased or rented by a household with very low, low, or moderate income, based on a household's ability to make monthly payments necessary to obtain housing. "Affordable to low and moderate income households" means that at least 20 percent of the units in a development will be sold or rented to lower income households, and the remaining units to either lower or moderate income households. Housing units for lower income households must sell or rent for a month cost not greater than 30 percent of 60 percent of area median income as periodically established by the Housing and Community Development Department of the State of California (HCD). Housing units for moderate income must sell or rent for a monthly cost not greater than 30 percent of the area median income.

**Afterbay:** A short stretch of stream, conduit, pond, or reservoir.

**Agglomeration:** A jumbled cluster or mass of varied parts.

**Agricultural Land Use:** The use of land primarily for farming, ranching, horse breeding, dairy farming and other forms of food and crop production. From a planning perspective, agricultural land use connotes primary economic use of the property.

**Agricultural Preserve:** Land designated for agriculture or conservation (See Williamson Act).

**Agriculture:** Use of land for the production of food and fiber, including the growing of crops and/or the grazing of animals on natural prime or improved pasture land.

**Agriculture-Related Business:** Feed mills, dairy supplies, poultry processing, creameries, auction yards, veterinarians and other businesses supporting local agriculture.

**Air Basin:** An area of the state designated by the Air Resources Board pursuant to the *California Health and Safety Code* (Section 39606[a]) for air quality planning purposes.

**Air District:** A political body responsible for managing air quality on a regional or county basis. California is currently divided into 35 air districts.

**Air Monitoring:** The periodic or continuous sampling and analysis of air pollutants in ambient air or from individual pollutant sources.

**Air Pollution/Pollutants:** Substances that are foreign to the atmosphere or are present in the natural atmosphere to the extent that they may result in adverse effects on humans, animals, vegetation, and materials. Common air pollutants are ozone, nitrogen dioxide, particulate matter, and carbon monoxide. Air pollution is defined in the California Health and Safety Code as any discharge, release, or other propagation into the atmosphere and includes, but is not limited to, smoke, charred paper, dust, soot, grime, carbon, fumes, gases, odors, particulate matter, acids, or any combination thereof.

**Air Pollution Control District (APCD):** A local agency with authority to regulate stationary sources of air pollution (such as refineries, manufacturing facilities, and power plants) within a given county, and governed by a District Air Pollution Control Board composed of elected county supervisors and city representatives.

**Air Quality Index (AQI):** A numerical index used for reporting severity of air pollution levels to the public. It replaces the formerly used Pollutant Standards Index (PSI). Like the PSI, the AQI incorporates five criteria pollutants—ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide—into a single index. The new index also incorporates the 8-hour ozone standard and the 24-hour PM<sub>2.5</sub> standard into the index calculation. AQI levels range from 0 (good air quality) to 500 (hazardous air quality). The higher the index, the higher the level of pollutants and the greater the likelihood of health effects. The AQI incorporates an additional index category—unhealthy for sensitive groups—that ranges from 101 to 150. In addition, the AQI comes with more detailed cautions.

**Air Quality Management District (AQMD):** A group of counties or portions of counties, or an individual county specified in law with authority to regulate stationary, indirect, and area sources of air pollution within the region and governed by a regional air pollution control board comprised mostly of elected officials from within the region.

**Air Quality Management Plan (AQMP):** A plan prepared by an air pollution control district or air quality management district for a county or region designated as a non-attainment area, for the purpose of bringing the area into compliance with the requirements of the federal Clean Air Act and/or the California Clean Air Act. An AQMP contains measures that will be taken to attain and maintain federal and State ambient air quality standards. In California, air districts prepare air quality management plans that are included in the state's State Implementation Plan (SIP) that is required by the federal Clean Air Act. Such plans are also referred to as Clean Air Plans or Clean Air Attainment Plans.

**Air Quality Model:** An algorithmic relationship between pollutant emissions and pollutant concentrations used in the prediction of a project's pollutant impact.

**Air Quality Standards:** Standards promulgated by State or federal pollution control districts. The specified average concentration of an air pollutant in ambient air during a specified time period at or above which undesirable effects may be produced. The prescribed level of a pollutant in the outside air that should not be exceeded during a specific time period to protect public health. Established by both federal and State governments.

**Airshed:** A subset of an air basin, the term denotes a geographical area that shares the same air because of topography, meteorology, and climate.

**Airport-related Use:** A use that supports airport operations including, but not limited to, aircraft repair and maintenance, flight instruction, and aircraft chartering.

**Airside:** Facilities principally related to the airfield. Airside facilities often include the runway and taxiway system, runway safety areas, the runway approach area, and associated equipment such as airfield lighting and navigational aids.

**Air Toxics:** Any air pollutant for which a national ambient air quality standard (NAAQS) does not exist (i.e., excluding ozone, carbon monoxide, PM10, sulfur dioxide, nitrogen dioxide) that may reasonably be anticipated to cause cancer, developmental effects, reproductive dysfunctions, neurological disorders, heritable gene mutations, or other serious or irreversible chronic or acute health effects in humans. Substances that are especially harmful to health, such as those considered under the U.S. Environmental Protection Agency's (USEPA's) hazardous air pollutant program or California's Assembly Bill (AB) 1807 and/or AB 2588 air toxics programs, are considered to be air toxics. Technically, any compound that is in the air and has the potential to produce adverse health effects is an air toxic.

**Alluvial:** Soils deposited by stream action.

**Alluvium:** Soil or sediments deposited by running water, either presently or historically. Alluvium is composed of a variety of materials, ranging from finer particles of clay and silt to larger particles, such as sand, gravel, and boulders.

**Alquist-Priolo Earthquake Fault Zoning Act:** Legislation signed into California law on December 22, 1972, to mitigate the hazard of surface rupture along faults on structures for human occupancy. The act directs the State of California Division of Mines and Geology to compile detailed maps of the surface traces of known active faults and prohibits new construction of houses within these zones unless a comprehensive geologic investigation shows that the fault does not pose a hazard to the proposed structure. The Act only addresses the hazard of surface fault rupture and does not address other earthquake hazards, including liquefaction and seismically induced landslides.

**Alquist-Priolo Special Study Zone:** In 1972, the State of California began delineating Special Studies Zones around active and potentially active faults in the State. The zones extend about 660 feet on either side of identified fault traces. No structures for human occupancy may be built across an identified fault trace. An area of 50 feet on either side of an active fault trace is assumed to be underlain by the fault unless proven otherwise. Proposed construction within the Special Studies Zone can take place only following completion of a geotechnical report prepared by a California Registered Geologist or Certified Engineering Geologist.

**Ambient Air:** The air occurring at a particular time and place outside of structures. Often used interchangeably with "outdoor air."

**Ambient Air Quality Standards (AAQS):** Health- and welfare-based standards for outdoor air which identify the maximum acceptable average concentrations of air pollutants during a specified period of time.

**Ambient Conditions:** Initial background concentration sensed/measured at a monitoring/sampling site, as in air quality or noise.

**Ambient Noise:** The background noise associated with a given environment, usually a composite of sounds from many sources near and far. The ambient noise level constitutes the normal or existing level of environmental noise at a given location.

**American Period:** California regional history after the transfer of California from Mexican to American control in 1848.

**Andesite Flow:** A type of rock body created by lava flows on the surface.

**Anion:** A negatively charged ion.

**Annoyance:** The psychological state of being irritated or annoyed.

**Annual Average Daily Traffic (AADT):** Total volume of traffic over the period of one year, divided by 365 days.

**Antelope Valley Integrated Management Plan:** A regional planning document developed to address regional concerns regarding water supply reliability, water quality, flood protection, environmental resources and land use management in the Antelope Valley.

**Anthropogenic:** Caused or produced by humans.

**Apartment:** (1) One or more rooms of a building used as a place to live, in a building containing at least one other unit used for the same purpose. (2) A separate suite, not owner occupied, which includes kitchen facilities and is designed for and rented as the home, residence, or sleeping place of one or more persons living as a single housekeeping unit.

**Applicant:** Applicant means a person who proposes to carry out a project which needs a lease, permit, license, certificate, or other entitlement for use or financial assistance from one or more public agencies when that person applies for the governmental approval or assistance (State CEQA Guidelines, Section 15351).

**Approach Zone:** The air space at each end of a landing strip that defines the glide path or approach path of an aircraft and that should be free from obstruction.

**Approval:** Approval means the decision by a public agency which commits the agency to a definite course of action in regard to a project intended to be carried out by any person. The exact date of approval of any project is a matter determined by each public agency according to its rules, regulations, and ordinances. Legislative action in regard to a project often constitutes approval. With private projects, approval occurs upon the earliest commitment to issue or the issuance by the public agency of a discretionary contract, grant, subsidy, loan, or other form of financial assistance, lease, permit, license, certificate, or other entitlement for use of the project (State CEQA Guidelines, Section 15352).



**Aquifer:** A natural underground formation that is saturated with water, and from which water can be withdrawn. A geologic formation of sand, rock, and gravel through which water can pass and which can store, transmit, and yield significant quantities of water to wells and springs. Aquifers generally hold sufficient water to be used as a water supply.

**Aqueduct:** A structure for transporting water from one place to another by means of a pipeline, canal, conduit, tunnel, or a combination of these things.

**Arable:** Land capable of being cultivated for farming.

**Archeological Resources Protection Act (ARPA):** Primary federal statute governing archeological resources.

**Area; Area Median Income:** As used in State of California housing law with respect to income eligibility limits established by the U.S. Department of Housing and Urban Development (HUD), "area" means metropolitan area or non-metropolitan county. In non-metropolitan areas, the "area median income" is the higher of the county median family income or the statewide non-metropolitan median family income.

**Area Sources:** Those sources for which a methodology is used to estimate emissions. This can include areawide, mobile, and natural sources, and also groups of stationary sources (such as dry cleaners and gas stations). The California Clean Air Act requires air districts to include area sources in the development and implementation of the Air Quality Management Plan. In the California emission inventory, all sources which are not reported as individual point sources are included as area sources. The federal air toxics program defines a source that emits less than 10 tons per year of a single hazardous air pollutant (HAP) or 25 tons per year of all hazardous air pollutants as an area source.

**Area-Wide Sources:** Sources of pollution where the emissions are spread over a wide area, such as consumer products, fireplaces, road dust and farming operations. Area-wide sources do not include mobile sources or stationary sources.

**Arroyo:** A small, sometimes deep, usually dry channel eroded by a short-lived or intermittent stream.

**Arterial Road:** A vehicular right-of-way whose primary function is to carry through traffic in a continuous route across an urban area while also providing some access to abutting land. Medium-speed (30–40 miles per hour), medium-capacity (10,000–35,000 average daily trips) roadway that provides intra-community travel and access to the county-wide highway system. Access to community arterials should be provided at collector roads and local streets, but direct access from parcels to existing arterials is common.

**Article 21 Water:** Available surplus water (i.e., interruptible water) that is distributed on an equal basis among State Water Project (SWP) contractors rather than to agricultural SWP contractors.

**Artifact:** A single, portable man-made or man-altered object; usually culturally diagnostic.

**Assemblage:** A collection of things (www.dictionary.com).

**Artificial Recharge:** The addition of surface water to a groundwater reservoir by human activity, such as putting surface water into recharge basins.

**Attainment:** Achieving and maintaining the air quality standards (both State and federal) for a given air pollutant.

**Attainment Area:** A geographical area considered to have air quality as good as or better than the National Ambient Air Quality Standard as defined in the Clean Air Act or California ambient air quality standards. An area may be an attainment area for one pollutant and a non-attainment area for others.

**Attenuate:** To reduce in force, value, amount, or degree.

**Attitude (bedding attitude):** The angle of a rock body relative to the ground surface. May provide evidence of past seismic activity.

**Automobile-intensive Use:** A use of a retail area that depends on exposure to continuous auto traffic.

**Average Daily Traffic (ADT):** Generally used to measure the total two-directional traffic volumes passing a given point on a roadway over a 24-hour period.

**Back of Curb:** the location where the curb ends and transitions to the sidewalk, utility strip, or property line.

**Background Concentration:** Air pollutant concentration due to natural sources and distant unidentified man-made sources.

**Background Noise:** See Ambient Noise.

**Background View:** View beginning at a distance from the observer and extending as far toward the horizon as the eye can detect the presence of objects. Skylines or ridge lines against other land surfaces are the strongest visual elements of the "background."

**Background Zone:** Visual elements in this zone can be seen at a long distance and typically do not dominate the view, but are part of the overall visual composition of the viewshed.

**Basalt:** The dark, dense igneous rock of a lava flow or minor intrusion.

**Base Flood:** In any given year, a 100-year flood that has a one percent likelihood of occurring, and is recognized as a standard for acceptable risk.

**Base Flow:** River surface flow, not counting storm flow and/or purchased imported water.

**Basin Plan:** A water quality control plan developed by a Regional Water Quality Control Board (RWQCB) for a specific geographic area. The Basin Plan identifies beneficial uses of

waters, the water quality objectives needed to maintain these beneficial uses, and an implementation plan.

**Bedrock:** The rock formations underlying surficial sediments.

**Benches:** A shelf-like area of rock with steep slopes above and below.

**Beneficial Uses:** The resources, services, and qualities of State waters that may be protected against quality degradation. The uses include, but are not limited to, domestic, municipal, agricultural and industrial supply, power generation, recreation, aesthetic enjoyment, navigation, and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. The specific uses such as “cold freshwater habitat” and “water contact recreation” are defined in Section 2 of the Regional Water Quality Control Boards’ Basin Plans. Beneficial Uses are defined in Section 13050 of the *California Water Code*.

**Bentonitic:** Bentonite is an absorbent aluminum silicate clay formed from volcanic ash.

**Best Available Control Measure (BACM):** A term used to describe the "best" measures (according to USEPA guidance) for controlling small or dispersed sources of particulate matter and other emissions from sources such as roadway dust, woodstoves, and open burning.

**Best Available Control Technology (BACT):** Under the South Coast Air Quality Management District (SCAQMD) rules, for example, BACT is defined as the most stringent emissions control which for a given air emission source has been (1) achieved in practice; (2) is identified in a State Implementation Plan; or (3) has been found by the SCAQMD to be technologically achievable and cost-effective.

**Best Management Practice (BMP):** A BMP is any program, technology, process, siting criteria, operating method, measure, or device which controls, prevents, removes, or reduces pollution.

**Bicycle Lane (Class II facility):** A corridor expressly reserved for bicycles, existing on a street or roadway in addition to any lanes for use by motorized vehicles.

**Bicycle Path/Trail (Class I facility):** A paved route not on a street or roadway and expressly reserved for bicycles traversing an otherwise unpaved area. Bicycle trails may parallel roads, but typically are separated from them by landscaping.

**Bicycle Route (Class III facility):** A facility shared by motorists and identified only by signs, a bicycle route has not pavement markings or lane stripes.

**Bifacial:** Having the opposite surfaces alike, as some tools.

**Bike Lane:** A lane devoted to non-motorized bicycles.

**Bikeway:** A term that encompasses bicycle lanes, bicycle paths, and bicycle routes.

**Bioaccumulation:** The process by which toxic chemicals accumulate in an organism when the rate of intake of a substance is greater than the rate of excretion or metabolic transformation of that substance.

**Biological Diversity:** The variety of life forms and its processes, including the variety of living organisms, the genetic differences among them, and the communities and ecosystems in which they occur.

**Biomass:** Plant material, used for the production of such things as fuel alcohol and non-chemical fertilizers. Biomass sources may be plants grown especially for that purpose or waste products from livestock, harvesting, milling, or from agricultural production or processing.

**Biotic Community:** A group of living organisms characterized by a distinctive combination of both animal and plant species in a particular habitat.

**Borrow Area:** An area where soil, sand, gravel, or rock is extracted and removed for use as fill, grades, or embankments on property of a different ownership or noncontiguous property of the same ownership.

**Brooder box:** A heated box where chicks or other baby birds are kept.

**Buffer Zone:** An area of land separating two distinct land uses that acts to soften or mitigate the effects of one land use on the other.

**Building:** Any structure having a roof supported by columns or walls and intended for the shelter, housing or enclosure of persons, animals, or property of any kind.

**Building Code:** A set of rules that specify the minimum acceptable level of safety for constructed objects such as buildings and nonbuilding structures. Examples of building codes include the International Building Code, the California Building Code, and the County of Los Angeles Building Code.

**Building Height:** The vertical distance from the average contact ground level of a building to the highest point of the coping of a flat roof or to the deck line of a mansard roof or to the mean height level between eaves and ridge for a gable, hip, or gambrel roof. The exact definition varies by community. For example, in some communities building height is measured to the highest point of the roof, not including elevator and cooling towers.

**Buildout:** Development of land to its full potential or theoretical capacity as permitted under current or proposed planning or zoning designations. The year in which project construction has been completed.

**Bulk:** The mass or volume of buildings.

**Business Services:** A subcategory of commercial land use that permits establishments primarily engaged in rendering services to other business establishments on a fee or contract basis, such as advertising and mailing; building maintenance; personnel and

employment services; management and consulting services; protective services; equipment rental and leasing; photo finishing; copying and printing; travel; office supply; and similar services.

**Busway:** A vehicular right-of-way or portion thereof (often an exclusive lane) reserved exclusively for buses.

**Buttress/Buttress fill:** A designed compacted earth fill used for providing lateral support to an unstabilized earth or rock mass.

**Cairn:** A heap of stones set up as a landmark, monument, tombstone, etc.

**Calcine:** To heat (a substance) to a high temperature but below the melting or fusing point, causing loss of moisture, reduction or oxidation, and the decomposition of carbonates and other compounds.

**California Air Resources Board (CARB):** California's lead air quality agency, consisting of an 11-member Governor-appointed board, responsible for motor vehicle air pollution control, and having oversight over California's air pollution management program. CARB is responsible for attainment and maintenance of the State and federal air quality standards, and is fully responsible for motor vehicle pollution control. It oversees county and regional air pollution management programs.

**California Ambient Air Quality Standards (CAAQS):** A legal limit that specifies the maximum level and time of exposure in the outdoor air for a given air pollutant and which is protective of human health and public welfare (*California Health and Safety Code*, Section 39606b). CAAQSs are recommended by the California Office of Environmental Health Hazard Assessment and adopted into regulation by the CARB. CAAQSs are the standards which must be met per the requirements of the California Clean Air Act (CCAA).

**California Clean Air Act (CCAA):** A California law passed in 1998 that provides the basis for air quality planning and regulation independent of federal regulations, and which establishes new authority for attaining and maintaining California's air quality standards by the earliest practicable date. A major element of the CCAA is the requirement that local Air Pollution Control Districts in violation of the California Ambient Air Quality Standards must prepare attainment plans that identify air quality problems, causes, trends, and actions to be taken for attainment.

**California Coastal Commission:** The lead agency responsible for carrying out California's federally-approved coastal management program. The Coastal Commission plans for and regulates land and water uses in the coastal zone consistent with policies of the Coastal Act.

**California Code of Regulations (CCR):** The regulations that implement California laws.

**California Department of Transportation (Caltrans):** The State government agency responsible for the construction, maintenance, and operation of state and federal highways in California.

**California Endangered Species Act (CESA):** The CESA (*California Fish and Game Code*, Section 2050, et seq.) generally parallels the main provisions of the Federal Endangered Species Act (FESA) and is administered by the California Department of Fish and Wildlife. The Act prohibits the take of plant and Animal species designated by the Fish and Game Commission as either Threatened or Endangered in the State. Under CESA the term “Endangered species” is defined as a species of plant, fish, or wildlife which is “in serious danger of becoming extinct throughout all, or a significant portion of its range” and is limited to species or subspecies native to California.

**California Environmental Protection Agency (CalEPA):** The State agency established in 1991 for unifying environmental activities related to public health protection in the State of California. There are six boards, departments, and offices under the organization of CalEPA including the California Air Resources Board (CARB), California Integrated Waste Management Board (CIWMB), State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs), Department of Pesticide Regulation (DPR), Department of Toxic Substances Control (DTSC), and Office of Environmental Health Hazard Assessment (OEHHA). The CalEPA boards, departments, and offices are directly responsible for implementing California environmental laws, or play a cooperative role with other regulatory agencies at regional, local, State, and federal levels.

**California Environmental Quality Act (CEQA):** CEQA is defined in the *California Public Resources Code* (Sections 21000 et seq.). It is a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible. CEQA applies to certain activities of state and local public agencies. A public agency must comply with CEQA when it undertakes an activity defined by CEQA as a “project”. A project is an activity undertaken by a public agency or a private activity which must receive some discretionary approval (meaning that the agency has the authority to deny the requested permit or approval) from a government agency which may cause either a direct physical change in the environment or a reasonably foreseeable indirect change in the environment. Most proposals for physical development in California are subject to the provisions of CEQA, as are many governmental decisions which do not immediately result in physical development (such as adoption of a general or community plan). Every development project which requires a discretionary governmental approval will require at least some environmental review pursuant to CEQA, unless an exemption applies (CNRA 2009).

**California Housing Finance Agency (CHFA):** A State agency, established by the Housing and Home Finance Act of 1975, which is authorized to sell revenue bonds and generate funds for the development, rehabilitation, and conservation of low and moderate income housing.

**California Irrigation Management Information System (CIMIS):** Developed to assist irrigators in managing their water resources efficiently, CIMIS is a program of the Office of Water Use Efficiency (OWUE) that manages a network of over 120 automated weather stations in the State of California.

**California Proposition 50:** Passed by California voters in 2002, the proposition authorized the sale of \$3.4 billion in general obligation bonds to fund a variety of specified water and

wetlands projects. It set aside \$380 million for grants related to the implementation of IRWM Plans and is jointly administered by the California Department of Water Resources (DWR) and the State Water Resources Control Board (SWRCB).

**California Protected Species:** Those species that may not be taken or possessed at any time except under special permit from CDFW.

**California Rare Plant Rank (CRPR):** The CRPR is a summary of information on the distribution, rarity, and endangerment of California's vascular plants. This rare plant inventory is comprised of four lists. The CRPR presumes that List 1A plant species are extinct in California because they have not been seen in the wild for many years. The CRPR considers List 1B plants as Rare, Threatened, or Endangered throughout their range. Plants with a CRPR of 2A are presumed extirpated from California, but are more common elsewhere. Plants with a CRPR of 2B are considered Rare, Threatened, or Endangered in California, but are more common elsewhere. Plant species for which more information is needed are considered List 3. List 4 plant species are those of limited distribution in California whose susceptibility to threat appears low at this time.

**California Species of Special Concern:** An informal designation which the CDFW uses for some declining wildlife species that are not State candidates. This designation does not provide legal protection, but signifies that these species are recognized as special status by the CDFW.

**California State Water Project (SWP):** The world's largest publicly built and operated water and power development and conveyance system. The SWP provides drinking water for over 23 million people in Southern California and generates an average 6,500 GWh of hydroelectricity annually. Primary features of the project include Oroville Dam, San Luis Reservoir, and the California Aqueduct.

**California Toxics Rule (CTR):** A regulatory action that establishes numeric water quality criteria for priority toxic pollutants necessary for the State of California to meet the requirements of the Clean Water Act.

**Call Water:** The water supply right of Tejon Ranch Company that was not taken in earlier years and, through an agreement with the Antelope Valley-East Kern Water Agency (AVEK), the right is maintained and can be called in a future year.

**Candlepower:** The total light output expressed in candelas. One candlepower is approximately equal to the light emitted from one candle.

**Capital Improvements:** The building of infrastructure or public works projects.

**Capital Improvements Program (CIP):** A program established by a city or county government which schedules infrastructure improvements necessary to accommodate existing and anticipated future development. Most CIPs are for a minimum of five years into the future, and include a financing mechanism, to fit the projected fiscal capability of the local jurisdiction. The program generally is reviewed annually for conformance to and consistency with the general plan.

**Carbon Cycling:** A chain of nuclear reactions, involving carbon at its intermediate stages that transforms four hydrogen atoms into one helium atom with a resulting release in energy (CalSpace Virtual Museum 2002).

**Carbon Dioxide (CO<sub>2</sub>):** A colorless gas that enters the atmosphere as the result of natural and artificial combustion processes. Significant quantities are also emitted into the air by fossil fuel combustion. It is also a normal part of the ambient air.

**Carbon Monoxide (CO):** A colorless, odorless gas resulting from the incomplete combustion of fossil fuels. CO interferes with the blood's ability to carry oxygen to the body's tissues and can result in adverse health effects. CO is a criteria air pollutant.

**Carbon Sequestration:** Defined as the in-take or process of the gas by vegetation. In the Climate Change section (5.21), it is assumed that all mature land-types (at least 20 years old) are at a steady state.

**Carrying Capacity:** Used in determining the potential of an area to absorb development: (1) The level of land use, human activity, or development for a specific area that can be accommodated permanently without an irreversible change in the quality of air, water, land, or plant and animal habitats; (2) The upper limits of development beyond which the quality of human life, health, welfare, safety or community character within an area will be impaired; or (3) The maximum level of development allowable under current zoning.

**Cartridge media filtration:** A passive, flow-through storm water media filtration system typically comprised of a vault (or catch basin for small drainage catchments) that houses rechargeable, media-filled cartridges which trap particulates and remove pollutants (such as dissolved metals, nutrients, and hydrocarbons).

**Catch Basin:** A storm drain inlet having a sump below the outlet to capture settled solids.

**Categorical Exemption:** Categorical exemption means an exemption from CEQA for a class of projects based on a finding by the Secretary for Resources that the class of projects does not have a significant effect on the environment unless exceptions to the exemption apply (State CEQA Guidelines, Section 15354). A Categorical Exemption does not apply in the following situations: (1) a reasonable possibility exists that the activity may have a significant environmental impact because of unusual circumstances; (2) the cumulative impacts of the project would be considerable and therefore significant; (3) the project occurs within specified sensitive environments; (4) a project affects scenic resources within official State scenic highways; (5) a project is located on a toxic site that is listed by the California Environmental Protection Agency; or (6) a project causes substantial adverse changes in a significant historic resource (State CEQA Guidelines, Section 15300.2).

**Census:** The official United States decennial enumeration of the population conducted by the federal government.

**Centennial Specific Plan:** The document that describes the various Project characteristics, including the land use plan designations, overlay districts, mobility plan, parks/recreation, open space, utilities and associated infrastructure, public services/facilities, landscape and



lighting, solid waste management, technology plan, affordable housing program, and construction and grading. Implementation of the *Centennial Specific Plan* through buildout is addressed at a program level (as described in Section 2.2, Type of Environmental Impact Report). The document proposes development of 19,333 dwelling units and anticipates creation of approximately 20,809 permanent jobs within its commercial areas and employment centers.

**Centennial Specific Plan Footprint:** Overall impact of the Project. The Project's impact footprint is comprised of all temporary and permanent impact areas that would result from implementation of all Project phases, including off-site impacts.

**Central Business District (CBD):** The major commercial downtown center of a community. General guidelines for delineating a downtown area are defined by the U.S. Census of Retail Trade, with specific boundaries being set by the local municipality.

**Certified Applicator:** A Certified Applicator is an individual licensed through successful completion of education and examination requirements to apply pesticides with restricted use, as defined by the USEPA. In California, such licensing is administered through the California Department of Pesticide Management's Licensing and Certification Program.

**Channel:** A water course with a definite bed and banks which confine and conduct the normal continuous or intermittent flow of water.

**Channelization:** (1) The straightening and/or deepening of a watercourse for purposes of storm runoff control or ease of navigation. Channelization often includes lining of stream banks with a retaining material such as concrete. (2) At the intersection of roadways, the directional separation of traffic lanes through the use of curbs or raised islands that limit the paths that vehicles may take through the intersection.

**Charter School:** Non-sectarian public schools of choice that can provide education in any of the grades kindergarten through 12. A charter school is generally exempt from most laws governing school districts, except where specifically noted in the law. California public charter schools are required to participate in the statewide assessment test, STAR (Standardized Testing and Reporting). A charter school is usually created or organized by a group of teachers, parents and community leaders or a community-based organization, and it is usually sponsored by an existing local public school board or county board of education. Specific goals and operating procedures for the charter school are detailed in an agreement (or "charter") between the sponsoring board and charter organizers.

**Chert:** A compact rock consisting essentially of microcrystalline quartz.

**Circulation Element:** One of the seven State-mandated elements of a general plan, it contains adopted goals, policies, and implementation programs for the planning and management of existing and proposed thoroughfares, transportation routes, and terminals, as well as local public utilities and facilities, all correlated with the land use element of the general plan.

**Circulation System:** A network of transit, automobile, bicycle, and pedestrian rights-of-way that connect origins and destinations.

**Class I Landfill:** Class I landfills may accept hazardous and non-hazardous wastes.

**Class II Landfill:** Class II landfills may accept “designated” and non-hazardous wastes.

**Class III Landfill:** Class III landfills may accept all non-hazardous wastes.

**Clean Air Act (CAA):** A federal law passed in 1970 and amended in 1977 and 1990 that sets primary and secondary National Ambient Air Quality Standards for major air pollutants and forms the basis for the national air pollution control effort.

**Clean Water Act (CWA):** The primary federal law in the United States governing water pollution. The act established the goals of eliminating releases to water of high amounts of toxic substances. The NPDES permit program is authorized by Section 402 of the CWA.

**Clustered Development:** Development in which a number of dwelling units are placed in closer proximity than usual, or are attached, with the purpose of retaining an open space area.

**Code of Federal Regulations (CFR):** The document that codifies all rules of the executive departments and agencies of the federal government. It is divided into 50 volumes, known as titles. Title 40 of the CFR (referenced as 40 CFR) lists all the environmental regulations.

**Cohesionless Soil:** A soil that when confined has little or no strength when air-dried, and that has little or no cohesion when submerged.

**Collapsible soil:** Loose, dry, low-density soil that collapses and compacts under the addition of water or excessive loading.

**Collector:** Relatively low speed (25–30 miles per hour [mph]), relatively low volume (5,000–20,000 average daily trips) street that provides circulation within and between neighborhoods. Collectors usually serve short trips and are intended for collecting trips from local streets and distributing them to the arterial network.

**Colloidal:** Having the nature of a colloid, which is a system where finely divided particles are dispersed within a continuous medium in a manner that prevents them from being filtered easily or settled rapidly.

**Colluvium:** Loose bodies of sediment that have been deposited or built up at the bottom of a low grade slope or against a barrier on that slope, transported by gravity.

**Comfort Wise:** Homes earning the Environmental Protection Agency’s Energy Star seal and the Comfort Wise designation have been independently inspected and certified to incorporate at least 30 percent energy savings in design and construction standards.

**Commercial:** A land use classification that permits facilities for the buying and selling of commodities and services.

**Commercial Strip:** Commercial development, usually one store deep, that fronts on a major street for a distance of one city block or more. Includes individual buildings on their own lots, with or without on-site parking, and small linear shopping centers with shallow on-site parking in front of the stores.

**Community Center:** A public facility in which educational, therapeutic, and/or recreational programs are provided.

**Community Facilities District (CFD):** Under the Mello-Roos Community Facilities Act of 1982 (*California Government Code*, Section 53311 et seq.), a legislative body may create within its jurisdiction a special district that can issue tax-exempt bonds for the planning, design, acquisition, construction, and/or operation of public facilities, as well as provide public services to district residents. A specific geographic area upon which is levied a special tax, approved by a two thirds vote of property owners, used to finance public facilities. CFDs finance the public facilities through the sale of bonds. The bonds are repaid by increased property taxes which are the result of property improvements and the construction of the public facilities (tax increment financing). CFDs are also referred to as Mello-Roos, after the State legislators who sponsored the enabling legislation.

**Community Noise Equivalent Level (CNEL):** A noise compatibility level established by the *California Administrative Code* (Title 21, Section 5000). Represents a time-weighted 24-hour average noise level based on the A-weighted decibel. The CNEL scale includes an additional 5-decibel (dB) adjustment to sounds occurring in the evening (7 PM to 10 PM) and a 10-dB adjustment to sound occurring in the late evening and early morning between (10 PM and 7 AM).

**Community Park:** Land with full public access intended to provide recreation opportunities beyond those supplied by neighborhood parks. Community parks are larger in scale than neighborhood parks, but smaller than regional parks.

**Complexed:** Bound with

**Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):** CERCLA, also known as Superfund, was enacted in 1980 to ensure that a source of funds was available to clean up abandoned hazardous waste dumps, compensate victims, address releases of hazardous materials, and establish liability standards for responsible parties. CERCLA also requires the creation of a National Priorities List which sets forth the sites considered to have the highest priority for cleanup under Superfund.

**Compressibility/compressible soil:** The ability of a soil or rock to reduce in volume with applied pressure or collapse with loading.

**Concretion:** A hard mass of mineral matter formed by precipitation of minerals from water in concentric layers about a nucleus in a sedimentary or pyroclastic (volcanic sedimentary) rock.

**Conditional Use:** A land use which is not permitted by right, but which may be appropriate in a given zoning district under certain circumstances. The use may occur only upon approval of a conditional use permit.

**Conditional Use Permit (CUP):** A permit based on a discretionary decision required prior to initiation of particular uses not allowed as a matter of right. The use may be desirable under appropriate circumstances, but are not permitted by right in the applicable zone. The purpose of the CUP process is to determine whether, and under what conditions, a specific use may be appropriate in a given location. Further, the intent is that each use be developed so as to fully protect the public health, safety, and welfare of the community. To provide this protection, conditions may be applied to address potential adverse effects associated with the proposed use.

**Condominium:** A building or group of buildings in which units are owned individually, but the structure, common areas, and facilities are owned by all owners on a proportional, undivided basis.

**Conductivity:** Ability of water to migrate in the aquifer.

**Confined Aquifer:** A water-bearing subsurface stratum that is bounded above and below by formations of impermeable, or relatively impermeable, soil or rock.

**Conformity:** A demonstration of whether a federally-supported activity is consistent with the State Implementation Plan (SIP) per Section 176(c) of the Clean Air Act. Transportation conformity refers to plans, programs, and projects approved or funded by the Federal Highway Administration or the Federal Transit Administration. General conformity refers to projects approved or funded by other federal agencies.

**Congestion Management Plan/Program (CMP):** A State-mandated program (*California Government Code*, Section 65089a) that requires each county to prepare a plan to relieve congestion and reduce air pollution. Growth management techniques include traffic level of service requirements, standards for public transit, trip reduction programs involving transportation systems management and jobs/housing balance strategies, and capital improvement programming, for the purpose of controlling and/or reducing the cumulative regional traffic impacts of development.

**Conglomeratic:** Said of a sedimentary rock containing rounded to subangular fragments larger than two millimeters in diameter.

**Conservation Agreement:** A formal signed agreement between the U.S. Fish and Wildlife Service or National Marine Fisheries Service and other parties that implements specific actions, activities, or programs designed to eliminate or reduce threats or otherwise improve the status of a species. Conservation Agreements can be developed at a State, regional, or national level and generally include multiple agencies at both the State and federal level, as well as tribes.

**Conservation Element:** One of the seven State-mandated elements of a local general plan, it contains adopted goals, policies, and implementation programs for the conservation,

development, and use of natural resources including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources.

**Conservation Strategy:** A strategy outlining current activities or threats that are contributing to the decline of a species, along with the actions or strategies needed to reverse or eliminate such a decline or threats. Conservation strategies are generally developed for species of plants and animals that are designated or that have been determined by the U.S. Fish and Wildlife Service or National Marine Fisheries Service to be federal candidates under the Endangered Species Act.

**Consistency, Consistent With:** Free from significant variation or contradiction. The various diagrams, text, goals, policies, and programs in the general plan must be consistent with each other, not contradictory or preferential. The term "consistent with" is used interchangeably with "conformity with." The courts have held that the phrase "consistent with" means "agreement with; harmonious with." Webster defines "conformity with" as meaning harmony, agreement when used with "with." The term "conformity" means in harmony therewith or agreeable to (Sec 58 Ops.Cal.Atty.Gen. 21, 25 [1975]). California State law also requires that a general plan be internally consistent and also requires consistency between a general plan and implementation measures such as the zoning ordinance.

**Consistent:** Free from variation or contradiction. Programs in the general plan are to be consistent, not contradictory or preferential. State law requires consistency between a general plan and implementation measures such as the zoning ordinance.

**Construction:** Any site preparation, assembly, erection, substantial repair, alteration, or similar action for or of public or private rights-of-way, structures, utilities, or similar property.

**Contacts:** The surface between two rock bodies. A scoured contact means that when this surface was exposed to the elements it underwent scouring.

**Contiguous:** Lands or legal subdivisions having a common boundary; lands having only a common corner are generally not contiguous.

**Contour Grading:** A grading technique which uses curvilinear, horizontal, and vertical undulations in order to simulate the characteristics of natural topography.

**Contributing Structure:** Building or structure in historic district that generally has historic, architectural, cultural, or archeological significance.

**Council of Governments (COG):** An association of cities and counties that often acts as a regional planning agency with some power under State and federal law.

**Covenants, Conditions, and Restrictions (CC&Rs):** A term used to describe restrictive limitations that may be placed on property and its use, and which usually are made a condition of holding title or lease. The master CC&Rs and each neighborhood CC&Rs will each be in furtherance of its own plan of planned development as described in the *California Civil*

*Code* (Sections 1350–1352) for the subdivision, improvement, protection, maintenance, and sale of each ownership interest, all of which are for the purposes of enhancing, maintaining, and protecting the value and attractiveness of the subject real property. Notwithstanding the foregoing, non-residential (e.g., commercial or industrial) developments may be exempt from certain of those code provisions; CC&Rs for such non-residential developments are exempt from review by the DRE and are not subject to those DRE regulation governing residential declarations. Consistent with California DRE Regulation 2792.8, the CC&Rs for each association will include provisions addressing the following: legal description of the subject real estate; recitals and creation of equitable servitudes; nature of the common interest subdivision (e.g., single-family dwelling, condominium project, mixed residential, industrial or commercial; provided, however that the master planned community will provide for multiple land uses); definitions; rights of ownership and easements; name of the association; association membership; association membership voting rights, and, for the master association, delegate voting rights; association assessments; restrictions on the use and enjoyment of any portion of the subject property; architectural control; destruction and eminent domain; limitations on partition and severance; annexation; mortgagee protections; enforcement of bonded obligations; general provisions; amendment provisions; and such additional provisions (if any) required by law.

**Criteria Air Pollutant:** An air pollutant for which acceptable levels of exposure can be determined and for which an ambient air quality standard has been set in order to protect public health. Examples include ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, respirable particulate matter with a diameter of 10 microns or less (PM<sub>10</sub>), and fine particulate matter with a diameter of 2.5 microns or less (PM<sub>2.5</sub>). The term "criteria air pollutants" derives from the requirement that the U.S. Environmental Protection Agency (USEPA) must describe the characteristics and potential health and welfare effects of these pollutants. The USEPA and the California Air Resources Board (CARB) periodically review new scientific data and may propose revisions to the standards as a result.

**Critical Facility:** Facilities housing or serving many people, which are necessary in the event of an earthquake or flood, such as hospitals, fire, police, and emergency service facilities, utility "lifeline" facilities, such as water, electricity, and gas supply, sewage disposal, and communications and transportation facilities.

**Critical Water Shortage Contingency Plan (Contingency Plan):** A 2000 report, published by the California Governor's Drought Panel, that made recommendations for actions that the State government could take to reduce the impacts of critical water shortages. The recommendations included a critical water shortage reduction marketing program to facilitate intra-regional, short term, and dry year transfers, financial and planning assistance to local agencies for drought-related response activities, and assistance to small water systems and home owners in rural counties.

**Cul-de-Sac:** A short street or alley with only a single means of ingress and egress at one end with a large turnaround at its other end.

**Cumulative Impact:** A cumulative impact refers to two or more individual affects which, when considered together, are considerable or which compound or increase other

environmental impacts. The individual effects may be changes resulting from a single project or a number of separate projects. The cumulative impact from several projects is the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonable foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time (State CEQA Guidelines, Section 15355).

**Cupule petroglyphs:** Small abraded pits.

**Cut:** The excavation of a bank required to lower the natural ground line to the desired profile.

**Day-Night Average Sound Level ( $L_{dn}$ ):** The A-weighted average sound level in decibels during a 24-hour period with a 10 decibel (dB) weighing applied to nighttime sound levels (10 PM to 7 AM). This exposure method is similar to the CNEL, but deletes the evening time period (7 PM to 10 PM) as a separate factor.

**Daytime Glare:** Indirect reflected light generated on the Project site during the day. Sources would primarily be generated by human activities and from the sun's reflection off glass windows of structures, automobiles, and trucks.

**Debitage:** Flakes and lithic waste.

**Debris:** Any organic material transported by storm water, including leaves, twigs, and grass clippings.

**Debris potential area zone:** Zones, as delineated by County or regional authorities, that yield similar volumes of sediment under similar conditions.

**Decibel (dB):** A unit for expressing the relative intensity (loudness) of sounds. The decibel is the logarithm of the ratio of the intensity of a given sound to the faintest sound discernible by the human ear.

**Decibel, A-Weighted (dBA):** The "A-weighted" scale for measuring sound in decibels; weighs or reduces the effects of low and high frequencies in order to simulate human hearing. Every increase of 10 dBA doubles the perceived loudness though the noise is actually ten times more intense.

**Decision Making Authority:** Decision-making authority means any person or body vested with the authority to make recommendations or act on application requests. The final decision-making authority is the one which has the authority to act on a request by approving or denying the request. This may include the Community Development Director or his/her designee, Planning Commission, or the City Council.

**Decision Making Body:** Any person or group of people within a public agency permitted by law to approve or disapprove the project at issue (State CEQA Guidelines, Section 15356).

**Dedication:** The turning over by an owner or developer of private land for public use, and the acceptance of land for such use by the governmental agency having jurisdiction over the

public function for which it will be used. Dedications for roads, parks, school sites, or other public uses often are made conditions for approval of a development by a city or county.

**Dedication, In lieu of:** Cash payments that may be required of an owner or developer as a substitute for a dedication of land, usually calculated in dollars per lot, and referred to as in lieu fees or in lieu contributions.

**Defensible Space:** (1) In fire-fighting and prevention, a 30-foot area of non-combustible surfaces separating urban and wildland areas. (2) In urban areas, open spaces, entry points, and pathways configured to provide maximum opportunities to rightful users and/or residents to defend themselves against intruders and criminal activity.

**Deficiency Plan:** An action program for improving or preventing the deterioration of level of service on the Congestion Management Agency street and highway network.

**Delay:** According to the Regional Transportation Plan (RTP), “delay” is defined as excess travel time resulting from the difference between a reference speed and actual speed. Total daily delay and daily delay per capita are the indicators used.

**Deleterious:** Harmful, injurious to health ([www.dictionary.com](http://www.dictionary.com)).

**Delta Smelt Ruling:** On August 31, 2007, U.S. District Court Judge Oliver Wanger ruled to restrict water deliveries from the California Delta’s export pumps to the Bay Area, Central Valley, and Southern California to protect the Delta smelt. Under the remedy ruling, operational limits on delta pumping would be put in place from the end of December, when fish are about to spawn, until June, when the smelt migrate westward. Impacts from the federal ruling will likely have an effect on 2008 State Water Project (SWP) supplies. The Delta smelt is found only in the Bay-Delta estuary and is considered by scientists to be an indicator species demonstrating the health of the estuary.

**Demolition:** Any dismantling, intentional destruction, or removal of structures, utilities, public or private rights-of-way surfaces, or similar property.

**Density:** The gross site area which shall include local roadways, slopes, and open space areas, unless otherwise specified. Density is usually expressed “per acre.” For example, a development with 100 dwelling units located on 20 acres has a density of 5 units per acre.

**Density, Control of:** A limitation on the occupancy of land. Density can be controlled through zoning in the following ways: use restrictions, minimum lot-size requirements, floor area ratios, land use-intensity ratios, setback and yard requirements, minimum house-size requirements, ratios comparing number and types of housing units to land area, limits on units per acre, and other means. Allowable density often serves as the major distinction between residential districts.

**Density, Employment:** A measure of the number of employed persons per specific area (for example, employees/acre).



**Density, Residential:** The number of permanent residential dwelling units per acre of land. Densities specified in a general plan may be expressed in units per gross acre or per net developable acre.

**Design Capacity:** The capacity at which a street, water distribution pipe, pump or reservoir, or a wastewater pipe or treatment plant is intended to operate.

**Destination Retail:** Retail businesses that generate a special purpose trip and that do not necessarily benefit from a high-volume pedestrian location.

**Detention Basin:** A facility that holds storm water temporarily and allows it to drain slowly over time to ensure that downstream storm drain capacities are not exceeded.

**Developable Acres, Net:** The portion of a site that can be used for density calculations. Some communities calculate density based on gross acreage. Public or private road rights-of-way are not included in the net developable acreage of a site.

**Developable Land:** Land that is suitable as a location for structures and that can be developed free of hazards to, and without disruption of, or significant impact on, natural resource areas.

**Developer:** An individual who or business that prepares raw land for the construction of buildings or causes to be built physical building space for use primarily by others, and in which the preparation of the land or the creation of the building space is in itself a business and is not incidental to another business or activity.

**Developer Fee Agreement:** A fee or tax imposed on developers to pay for the costs to the community of providing services to a new development. It is a means of providing a fund for financing new improvements without resorting to deficit financing.

**Development:** The physical extension and/or construction of land uses. Development activities include: subdivision of land; construction or alteration of structures, roads, utilities, and other facilities; installation of septic systems; grading; deposit of refuse, debris, or fill materials; and clearing of natural vegetative cover (with the exception of agricultural activities).

**Development Agreement:** A legislatively-approved contract between a jurisdiction and a person having legal or equitable interest in real property within the jurisdiction (*California Government Code*, Sections 65865 et seq.) that “freezes” certain rules, regulations, and polices applicable to development of a property for a specified period of time, usually in exchange for certain concessions by the owner.

**Development Area:** The portion of the Project site that will be developed.

**Development Impact Fees:** A fee or tax imposed on developers to pay for the costs to the community of providing services to a new development. It is a means of providing a fund for financing new improvements without resorting to deficit financing.

**Development Rights:** The right to develop land by a land owner who maintains fee-simple ownership over the land or by a party other than the owner who has obtained the rights to develop. Such rights usually are expressed in terms of density allowed under existing zoning. For example, one development right may equal one unit of housing or may equal a specific number of square feet of gross floor area in one or more specified zone districts.

**Direct Effects:** Effects which are caused by an action and occur at the same time and place.

**Discoidal:** Stone artifact having a circular shape. Specific to earlier periods of prehistory. Actual function uncertain.

**Discrete Early Actions:** Measures that can be fully adopted as regulations and made effective no later than January 1, 2010, as defined in AB 32. Other “early actions” are measures that are underway or are to be initiated by the California Air Resources Board (CARB) in the 2007–2012 timeframe (ENVIRON 2009).

**Discretionary Approval/Decision:** A decision requiring the exercise of judgment, deliberation, or decision on the part of the decision-making authority in the process of approving or disapproving a particular activity, as distinguished from situations where the decision-making authority merely has to determine whether there has been conformity with applicable statutes, ordinances, or regulations. An approval by a decision-making body which has the legal discretion to approve or deny a project or action.

**Discretionary Project:** A project which requires the exercise of judgment or deliberation when the public agency or body decides to approve or disapprove a particular activity, as distinguished from situations where the public agency or body merely has to determine whether there has been conformity with applicable statutes, ordinances, or regulations (State CEQA Guidelines, Section 15357).

**District:** (1) An area of a city or county that has a unique character identifiable as different from surrounding areas because of distinctive architecture, streets, geographic features, culture, landmarks, activities, or land uses. (2) A portion of the territory of a city or county within which uniform zoning regulations and requirements apply; a zone.

**Diversion:** The direction of water in a stream away from its natural course (i.e., as in a diversion that removes water from a stream for human use).

**Diversity:** Differences among otherwise similar elements that give them unique forms and qualities (i.e., housing diversity can be achieved by differences in unit size, tenure, or cost.)

**Dose:** A function of the concentration of a substance or substances in the environment and the extent of exposure that a person has with the substance

**Drainage:** An area that collects and diverts rain water and urban runoff down slope.

**Drainage Area:** The portion of the Earth’s surface from which precipitation or other runoff flows to a given location. With respect to a highway, this location may be a culvert, the farthest point of a channel, or an inlet to a roadway drainage system.

**Drainage Swale:** A storm drainage conveyance structure designed to intercept, divert, and convey surface runoff (generally sheet flow) to prevent erosion and reduce pollution loading.

**Drought Water Bank:** Established in 1991, the Bank resulted from the California Department of Water Resources purchasing more than 800,000 acre-feet of water for approximately \$100 million in response to requests by water-short agencies.

**Duplex:** A detached building under single ownership that is designed for occupation as the residence of two families living independently of each other.

**Dwelling, Single-Family:** A structure with one dwelling unit, typically with a single family living in it ([www.reference.com](http://www.reference.com)).

**Dwelling, Two-Family:** A classification of housing where multiple separate housing units are contained within one building ([www.reference.com](http://www.reference.com)).

**Dwelling Unit:** A room or group of rooms (including sleeping, eating, cooking, and sanitation facilities, but not more than one kitchen), which constitutes an independent housekeeping unit, occupied or intended for occupancy by one household on a long-term basis. Used in quantifying residential land use.

**Early Horizon (aka Early Millingstone):** Approximately 7,500 Years Before Present (YBP) through 3,500 YBP.

**E-200 Corridor:** The E-200 corridor is the High-Desert Corridor, which runs from Los Angeles to Las Vegas through Palmdale.

**Earthquake Fault Zones:** Regulatory zones, as established by the Alquist-Priolo Earthquake Fault Zoning Act (see above), and located around the surface traces of active faults.

**Easting:** A Geographical Information System term which refers to a rectangular (x,y) coordinate measurement of distance east from a north-south reference line, usually a meridian used as the axis of origin within a map zone or projection.

**Economic Poisons:** Economic poisons are substances used to control pests and defoliate cash crops such as cotton.

**Effects:** “Effects” and “impacts” as used in the State CEQA Guidelines are synonymous. Effects include (a) Direct or primary effects which are caused by the project and occur at the same time and place; (b) Indirect or secondary effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems. Effects analyzed under CEQA must be related to a physical change (State CEQA Guidelines, Section 15358).

**Effluent:** Wastewater or other liquid, partially or completely treated or in its natural state, flowing from a treatment plant.

**Embodied Energy:** Refers to the quantity of energy required to manufacture, and supply to the point of use, a product, material or service (ENVIRON 2009).

**Emergency:** Emergency means a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to life, health, property, or essential public services. Emergency includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage (State CEQA Guidelines, Section 15359)

**Emission:** Released or discharged air contaminants in the ambient air from any source (CARB 2017).

**Emission Factor:** For stationary sources, the relationship between the amount of pollution produced and the amount of raw material processed or burned. For mobile sources, the relationship between the amount of pollution produced and the number of vehicle miles traveled. By using the emission factor of a pollutant and specific data regarding quantities of materials used by a given source, it is possible to compute emissions for the source. This approach is used in preparing an emissions inventory (CARB 2017).

**Emission Inventory:** An estimate of the amount of pollutants emitted into the atmosphere from major mobile, stationary, area-wide, and natural source categories over a specific period of time such as a day or a year (CARB 2017).

**Emission Offsets (Emissions Trading):** A rule-making concept whereby approval of a new or modified stationary source of air pollution is conditional on the reduction of emissions from other existing stationary sources of air pollution. These reductions are required in addition to reductions required by best available control technology (CARB 2017).

**Emission Rate:** The weight of a pollutant emitted per unit of time (e.g., tons per year) (CARB 2017).

**Emission Standards:** The U.S. Environmental Protection Agency (USEPA), California Air Resources Board (CARB), or air district standards or limits for air contaminant emissions. The maximum amount of a pollutant that is allowed to be discharged from a polluting source (e.g., an automobile or smoke stack).

**Encroachment:** The occupancy of project right-of-way by non-project structures or objects of any kind or character; also, activities of other parties within the operating right-of-way.

**Endangered Species:** In accordance with CEQA, "Species" means a species or subspecies of animal or plant or a variety of plant. A species of animal or plant is considered "Endangered" if its prospects of survival and reproduction are in immediate jeopardy. The CESA authorizes the CDFW to issue permits authorizing incidental take of Threatened and Endangered Species.

**Enterprise Zone:** An area designated by the federal or State government as a distressed area where regulatory and tax burdens are loosened to stimulate private investment.

**Environment:** The physical conditions which exist within the area which will be affected by a proposed project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historical or aesthetic significance. The area involved shall be the area in which significant effects would occur either directly or indirectly as a result of the project. The "environment" includes both natural and man-made conditions (State CEQA Guidelines, Section 15360).

**Environmental Documents:** Environmental documents means Initial Studies, Negative Declarations, draft and final EIRs, documents prepared as substitutes for EIRs and Negative Declarations under a program certified pursuant to the *California Public Resources Code* (Section 21080.5) and documents prepared under the National Environmental Policy Act (NEPA) and used by a State or local agency in the place of an Initial Study, Negative Declaration, or an EIR (State CEQA Guidelines, Section 15361).

**Environmental Impact Report:** A detailed statement prepared under the California Environmental Quality Act (CEQA) describing and analyzing the significant environmental effects of a project and discussing ways to mitigate or avoid the effects. The term "EIR" may mean either a draft or a final EIR depending on the context. A Draft EIR means an EIR containing the information specified in the State CEQA Guidelines (Sections 15122–15131). A Final EIR means an EIR containing the information contained in the draft EIR, comments either verbatim or in summary received in the review process, a list of persons commenting, and the response of the Lead Agency to the comments received (State CEQA Guidelines, Section 15362).

**Environmental Justice:** The fair treatment of people of all races and incomes with respect to development, implementation, and enforcement of environmental laws, regulations, and policies. Fair treatment implies that no person or group of people should shoulder a disproportionate share of negative environmental and economic impacts resulting from the execution of environmental programs.

**Ephemeral:** Lasting a short time (i.e., not present year-long) ([www.dictionary.com](http://www.dictionary.com)).

**Epicenter:** The part of the Earth's surface directly above the focus of an earthquake.

**Equivalent Noise Level ( $L_{eq}$ ):** A single-number representation of the fluctuating sound level in decibels over a specified period of time. It is a sound-energy average of the fluctuating level.

**Erosion:** The process by which material is removed from the Earth's surface (including weathering, dissolution, abrasion, and transportation), most commonly by wind or water.

**Erosion Control:** The stabilization of cut and fill slopes and other areas.

**Ethnography:** A cultural anthropologic research method that strives to answer anthropological questions about different cultures' ways of life.

**Ethnohistory:** A branch of anthropology dealing with the development of cultures, as through the analysis of archaeological findings.

**Ethnolinguistics:** The study of language as an aspect or part of culture, esp. the study of the influence of language on culture and of culture on language.

**Eutrophication:** An increase in chemical nutrients, typically compounds containing nitrogen or phosphorus, in an ecosystem. These nutrients support a dense growth of algae and other organisms, the decay of which depletes the shallow waters of oxygen in summer.

**Evapotranspiration:** The sum of evaporation and plant transpiration from the Earth's land surface to atmosphere. Evaporation accounts for the movement of water to the air from sources such as the soil, canopy interception, and water bodies. Transpiration accounts for the movement of water within a plant and the subsequent loss of water as vapor through stomata in its leaves.

**Exceedance:** A measured level of an air pollutant higher than the national or State ambient air quality standards.

**Excess Storm Water Runoff Volume ( $\Delta V$ ):** The post-developed runoff volume minus the pre developed runoff volume for the 85th percentile storm event.

**Executive Order 11198:** A 1977 Executive Order designed to regulate impacts associated with development within a designated 100-year floodplain. This Executive Order is implemented through the Federal Emergency Management Agency's (FEMA) Floodplain Mapping Program and through federal agency review of projects that may require federal permits or approvals.

**Expansive Soils:** Soils that swell when they absorb water and shrink as they dry.

**Expressway:** A divided multi-lane major arterial street for through traffic with partial control of access and with grade separations at major intersections.

**Extant:** Existing.

**External Trips:** Trips with one trip end within the project site and one trip end outside of the project site. (e.g., traveling from your home in Lancaster directly to your job in Centennial is an external trip.)

**Fair Market Rent (FMR):** Fair Market Rents are freely set rental rates defined by HUD as the median gross rents charged for available standard units in a county or Standard Metropolitan Statistical Area (SMSA). Fair Market Rents are used for the Section 8 Rental Program and other HUD programs and are published annually by HUD.

**Family:** (1) Two or more persons related by birth, marriage, or adoption (U.S. Bureau of the Census). (2) An individual or a group of persons living together who constitute a bona fide single-family housekeeping unit in a dwelling unit, not including a fraternity, sorority, club, or other group of persons occupying a hotel, lodging house or institution of any kind (California).

**Farmland:** Refers to eight classifications of land mapped by the U.S. Department of Agriculture Soil Conservation Service. The five agricultural classifications, except Grazing Land, do not include publicly owned lands for which there is an adopted policy preventing agricultural use. They are Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Farmland of Local Importance, and Grazing Land.

**Farmland of Local Importance:** Lands of importance, as identified by appropriate local agencies, for the production of food, feed, fiber, forage, and oilseed crops. These may also include lands that have been designated for agriculture by local ordinance (NRCS 2017a).

**Farmland of Statewide Importance:** Lands of importance, as defined and delineated by the appropriate State agencies, for the production of food, feed, fiber, forage, and oilseed crops. Generally, this land includes areas of soils that nearly meet the requirements for Prime Farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some areas may produce as high a yield as Prime Farmland if conditions are favorable. Farmland of Statewide Importance may include tracts of land that have been designated for agriculture by State law (NRCS 2017a).

**Fault:** A fracture in the Earth's crust forming a boundary between rock masses that have shifted. An active fault is a fault that has moved recently and which is likely to again. An inactive fault is a fault which shows no evidence of movement in recent geologic time and no potential for movement in the relatively near future.

**Faulted and Folded Bedrock Structure:** The bedrock has been subject to folding and faulting activity resulting in a change in bedrock structure.

**Feasible:** Feasible means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors (State CEQA Guidelines, Section 15364).

**Federal Antidegradation Policy:** A 1968 Federal Policy which includes a three-tiered approach to maintaining and protecting water quality. First, all existing beneficial uses and levels of water quality necessary to protect those uses must be preserved and protected from degradation. Second, water quality must be protected in areas where the quality cannot support the propagation of fish, shellfish, and wildlife and recreation ("fishable/swimmable"). Third, the policy provides special protection of waters for which the ordinary water quality criteria are not sufficient.

**Federal Aviation Administration (FAA):** The FAA is an agency of the United States Department of Transportation and is the principal agency responsible for implementing federal law regulating aviation activities in the United States.

**Federal Clean Air Act (FCAA):** A federal law passed in 1970 and amended in 1974, 1977, and 1990 which forms the basis for the national air pollution control effort. Basic elements of the act include national ambient air quality standards for major air pollutants, mobile and stationary control measures, air toxics standards, acid rain control measures, and enforcement provisions.

**Federal Emergency Management Agency (FEMA):** The federal agency under which the National Flood Insurance Program is administered.

**Federal Endangered Species Act (FESA):** Signed in 1978, the Act was designed to protect critically imperiled species from extinction as a “consequence of economic growth and development untended by adequate concern and conservation.” The FESA only protects species which are officially listed as “Threatened” or “Endangered”, as well as the habitat thereof. There are two categories on the list: Endangered and Threatened. Endangered species are closer to extinction than Threatened species.

**Fill:** Earthen material used to level or replace cut regions in an area prior to construction.

**Filter strips:** Land areas of either planted or indigenous vegetation, situated between a potential, pollutant-source area and a surface-water body that receives runoff. Filter strips also provide localized erosion protection since the vegetation covers an area of soil that otherwise might have a high erosion potential.

**Filtration:** The mechanical process that removes particulate matter from water by passing through sand or other media.

**Final Map:** A map of an approved subdivision filed in the county recorder’s office. It shows surveyed lot lines, street rights-of-way, easements, monuments, and distances, angles, and bearings, pertaining to the exact dimensions of all parcels, street lines, and so forth.

**Findings of Fact:** Findings required by CEQA are the conclusions made regarding the significance of a project in light of its environmental impacts. A public agency cannot approve or carry out a project for which an EIR has been certified which identifies one or more significant environmental effects of the project unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding (State CEQA Guidelines, Section 15091).  
**Fire Hazard Severity Zone:** An area where, due to slope, fuel, weather, or other fire-related conditions, the potential loss of life and property from a fire necessitates special fire protection measures and planning before development occurs. There are three zones, based on increasing fire hazard: medium, high, and very high.

**First-Time Home Buyer:** Defined by the U.S. Department of Housing and Urban Development (HUD) as an individual or family who has not owned a home during the three-year period preceding the HUD-assisted purchase of a home. Jurisdictions may adopt local definitions for first-time home buyer programs which differ from non-federally funded programs.

**Fiscal Impact Assessment/Fiscal Impact Report:** A projection of the direct public costs and revenues resulting from population or employment change to the local jurisdiction(s) in which the change is taking place. Enables local governments to evaluate relative fiscal merits of general plans, specific plans, or projects. A Fiscal Impact Report (FIR) projects the public costs and revenues that will result from a proposed program or development.

**Fissure:** A long narrow opening; a crack or cleft.



**Fixed Noise Source:** A stationary device which creates sounds while fixed or motionless, including but not limited to, residential, agricultural, industrial, and commercial machinery and equipment, pumps, fans, compressors, air conditioners, and refrigeration equipment.

**Flood:** A general and temporary condition of partial or complete inundation of normally dry land areas from: (1) overflow of inland or tidal waters; (2) the unusual and rapid accumulation or runoff of surface waters from any source; (3) mudslides (i.e., mudflows) which are proximately caused by flood, and are akin to a river of liquid and flowing mud on the surface of normally dry land areas, as when earth is carried by a current of water and deposited along the path of the current; and (4) the collapse or subsidence of land along the shore of a lake or other body of water as a result of erosion or undermining caused by waves or currents of water exceeding the cyclical levels which result in flood.

**Flood, 25-Year:** A hydrologic event, such as a flood, having a 25-year average recurrence interval. In other words, a flood of this magnitude has a 4 percent chance of happening in any year.

**Flood, 50-Year:** A hydrologic event, such as a flood, having a 50-year average recurrence interval. In other words, a flood of this magnitude has a 2 percent chance of happening in any year.

**Flood, 100-Year:** The magnitude of a flood expected to occur on the average every 100 years, based on historical data. The 100-year flood has a 1/100, or one percent, chance of occurring in any given year.

**Flood Insurance Rate Map (FIRM):** For each community, the official map on which the Federal Insurance Administration has delineated areas of special flood hazard and the risk premium zones applicable to that community.

**Floodplain:** Any land area susceptible to being inundated by flood waters from any source. The relatively level land area on either side of the banks of a stream regularly subject to flooding. That part of the floodplain subject to a one percent chance of flooding in any given year is designated as an “area of special flood hazard” by the Federal Insurance Administration.

**Flood Plain Fringe:** All land between the floodway and the upper elevation of the 100-year flood.

**Floodplain Management:** The operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to, emergency preparedness plans, flood control works, and floodplain management regulations.

**Floodway:** The channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the “base flood” without cumulatively increasing the water surface elevation more than one foot. No development is allowed in floodways.

**Floor Area Ratio (FAR):** The ratio of gross floor area of all buildings permitted on a site divided by the total net area of the site, expressed in decimals to one or two places. For

example, on a site with 10,000 net square feet of land area, a Floor Area Ratio of 1.0 will allow a maximum of 10,000 gross square feet of building floor area to be built. On the same site, an FAR of 1.5 would allow 15,000 square feet of floor area; an FAR of 2.0 would allow 20,000 square feet; and an FAR of 0.5 would allow only 5,000 square feet. Also commonly used in zoning, FARs typically are applied on a parcel-by-parcel basis as opposed to an average FAR for an entire land use or zoning district.

**Flow:** A flow is a sudden movement of a soil mass in which individual particles travel separately in a fluid motion. Debris and mudflows are rapid and can be related to excess rainfall on slopes often where vegetation has been removed. Debris flows often have the consistency of cement and can result in catastrophic effects to structures.

**Fluted:** Grooved or furrowed, as in a ruffle of cloth or on a piecrust ([www.dictionary.com](http://www.dictionary.com)).

**Foot-Candle:** The amount of light produced by this candle on one-square-foot of a spherical surface one foot from the light source.

**Foothill:** A relatively low hill on the lower slope of a mountain ([wordnet.princeton.edu](http://wordnet.princeton.edu)).

**Footprint (Building):** The outline of the ground area covered by a building.

**Foreground Zone:** Visual elements in this zone can be seen at a close distance and typically dominate the entire view. View impacts on this zone are often considered to be substantial because they are so visually prominent.

**Formation:** A geologic unit possessing similar characteristics and a shared history.

**Freeboard:** An additional amount of height above the Base Flood Elevation (in the case of flood control) used as a factor of safety (e.g., two feet above the Base Flood) in determining the level at which a structure's lowest floor must be elevated or flood proofed to be in accordance with State or community floodplain management regulations.

**Freeway:** A high-speed, high-capacity, limited-access road serving regional and county-wide travel. Such roads are free of tolls, as contrasted with "turnpikes" or other "toll roads" now being introduced into southern California. Freeways generally are used for long trips between major land use generators. At Level of Service "E", they carry approximately 1,875 vehicles per lane per hour, in both directions. Major streets cross at a different grade level.

**Freeway Mainline Segment:** A freeway mainline segment is a portion of a freeway/highway between ramps consisting of a continuous roadway without stop signs, stop lights, or intersections.

**Fugitive Dust:** Dust particles that are introduced into the air through certain activities such as soil cultivation, or vehicles operating on open fields or dirt roadways. A subset of fugitive emissions.

**Fugitive Emissions:** Emissions not caught by a capture system which are often due to equipment leaks, evaporative processes, and windblown disturbances.

**General Plan:** A compendium of city or county policies regarding long-term development, in the form of maps and accompanying text. A General Plan is a legal document required of each local agency by Section 65301 of the *California Government Code* and adopted by a city council or board of supervisors. California law requires the preparation of seven elements or chapters in a General Plan: Land Use, Housing, Circulation, Conservation, Open Space, Noise, and Safety. Additional elements are permitted.

**General Plan Amendment:** A change or addition to a community's general plan. A general plan can be amended up to four times a year.

**General Plan Consistency:** Compatibility and agreement with a general plan. Consistency exists when the standards and criteria of a general plan are met or exceeded.

**General Obligation Bond:** A tax-exempt bond issued by a public agency that must be repaid from general tax revenues rather than from specific revenue sources.

**Geographic Information System (GIS):** A computer system capable of storing, analyzing, and displaying data and describing places on the Earth's surface.

**Geologic Hazard Overlay (District):** A region subject to additional earthquake-related building requirements designed to protect the public health, safety and welfare.

**Geologic Review:** The analysis of geologic hazards, including all potential seismic hazards, surface ruptures, liquefaction, landsliding, mudsliding, and the potential for erosion and sedimentation.

**Geological:** Pertaining to rock or solid matter.

**Geometric Improvements:** Improvements to roads such as widening, adding signals to intersections, or adding turning lanes. These are required to mitigate traffic impacts and maintain a required level of service.

**Geomorphic:** Relating to the form or surface features of the Earth.

**Glare:** (1) Difficulty seeing in the presence of very bright light or, by extension, any sort of bright light capable of causing glare. (2) A form of light pollution or over-illumination ([www.reference.com](http://www.reference.com)).

**Global climate change:** A broad term used to describe any worldwide, long-term change in the Earth's climate.

**Global Warming:** More specific than global climate change and refers to a general increase in temperatures across the Earth. Global warming, characterized by rising atmospheric temperatures, can cause other climatic changes, such as a shift in the frequency and intensity of rainfall or hurricanes, but does not necessarily imply that all locations will be warmer. Global warming can be caused by natural processes, but there is a general scientific consensus that most current global warming is the result of human activity on the planet (ENVIRON 2009). This man-made warming is primarily caused by increased emissions of

“greenhouse gases”, which keeps the Earth’s surface warm and is called “the greenhouse effect”.

**Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32):** Passed by the California Legislature in 2006, the Act caps global warming emissions at 1990 levels by 2020 (a 25 percent reduction); establishes a mandatory reporting program to the California Air Resources Board (CARB) for significant greenhouse gas emissions; requires CARB to adopt regulations for significant greenhouse gas emission sources (allowing CARB to design a cap and trade program) and gives CARB the authority to enforce the regulations beginning in 2012.

**Grade:** Adjacent ground level. For purposes of building height measurement, grade is the average of the finished ground level at the center of all walls of a building or other datum point established by the division of building and safety.

**Grading:** Alteration of existing slope and shape of the ground surface.

**Granodiorite:** An intrusive igneous rock similar to granite.

**Grazing Land:** Lands that include grazed forest lands, grazed croplands, haylands, and native/naturalized pasture. These lands provide significant forage resource for U.S. livestock production (NRCS 2017b).

**Greenbelt:** Statements of local policy adopted by one or more cities and the County of Ventura, either by resolution or ordinance. In Ventura County, greenbelts are areas where cities have agreed not to annex territory and the County has pledged to permit only open space or agricultural uses.

**Greenfield:** Farmland and open areas where there has been no prior industrial or commercial activity and therefore where the threat of contamination is much lower than in urbanized areas.

**Green infrastructure:** an alternative approach to traditional development that integrates, rather than fragments, natural systems. It aims to enhance natural open spaces and ecosystems while providing the utility of a traditional infrastructure system (Placeworks 2017).

**Gross Site Area:** The area within the lot lines of a parcel of land before public streets, alleys, easements, or other areas to be dedicated or reserved for public use have been deducted.

**Gross Square Feet/Gross Floor Area:** The total enclosed building area of all floors measured to the outside face of the structural members in exterior walls, and including the halls, stairways, elevator shafts at each floor level, service and mechanical equipment rooms, and habitable basement or attic areas, but excluding area of vehicle parking and loading. Parking structures shall not be considered building area for the purposes of calculating allowable floor area ratios.

**Ground Failure:** Ground movement or rupture caused by strong shaking during an earthquake. Includes landslide, lateral spreading, liquefaction, and subsidence.

**Ground-Modification Techniques:** Provide in-situ (i.e., without removal/in place) remediation of liquefaction potential by making the underlying granular materials more dense. Because one of the factors necessary for liquefaction to occur is loose soils, making the soils denser through techniques such as deep dynamic compaction, stone columns, and/or vibro-replacement remediates the potential for liquefaction. Ground-modification techniques are implemented where groundwater levels are less than about ten feet bgs and are specified in the geotechnical reports where appropriate.

**Ground Shaking:** Ground movement resulting from the transmission of seismic waves during an earthquake.

**Groundwater:** The term usually refers to the “saturated” zone in the ground where all the pore space between the soil particles is occupied by water. Water under the Earth's surface, often confined to aquifers capable of supplying wells and springs. Does not include water which is being produced with oil in the production of oil and gas or in a bona fide mining operation.

**Groundwater Basin:** A groundwater reservoir defined by the entire overlying land surface and the underlying aquifers that contain water stored in the reservoir. Boundaries of successively deeper aquifers may differ and make it difficult to define the limits of the basin.

**Groundwater Overdraft:** The condition of a groundwater basin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years during which water supply conditions approximate average.

**Groundwater Recharge:** The natural process of infiltration and percolation of rainwater from land areas or streams through permeable soils into water-holding rocks that provide underground storage (i.e., aquifers); the action of increasing groundwater storage by natural conditions or by human activity. See also Artificial Recharge.

**Groundwater Table:** The upper surface of the zone of saturation (all pores of subsoil filled with water), except where the surface is formed by an impermeable body.

**Group Quarters:** A residential living arrangement, other than the usual house, apartment, or mobile home, in which two or more unrelated persons share living quarters and cooking facilities. Institutional group quarters include nursing homes, orphanages, and prisons. Non-institutional group quarters include dormitories, shelters, and large boardinghouses.

**Growth Area:** A geographic subarea used in Ventura County population forecasts to refer to an area where urban development has already taken place or is expected to take place.

**Growth Management:** The use by a community of a wide range of techniques in combination to determine the amount, type, and rate of development desired by the community and to channel that growth into designated areas. Growth management policies

can be implemented through growth rates, zoning, capital improvement programs, public facilities ordinances, urban limit lines, standards for levels of service, and other programs.

**Growth Management Plan (GMP):** A plan developed for a given geographical region (e.g., by the Southern California Association of Governments [SCAG]) that contains demographic projections (i.e., housing units, employment, and population for the region. The plan provides recommendations for local governments to better accommodate the growth projected by occur and reduce environmental impacts.

**Habitable Structures:** In this document, this term refers to man-made structures that are permanently (e.g., housing) or temporarily (e.g., stores, churches) inhabited by people and that could represent a danger in the event of a collapse due to seismic shaking. Small structures that can be vacated immediately (e.g., guard stations, gazebos, parking structures) are not considered to be habitable structures for seismic discussions.

**Habitat:** A place where a plant or animal naturally or normally lives or grows.

**Habitat Conservation Plan (HCP):** A plan required in support of a federal Section 10(a) permit under the federal Endangered Species Act.

**Hazard Index (HI):** The sum of hazard quotients for substances that affect the same target organ or organ system. A calculated HI exposure less than 1.0 will likely not result in adverse non-cancer health effects over a lifetime of exposure. However, an HI greater than 1.0 does not necessarily mean that adverse effects will occur.

**Hazard Quotient:** The ratio of the potential exposure to a substance and the level at which no adverse effects are expected.

**Hazardous Material:** A substance or combination of substances which because of its quantity, concentration, or physical, chemical or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious, irreversible, or incapacitating reversible, illness or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, disposed of or otherwise managed.

**Hazardous Waste:** A waste or combination of wastes that, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either cause or significantly contribute to an increase in mortality or an increase in serious irreversible illness, or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. A hazardous material than cannot be reused or recycled. A hazardous waste possesses at least one of four characteristics—ignitability, corrosivity, reactivity, or toxicity—or appears on special U.S. Environmental Protection Agency (USEPA) or State lists. Hazardous waste is regulated under the federal Resource Conservation and Recovery Act and the *California Health and Safety Code*.

**Health Risk Assessment (HRA):** A document that identifies the risks and quantities of possible adverse health effects that may result from exposure to emissions of toxic air

contaminants. A health risk assessment cannot predict specific health effects; it only describes the increased possibility of adverse health effects based on the best scientific information available.

**Hearing loss:** The loss of auditory capacity. Can be caused by prolonged exposure to loud noise.

**Height:** The vertical distance from the adjacent grade to the highest point of that which is being measured.

**Heliport:** An identifiable area on land or water, including any building or facilities thereon, used or intended to be used for the landing and takeoff of helicopters. Does not include temporary landing and takeoff sites. Refueling and overnight maintenance are permitted.

**Helistop:** An identifiable area on land or water, including any building or facilities thereon, used or intended for the landing and takeoff of helicopters. Does not include temporary landing and takeoff sites. Refueling and overnight maintenance are not permitted.

**Herbicides:** Chemical compounds that are used to destroy or control the growth of weeds and other undesirable plants.

**Heritage Oak:** As detailed in the County of Los Angeles Oak Tree Ordinance, any tree in the genus *Quercus* that (1) measures 36 inches or more in diameter, as measured 4.5 feet above natural ground or (2) any oak of 36 inches or less in diameter having a significant historical or cultural importance.

**Hertz:** Unit of measurement of frequency, numerically equal to cycles per second.

**High-Occupancy Vehicle (HOV):** A motor vehicle that is carrying at least a minimum specified number of passengers (normally at least two or more, sometimes three or more). It can be a bus, a taxi with passengers, or a car or van used for carpooling.

**Hillside Management Area:** Any portion of a lot or parcel of land which contains terrain with a natural slope gradient 25 percent or greater (County of Los Angeles 2014).

**Highway:** High-speed, high-capacity, limited-access transportation facility serving regional and county-wide travel. Highways may cross at a different grade level.

**Hillsides:** Land that has an average percent of slope equal to or exceeding 15 percent.

**Historical resource:** A resource listed or eligible for listing on the California Register of Historical Resources, or included in a local register of historical resources. A determination of the nature of an unlisted historical resource can also be made by a lead agency, as detailed in the *California Public Resources Code* (Section 5020.1[j] or 5024.1). Historic resources include buildings, sites, objects, districts, and structures.

---

**Historically Significant (per CEQA):** The resource meets the criteria for listing on the California Register of Historical Resources” (*California Public Resources Code*, Section 5024.1; 14 CCR 4852), including if the resource:

- (1) Is associated with events that have made a significant contribution to the broad patterns of California’s history and cultural heritage;
- (2) Is associated with lives of persons important in our past;
- (3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- (4) Has yielded, or may be likely to yield, information important in prehistory or history.

**Holocene Era:** A geologic epoch extending from approximately 14,000 Years Before Present (YBP) through the present day.

**Holocene Maximum:** A period beginning in 3,500 YBP and exhibiting significantly warmer and wetter conditions than were experienced previously. Archaeologically, it was marked by a large population increase and movement into new environments along the south-central California coast and the Mojave Desert.

**Holocene time:** A geologic period, which began approximately 9600 BCE. The Holocene continues to the present.

**Hot Spot:** A localized concentration of an air pollutant associated with restricted dispersion conditions, often occurring in such places as street intersections or close to the source of emissions.

**Household:** The U.S. Census Bureau defines a household as all persons living in a housing unit whether or not they are related. A single person living in an apartment as well as a family living in a house is considered a household. Household does not include individuals in dormitories, prisons, convalescent homes, or other group quarters.

**Household Income:** The total income of all the persons living in a household. A household is usually described as very low income, low income, moderate income, and upper income based upon household size and income, relative to the regional median income.

**Households, Market Rate:** Households who, as determined by the county or county, have the financial capability to meet their housing needs without sacrificing other essential needs.

**Households, Non-Market-Rate:** Households who, as determined by the city or county, do not have the financial capability to meet their housing needs without sacrificing other essential needs.

**Housing and Community Development, California Department of (HCD):** The department of the California State Government which has responsibility for housing policy



and programs. HCD establishes the guidelines for preparation of local housing elements, prepares the statewide housing element, and offers technical assistance to local jurisdictions.

**Housing and Urban Development, U.S. Department of (HUD):** The cabinet level department of the federal government responsible for housing, housing assistance, and urban development at the national level. Housing programs administered through HUD include Community Development Block Grant (CDBG), HOME, and Section 8.

**Housing Element:** One of the seven State-mandated elements of a local general plan, it assesses the existing and projected housing needs of all economic segments of the community, identifies potential sites adequate to provide the amount and kind of housing needed, and contains adopted goals, policies, and implementation programs for the preservation, improvement, and development of housing. Under State law, a housing element must be updated every five years.

**Housing and Urban Development, U.S. Department of (HUD):** A cabinet-level department of the federal government that administers housing and community development programs.

**Housing Subsidy:** Housing subsidies refer to government assistance aimed at reducing housing sales or rent prices to more affordable levels. Two general types of housing subsidy exist. Where a housing subsidy is linked to a particular house or apartment, housing subsidy is "project" or "unit" based. In Section 8 rental assistance programs the subsidy is linked to the family and assistance provided to any number of families accepted by willing private landlords. This type of subsidy is said to be "tenant based."

**Housing Unit:** The place of permanent or customary abode of a person or family. A housing unit may be a single-family dwelling, a multi-family dwelling, a condominium, a modular home, a mobile home, a cooperative, or any other residential unit considered real property under State law. A housing unit has, at least, cooking facilities, a bathroom, and a place to sleep. It also is a dwelling that cannot be moved without substantial damage or unreasonable cost.

**Human Scale:** The proportional relationship of a particular building, structure, or streetscape element to human form and function.

**Hydraulic conductivity:** The ability of water to migrate in the aquifer.

**Hydraulics:** The study and technological application of the behavior of fluids.

**Hydrocarbons (HC):** Compounds containing various combinations of hydrogen and carbon atoms. They may be emitted into the air by natural sources (e.g., trees) and as a result of fossil and vegetative fuel combustion, fuel volatilization, and solvent use. Hydrocarbons are a major contributor to smog.

**Hydroconsolidation:** Collapse with the addition of water, but under different mechanisms than liquefaction.

**Hydrogen Sulfide (H<sub>2</sub>S):** A colorless, flammable, poisonous compound having a characteristic rotten-egg odor. It is used in industrial processes and may be emitted into the air.

**Hydrology:** The study of the water cycle.

**Hydromodification:** Changes to the storm water runoff characteristics of a watershed caused by changes in land use.

**Hydrophobic:** Having low solubility in water.

**Illuminance:** The amount of total light received from a source by a unit of surface area.

**Impact:** The effect, influence, or imprint of an activity or the environment. Impacts include: direct or primary effects which are caused by the project and occur at the same time and place; indirect or secondary effects which are caused by the project and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect or secondary effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate and related effects on air and water and other natural systems, including ecosystems.

**Impact Fee:** A fee, also called a development fee, levied on the developer of a project by a city, county, or public agency as compensation for otherwise-unmitigated impacts the project will produce. The *California Government Code* (Sections 66000 et seq.) specifies that development fees shall not exceed the estimated reasonable cost of providing the service for which the fee is charged. To lawfully impose a development fee, the public agency must verify its method of calculation and document proper restrictions of use of the fund.

**Impervious Surface:** Ground surface that cannot be penetrated by water. Includes paved and compacted surfaces, as well as those covered by buildings.

**Important Farmlands:** Important farmlands include prime farmlands, farmlands of statewide importance, unique farmlands, and farmlands of local importance as defined and mapped by the California Department of Conservation (NRCS 2017a).

**Imported Water:** Water that has originated from one hydrologic region and is transferred to another hydrologic region.

**Impoundment:** A body of water, such as a pond, confined by a dam, dike, floodgate, or other barrier.

**Income Categories/Levels:** Four categories are used to classify a household according to the median income for the county. Under State housing statutes, these categories are as follows: Very Low (0 to 50 percent of county median); Low (50 percent to 80 percent of county median); Moderate (80 percent to 120 percent of county median); and Upper (over 120 percent of county median). Four levels are included relating to the Orange County HUD median income: Income I is defined as households earning 0 to 30 percent of the HUD county median income. Income II is defined as households earning 30 to 50 percent of the HUD

county median income. Income III is defined as households earning 50 to 80 percent of the HUD county median income. Income IV is defined as households earning 80 to 120 percent of the HUD county median income.

**Incorporation:** Creation of a new city.

**Incorporation by Reference:** Reliance on a previous environmental document for some portion of the environmental analysis of a project. An EIR or Negative Declaration may incorporate by reference all or portions of another document which is a matter of public record or is generally available to the public. Where all or part of another document is incorporated by reference, the incorporated language shall be considered to be set forth in full as part of the text of the EIR or Negative Declaration (State CEQA Guidelines, Section 15150).

**Indirect Impact:** Effects caused by an action that are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

**Indirect Source:** Any facility, building, structure, or installation, or combination thereof, which generates or attracts mobile source activity that results in emissions of any pollutant (or precursor) for which there is a State ambient air quality standard. Examples of indirect sources include employment sites, shopping centers, sports facilities, housing developments, airports, commercial and industrial development, and parking lots and garages.

**Indirect Source Control Program:** Rules, regulations, local ordinances and land use controls, and other regulatory strategies of air pollution control districts or local governments used to control or reduce emissions associated with new and existing indirect sources. Indirect source control programs include regulatory strategies such as transportation control measures (e.g., South Coast's Regulation XV for employer-based trip reduction); parking charges; land use controls that reduce the need for vehicle travel and increase transit, bicycle, and pedestrian access; and source-specific regulations such as truck idling and travel schedule requirements.

**Industrial:** The manufacture, production, and processing of consumer goods. Industrial is often divided into "heavy industrial" uses, such as construction yards, quarrying, and factories; and "light industrial" uses, such as research and development and less intensive warehousing and manufacturing.

**Inert Waste:** Includes materials that do not undergo physical or other changes after disposal, such as asphalt, concrete, dirt, and rock.

**Infiltration:** The introduction of underground water, such as groundwater, into wastewater collection systems. Infiltration results in increased wastewater flow levels.

**Infiltration basin:** A shallow impoundment that is designed to infiltrate storm water into the soil. Infiltration basins are believed to have a high pollutant removal efficiency, and can also help recharge the groundwater, thus restoring low flows to stream systems.

**Infiltration System:** An infiltration basin designed to capture runoff volume from the water quality design storm and infiltrate it to the soil.

**Infiltration trench:** A long, narrow, rock-filled trench with no outlet that receives storm water runoff. Runoff is stored in the void space between the stones and infiltrates through the bottom and into the soil matrix.

**Inflow:** Surface water, such as rainfall runoff, that enters a wastewater collection system through manhole covers and joints or cracks in pipes. Inflow results in increased wastewater flow levels.

**Infrastructure:** Permanent utility installations, including roads, water supply lines, sewage collection pipes, and power and communications lines.

**Initial Study:** Under CEQA, a preliminary analysis prepared by the Lead Agency to determine whether an EIR, a Negative Declaration, or Mitigated Negative Declaration must be prepared, or to identify the significant environmental effects to be analyzed in an EIR (State CEQA Guidelines, Section 15365).

**In-Situ:** A rock, mineral or fossil in its natural position, i.e., the situation in which it was originally formed or deposited.

**Institutional Use:** (1) Publicly or privately owned and operated activities such as hospitals, convalescent hospitals, intermediate care facilities, nursing homes, museums, and schools and colleges; (2) churches and other religious organizations; and (3) other non-profit activities of a welfare, educational, or philanthropic nature that cannot be considered residential, commercial, or industrial.

**Institute of Transportation Engineers (ITE):** Organization for professional transportation engineers. ITE publishes the Trip Generation Manual, which provides information on trip generation for land uses and building types. For instance, if an individual needs to know the number of trip ends produced by an industrial park, the report provides a trip rate based upon the size of the building. The report also divides the trip rate into peak hour rates, weekday rates, etc.

**Integrated Waste Management Act (IWMA):** Also known as Assembly Bill (AB) 939 (Chapter 1095, Statutes of 1989), the IWMA created the Integrated Waste Management Board, required each jurisdiction in the state to submit detailed solid waste planning documents for Board approval, set diversion requirements of 25 percent in 1995 and 50 percent in 2000, established a comprehensive statewide system of permitting, inspections, enforcement, and maintenance for solid waste facilities, and authorized local jurisdictions to impose fees based on the types or amounts of solid waste generated.

**Integrated Waste Management Board (IWMB):** The State agency within CalEPA responsible for solid waste management (non-hazardous).

**Integrated Water Resources Management Strategy (IWRMS):** A planning policy document which identifies watershed management principles and related infrastructure and water resources planning initiatives incorporated into the Centennial Specific Plan. The Strategy provides a comprehensive framework for demonstrating the interrelationship of proposed systems for water supply, wastewater treatment/reclamation, flood control/drainage, water quality and sediment management.

**Intelligent Transportation System (ITS):** ITS improves transportation safety and mobility and enhances productivity through the integration of advanced communications technologies into the transportation infrastructure and in vehicles. ITS encompasses a broad range of wireless and wire line communications-based information and electronics technologies.

**Intensity, Building:** For residential uses, the actual number or the allowable range of dwelling units per net or gross acre. For non-residential uses, the actual or the maximum permitted floor area ratios (FARs).

**Inter-Agency:** Indicates cooperation between or among two or more discrete agencies in regard to a specific program.

***inter alia:*** Literally, “Among other things” (Latin). A term used in formal extract minutes to indicate that the minute quoted has been taken from a fuller record of other matters.

**Interest, Fee:** Entitles a land owner to exercise complete control over use of land, subject only to government land use regulations.

**Intermittent Stream:** A stream that normally flows for at least 30 days after the last major rain of the season and is dry a large part of the year.

**Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA):** This Congressional act requires states to develop a Statewide Transportation Plan and a Statewide Transportation Improvements Program (STIP) that identifies short-term project needs and priorities. It has also been a major source of funding for transportation planning and encourages the linking of transportation and community planning.

**Internal Trips:** Trips with both their origin and destination within the project site (e.g., traveling from your home in Centennial directly to the grocery store in Centennial is an internal trip).

**Intersection Capacity:** The maximum number of vehicles that has a reasonable expectation of passing through an intersection in one direction during a given time period under prevailing roadway and traffic conditions.

**Intersection Capacity Utilization (ICU):** A measure of the volume to capacity ratio for an intersection. Typically used to determine the peak hour level of service for a given set of

intersection volumes (e.g., an intersection with an ICU of 0.60 has 60 percent of the total available capacity being used by traffic).

**Intersection Capacity Utilization Method (ICU):** A method of analyzing intersection level of service by calculating a volume-to-capacity (V/C) ratio for each governing "critical" movement during a traffic signal phase. The V/C ratio for each phase is summed with the others at the intersection to produce an overall V/C ratio for the intersection as a whole. The ICU is usually expressed as a percent. The percent represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity. The V/C ratio represents the percent of intersection capacity used. For example, a V/C ratio of 0.85 indicates that 85 percent of capacity is being used.

**Intrusive Noise:** Noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends upon its amplitude, duration, frequency, and time of occurrence and tonal or information content as well as the prevailing ambient noise level.

**Inversion Layer:** A condition in the atmosphere through which the temperature increases with altitude, holding cooler surface air down along with its pollutants.

**Jobs/Housing Balance or Jobs/Housing Ratio:** The jobs/housing ratio divides the number of jobs in an area by the number of employed residents. A ratio of 1.0 typically indicates a balance. A ratio greater than 1.0 indicates a net in-commute; less than 1.0 indicates a net out-commute.

**Jurisdiction by Law:** Jurisdiction by law means the authority of any public agency: (1) To grant a permit or other entitlement for use; (2) To provide funding for the project in question; or (3) To exercise authority over resources which may be affected by the project. A city or county will have jurisdiction by law with respect to a project when the city or county having primary jurisdiction over the area involved is: (1) The site of the project; (2) The area in which the major environmental effects will occur; and/or (3) The area in which reside those citizens most directly concerned by any such environmental effects. Where an agency having jurisdiction by law must exercise discretionary authority over a project in order for the project to proceed, it is also a Responsible Agency (State CEQA Guidelines, Section 15366).

**Kilowatt (kW):** One kilowatt is equal to 1,000 watts. Refers to the instantaneous amount of electricity used or generated.

**Lacustrine:** Deposited in a lake environment.

**Landfill:** An area of land or an excavation in which wastes are placed for permanent disposal, and that is not a land application unit, surface impoundment, injection well, or waste pile. Class I and Class II landfills are both hazardous waste landfills. Class I landfills have stricter controls than Class II landfills and can accept wastes not permitted in Class II facilities.

**Landmark:** (1) A building, site, object, structure, or significant tree, having historical, architectural, social, or cultural significance and marked for preservation by the local, State,

or federal government. (2) A visually prominent or outstanding structure or natural feature that functions as a point of orientation or identification.

**Landslide:** Down slope movement of soil and/or rock, which typically occurs during an earthquake or following heavy rainfall.

**Landslide Complex:** The association of geologic structure and deep-seated landsliding.

**Landslide debris:** Geologic evidence and debris resulting from previous hillside earth movements.

**Land Use:** The purpose or activity for which a piece of land or its buildings is designed, arranged, or intended, or for which it is occupied or maintained.

**Land Use Classification:** A system for classifying and designating the appropriate use of properties.

**Land Use Element:** A required element of the General Plan that uses text and maps to designate the future use or reuse of land within a given jurisdiction's planning area. The land use element serves as a guide to the structuring of zoning and subdivision controls, urban renewal, and capital improvements programs, and to official decisions regarding the distribution and intensity of development and the location of public facilities and open space. Designates the general location and intensity of housing, business, industry, open space, education, public buildings and grounds, waste disposal facilities, and other land uses.

**Land Use Plan:** An adopted map depicting the approximate location of residential, commercial, public, semi-public, and private uses, open space, and road systems with a statistical summary of areas and densities for these land uses.

**Land Use Regulation:** A term encompassing the regulation of land in general and often used to mean those regulations incorporated in the General Plan, as distinct from zoning regulations (which are more specific).

**Large Family/Household:** A family of 5 or more persons.

**Late Horizon:** A period of time beginning in approximately 1,000 Years Before Present (YBP) and corresponding with the Little Ice Age.

**Late Pleistocene Era:** A geologic epoch within the Pleistocene, extending from approximately 130,000 YBP through 14,000 YBP.

**Lateral Spreading:** Lateral movement of soil, often as a result of liquefaction during an earthquake.

**L<sub>dn</sub>:** Day-Night Average Sound Level. The A-weighted average sound level for a given area (measured in decibels) during a 24-hour period with a 10-decibel (dB) weighting applied to night-time sound levels. The L<sub>dn</sub> is approximately numerically equal to the Community Noise Equivalent Level (CNEL) for most environmental settings.

**Leachate:** A product or solution formed by leaching (The removal of soluble material from a substance, such as soil or rock, through the percolation of water), especially a solution containing contaminants picked up through the leaching of soil ([www.dictionary.com](http://www.dictionary.com)).

**Lead Agency:** The public agency which has the principal responsibility for carrying out or approving a project. The Lead Agency will decide whether an EIR or Negative Declaration will be required for the project and will cause the document to be prepared (State CEQA Guidelines, Section 15367).

**Leq:** The energy equivalent level, defined as the average sound level on the basis of sound energy (or sound pressure squared). The  $L_{eq}$  is a “dosage” type measure and is the basis for the descriptors used in current standards, such as the 24-hour CNEL used by the State of California.

**Level of Concern (LOC):** The concentration of a potentially hazardous material in the air above which there may be serious irreversible health effects or death as a result of a single exposure for a relatively short period of time.

**Level of Service (LOS):** LOS is the qualitative measure that incorporates the collective factors of speed, travel time, traffic interruption, freedom to maneuver, safety, driving comfort and convenience, and operating costs provided by a highway facility under a particular volume condition. A scale based on a rating of A (best) to F (worst) used to evaluate circulation system performance based on Intersection Capacity Utilization (ICU) values, average vehicle delay, vehicle density, or volume/capacity ratios of arterial segments.

*Level of Service A:* Indicates a relatively free flow of traffic, with little or no limitation on vehicle movement or speed.

*Level of Service B:* Describes a steady flow of traffic, with only slight delays in vehicle movement and speed. All queues clear in a single signal cycle.

*Level of Service C:* Denotes a reasonably steady, high-volume flow of traffic, with some limitations on movement and speed, and occasional backups on critical approaches.

*Level of Service D:* Designates the level where traffic nears an unstable flow. Intersections still function, but short queues develop and cars may have to wait through one cycle during short peaks.

*Level of Service E:* Represents traffic characterized by slow movement and frequent (although momentary) stoppages. This type of congestion is considered severe, but is not uncommon at peak traffic hours, with frequent stopping, long-standing queues, and blocked intersections.

*Level of Service F:* Describes unsatisfactory stop-and-go traffic characterized by “traffic jams” and stoppages of long duration. Vehicles at signalized intersections usually have to wait through one or more signal changes, and “upstream” intersections may be blocked by the long queues.



**Life-Cycle Costing:** A method of evaluating a capital investment that takes into account the sum total of all costs associated with the investment over the lifetime of the project.

**Light (duty) Rail Transit (LRT):** “Street cars” or “trolley cars” that typically operate entirely or substantially in mixed traffic and in non-exclusive, at-grade rights-of-way. Passengers typically board vehicles from the street level (as opposed to a platform that is level with the train) and the driver may collect fares. Vehicles are each electrically self-propelled and usually operate in one or two-car trains.

**Light Spill:** When light shines beyond the intended area and illuminates an unintended area.

**Lignitic:** Coal-bearing.

**Lineament:** A linear topographic feature, often used to describe a portion of a fault line.

**Line Source:** A long, narrow source of air pollutant emissions such as a roadway or runway.

**Linked Trips:** A series of individual trips made between a primary origin and a primary destination. (e.g., traveling from your home in Centennial to a school in Centennial, then to a coffee shop in Centennial, then to your job in Valencia represents three trips (two internal and one external), and six trip ends.

**Liquefaction:** Liquefaction is the state or process in which surface and near-surface material (e.g., soils, alluvium) is transformed from a solid into a liquid state. This occurs due to increased pore pressure and reduced effective stress. Soil may become liquefied, for example, during and immediately following an earthquake.

**Little Ice Age:** A period of global cooling and advancement of ice sheets between 1280 and 1860.

**L<sub>max</sub>:** the highest noise level measured during the time noise is measured.

**Local Agency:** Local agency means any public agency other than a State agency, board, or commission. Local agency includes but is not limited to cities, counties, charter cities and counties, districts, school districts, special districts, redevelopment agencies, local agency formation commissions, and any board, commission, or organizational subdivision of a local agency when so designated by order or resolution of the governing legislative body of the local agency (State CEQA Guidelines, Section 15368).

**Local Agency Formation Commission (LAFCO):** A five- or seven-member commission for each County that reviews and evaluates all proposals for formation of special districts, incorporation of cities, annexation to special districts or cities, consolidation of districts, and merger of districts with cities. Each County's LAFCO is empowered to approve, disapprove, or conditionally approve such proposals. The five LAFCO members generally include two county supervisors, two city council members, and one member representing the general public. Some LAFCOs include two representatives of special districts.

**Local Enforcement Agency (LEA):** The local government entity that acts in the capacity as solid waste enforcement agency (*California Code of Regulations*, Title 14, Section 18011[a][14]).

**Los Angeles County Flood Control Act of 1915:** An Act of the California State Legislature which authorized the formation of the Los Angeles County Flood Control District (District or LACFCD) for the purpose of controlling and conserving the district's flood, storm, and other waste waters for beneficial and useful purposes. The act enables the District to identify projects that would improve conservation and replenishment of water resources. The act also empowers the District to protect the harbors, waterways, public highways, and property within its jurisdiction from damage from such waters, providing for recreational use of district facilities and enhancing scenic beauty are also part of its duties.

**Lot:** An area of land created or established for purposes of sale, lease, finance, division of interest or separate use, separated from other lands by description on a final map or parcel map.

**Lot of Record:** A lot that is part of a recorded subdivision or a parcel of land that has been recorded at the county recorder's office containing property tax records.

**Low-Income Household:** A household with an annual income usually no greater than 80 percent of the area median family income adjusted by household size, as determined by a survey of incomes conducted by a city or a county, or in the absence of such a survey, based on the latest available eligibility limits established by the U.S. Department of Housing and Urban Development (HUD) for the Section 8 housing program.

**Mano:** The upper or hand-held stone used when grinding maize or other grains on a metate.

**Manufactured Slope:** A slope created by grading that consists of cut and fill material.

**Massive:** Rocks of any origin that are more or less homogenous in texture or fabric.

**Mass Grading:** A grading technique in which all lots, building pads, and streets are generally graded over the entire area resulting in the disruption of the majority of the onsite natural grade and vegetation and/or often resulting in, but not required to result in, a successive pad/terrace configuration.

**Master Association and Neighborhood Associations:** Each association will be a California nonprofit mutual benefit corporation or substantially similar entity.

*Master Association:* The master association will be established by the master developer. Through the master Declaration of Covenants, Conditions and Restrictions (the "master CC&Rs"), the master developer as "Declarant" will subject the entire master planned development to (1) a common plan of development to implement a master planned community pursuant to California Department of Real Estate (DRE) Regulation 2792.32 and (2) the master association. Without limiting the generality of the foregoing, the master association will be responsible for the maintenance of all

common areas which are not subject to any neighborhood CC&Rs as defined below. As envisioned, the master association will incorporate communities of various types.

*Neighborhood Associations:* Neighborhood associations will have subordinate, concurrent jurisdiction with the master association. Any one neighborhood association will have jurisdiction over only a delineated, usually contiguous portion (rather than the entirety) of the master planned development. Neighborhood associations will reflect the various land uses; some neighborhood associations may be residential, while other may be commercial or industrial. Each merchant builder, acting as "Declarant" pursuant to a neighborhood Declaration of Covenants, Conditions and Restrictions ("neighborhood CC&Rs") as developed by such merchant builder, will subject the corresponding real property owned by such merchant builder to (1) a common plan of development and (2) the corresponding neighborhood association. It is anticipated that each merchant builder will re-subdivide such real property in furtherance of that merchant builder's common plan of development for such real property.

**Master Plan of Arterial Highways (MPAH):** A diagram in the Circulation Element which illustrates the arterial designation of roadways. Each arterial designation defines the number of ultimate lanes planned for a given roadway. Arterial designations include: Freeway, Transportation Corridor, Expressway, Major Highway, Primary Highway, Secondary Highway, and Commuter Highway.

**Materials Recovery Facility (MRF):** An intermediate processing facility designed to remove recyclables and other valuable materials from the waste stream for purposes of recycling or composting. A "dirty MRF" removes reusable materials from unseparated trash. A "clean MRF" separates materials from commingled recyclables, typically collected from residential or commercial curbside programs.

**Maximum Contaminant Level (MCL):** Standards/limits set for Primary Drinking Water Standards for public water systems with respect to levels of contaminants that may cause adverse health effects.

**Maximum Credible Earthquake:** The largest Richter magnitude (M) seismic event that appears to be reasonably capable of occurring under the conditions of the presently known geological framework.

**Maximum Extent Practicable (MEP):** The extent to which storm water management practices are required to be implemented to reduce storm water pollution. All management practices that are effective at reducing storm water pollution are required to be implemented, except when any of the following conditions are met: (1) other effective management practices would achieve greater or substantially the same pollution control benefits; (2) the management practices would not be technically feasible; (3) the cost of management practice implementation would greatly outweigh pollution control benefits; or, (4) implementation of the management practice would compromise other legal or institutional constraints, expectations, and obligations imposed by federal or State statute or case law.

**Median:** A physical divider separating lanes of traffic that typically are traveling in opposite directions. A median is often installed to prohibit unsafe turning movements. It can also be used to beautify a streetscape.

**Median Income:** The annual income of each household size within a region which is defined annually by HUD. Half of the households in the region have incomes above the median and half have incomes below the median.

**Median Strip:** The dividing area, either paved or landscaped, between opposing lanes of traffic on a roadway.

**Megawatt (mW):** One megawatt is equal to 1,000 kilowatts, or one million watts. Refers to the instantaneous amount of electricity being used or generated.

**Memorandum of Understanding (MOU):** A common form of formal agreement between government agencies.

**Mercalli Intensity Scale:** A subjective measure of the observed effects (human reactions, structural damage, geologic effects) of an earthquake. Expressed in Roman numerals from I to XII.

**Merger (District):** Elimination of a special district by transferring its service responsibilities to a city government. The merging district's territory must be totally included inside the city.

**Metate:** A flat stone that has a shallow depression in the upper surface for holding maize or other grains to be ground with a mano.

**Mexican Period:** California regional history between 1821 through 1848.

**Midden:** A mound of domestic refuse containing shells and animal bones marking the site of a prehistoric settlement.

**Middle Horizon (aka Intermediate Period):** Between 3,500 Years Before Present (YBP) and 1,500 YBP.

**Middleground Zone:** Visual elements in this zone can be seen at a moderate distance and partially dominate the view.

**Military Operations Area (MOA):** airspace established outside Class A airspace to separate or segregate certain nonhazardous military activities (Federal Aviation Regulations, Part 1, Section 1.1).

**Mineral Resource:** Land on which known deposits of commercially viable mineral or aggregate deposits exist. This designation is applied to sites determined by the State Division of Mines and Geology as being a resource of regional significance, and is intended to help maintain the quarrying operations and protect them from encroachment of incompatible land uses.

**Mineral Resource Zones:** Zones that have been identified as having potential mineral and aggregate resources. The State Mining and Geology Board recommends that these lands be preserved as open space or used for interim uses to allow for future extraction.

**Ministerial (Administrative) Decision:** Describes a governmental decision involving little or no personal judgment by the public official as to the wisdom or manner of carrying out the project. The public official merely applies the law to the facts as presented, but uses no special discretion or judgment in reaching a decision. A ministerial decision involves only the use of fixed standards or objective measurements, and the public official cannot use personal, subjective judgment in deciding whether or how the project should be carried out. Common examples of ministerial permits include automobile registrations, dog licenses, and marriage licenses. A building permit is ministerial if the ordinance requiring the permit limits the public official to determining whether the zoning allows the structure to be built in the requested location, the structure would meet the strength requirements in the Uniform Building Code, and the applicant has paid his fee (State CEQA Guidelines, Section 15369).

**Mitigation:** Mitigation refers to (1) avoiding the impact altogether by not taking a certain action or parts of an action; (2) minimizing impacts by limiting the degree or magnitude of the action and its implementation; (3) rectifying the impact by repairing, rehabilitating, or restoring the impacted environment; (4) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or, (5) compensating for the impact by replacing or providing substitute resources or environments (State CEQA Guidelines, Section 15370).

**Mitigation Measure:** Action taken to reduce or eliminate environmental impacts. Mitigation includes avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments.

**Mitigation Monitoring Program:** When a lead agency adopts a mitigated negative declaration or an EIR, it must adopt a program of monitoring or reporting which will ensure that mitigation measures are implemented. (See *California Public Resources Code*, Section 21081.6[a]; State CEQA Guidelines, Sections 15091[d] and 15097).

**Mixed Use:** Properties on which various uses, such as office, commercial, institutional, and residential, are combined in a single building or on a single site in an integrated development project with significant functional interrelationships and a coherent physical design. A “single site” may include contiguous properties.

**Mobile Sources:** A source of air pollution that is related to transportation vehicles, such as automobiles, motorcycles, trucks, off-road vehicles, boats, and airplanes.

**Moderate Income Household:** A household with an annual income between the lower income eligibility limits and 120 percent of the area median family income adjusted by

household size, usually as established by the U.S. Department of Housing and Urban Development (HUD) for the Section 8 housing program.

**Monterey Agreement:** Signed by California Department of Water Resources (DWR) and many of the agricultural and urban State Water Project (SWP) contractors in 1994, it established principles to be incorporated in contract amendments (the Monterrey Amendments) to be offered to the SWP contractors. The overall goals of the Agreement were to resolve conflicts and disputes among SWP contractors regarding water allocations and financial responsibilities for SWP operations, to restructure and clarify procedures for SWP water allocation and delivery during times of shortage and surplus, and to reduce financial pressures on agricultural contractors in times of drought and supply reductions.

**Motor Vehicle:** A motor vehicle shall include any and all self-propelled vehicles as defined in the *California Motor Vehicle Code* including all on-highway type motor vehicles subject to registration under said code and all off-highway type motor vehicles subject to identification under said code.

**MS4:** See municipal separate storm sewer system.

**Mudflow (Mudslide):** A river flow or inundation of liquid mud down a hillside, usually as a result of a dual condition of loss of brush cover and the subsequent accumulation of water on or under the ground, preceded by a period of unusually heavy or sustained rain.

**Muller:** An implement of stone or other substance with a flat base for grinding paints, powders, etc., on a slab of stone.

**Multimodal:** More than one mode of transportation in the same geographic area.

**Multiple-Family (Multi-Family) Dwelling Unit:** A building or portion of a building containing two or more dwelling units with each dwelling unit occupied by only one household.

**Multiple Species Conservation Program (MSCP):** A cooperative, long-term habitat conservation planning program for southwestern San Diego County, as authorized under the federal and California Endangered Species Acts and the California Natural Communities Conservation Planning Act. The MSCP is designed to preserve an interconnected system of viable native habitat for the protection of multiple sensitive species by identifying priority conservation areas, Multiple-Habitat Planning Areas (MHPA), where development will be restricted and areas outside the MHPA where future development will be directed.

**Municipal Separate Storm Sewer System (MS4) Permit, Los Angeles:** The Los Angeles County MS4 Permit is being used as a benchmark for the entire Project site even though it only technically applies to that portion of the Project site located in the boundaries of the Los Angeles Regional Water Quality Control Board (LARWQCB) because the portion of the Project site within the Lahontan Region is not currently covered under a separate MS4 Permit.

**Municipal Services:** Services traditionally provided by local government, including water and sewer, roads, parks, schools, and police and fire protection.

**National Ambient Air Quality Standards (NAAQS):** Standards set by the U.S. Environmental Protection Agency for the maximum levels of air pollutants that can exist in the ambient air without unacceptable effects on human health or public welfare. There are two types of NAAQS. Primary standards set limits to protect public health and secondary standards set limits to protect public welfare.

**National Environmental Policy Act (NEPA):** In 1969, the National Environmental Policy Act was enacted establishing a national environmental policy and the Council on Environmental Quality (CEQ) to advise the President on environmental issues. NEPA requires the preparation of environmental impact statements (EIS) for all major federal actions which would have a significant effect on the environment. NEPA served as a model for the California Environmental Quality Act (CEQA) enacted in 1970.

**National Flood Insurance Program:** A federal program that authorizes the sale of federally subsidized flood insurance in communities where such flood insurance is not available privately.

**National Pollutant Discharge Elimination System (NPDES) Permits:** Under the NPDES Program (Federal Clean Water Act), any person responsible for the discharge of a pollutant or pollutants into any waters of the United States from any point source must apply for and obtain a permit. According to Section 402 of the Clean Water Act, the Environmental Protection Agency (EPA) is the issuing authority for all NPDES permits in a state until such time as the State elects to take over the administration and obtains EPA approval of its programs. (The State Water Resources Control Board [SWRCB] has this authority in California.) Dischargers are required to disclose the volume and nature of their discharges. Further, the EPA or equivalent State Agency has the authority to specify limitations to be imposed on discharges and to require monitoring and reporting as to compliance or non-compliance.

**National Primary Drinking Water Regulations:** Legally enforceable standards that apply to public water systems. Primary standards protect public health by limiting the levels of contaminants in drinking water. These limits are also known as maximum contaminant levels (MCLs).

**National Register of Historic Places:** The official inventory established by the National Historic Preservation Act of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering and culture.

**National Secondary Drinking Water Regulations:** Non-enforceable guidelines regulating contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. The U.S. Environmental Protection Agency (USEPA) recommends secondary standards to water systems, but does not require systems to comply.

**Natural Community Conservation Plan (NCCP):** NCCP generally refers to a plan authorized pursuant to the Natural Communities Conservation Planning Act.

**Natural Grade:** The grade unaffected by construction techniques such as fill, landscaping, or berming.

**Neighborhood:** A planning area commonly identified as such in a community's planning documents, and by the individuals residing and working within the neighborhood. Documentation may include a map prepared for planning purposes, on which the names and boundaries of the neighborhood are shown.

**Neighborhood Park:** City- or county-owned land intended to serve the recreational needs of people living or working within one-half mile radius of the park.

**Net Site Area:** The total horizontal area within the property lines of a parcel of land. All rights-of-way or easements which physically prohibit the surface use of that portion of the property for other than vehicular ingress and egress are excluded.

**New Source Review (NSR):** A Clean Air Act requirement that State Implementation Plans must include a permit review, which applies to the construction and operation of new and modified stationary sources in non-attainment areas, to ensure attainment of national ambient air quality standards. The two major requirements of NSR are Best Available Control Technology and Emission Offsets.

**Nighttime Light and Glare:** Indirect reflected light generated on the Project site during the night. Nighttime sources of light would include streetlights, vehicle headlights, and lights used within and around buildings located throughout the Project site.

**Nitric Oxide (NO):** Precursor of ozone, nitrogen dioxide (NO<sub>2</sub>), and nitrate; nitric oxide is usually emitted from combustion processes. Nitric oxide is converted to NO<sub>2</sub> in the atmosphere, and then becomes involved in the photochemical processes and/or particulate formation.

**Nitrogen Dioxide (NO<sub>2</sub>):** A secondary contaminant formed through a reaction between nitric oxide (NO) and atmospheric oxygen, irritates the lungs at high concentrations and contributes to ozone formation.

**Nitrogen Oxides (NO<sub>x</sub>):** Chemical compounds containing nitric oxide (NO), nitrogen dioxide (NO<sub>2</sub>), and oxygen; reacts with volatile organic compounds in the presence of heat and sunlight to form ozone. It is also a major precursor to acid rain. A reddish brown gas that is a byproduct of combustion and ozone formation processes. Often referred to as NO<sub>x</sub>, this gas gives smog its "dirty air" appearance. NO<sub>2</sub> is a criteria air pollutant, and may result in numerous adverse health effects.

**Noise:** Any sound that is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. Noise is unwanted sound.



**Noise Attenuation:** Reduction of the level of a noise source with distance using a substance, material, or surface, such as earth berms and/or solid concrete walls.

**Noise Barrier:** A wall or other solid structure constructed with the objective of attenuating (i.e., reducing) noise behind the barrier; commonly, a noise wall along a roadway.

**Noise Cone:** A three-dimensional cone-shaped representation of noise impacts of aircraft use.

**Noise Contour:** A line connecting points of equal noise level as measured on the same scale. Noise levels greater than the 60 L<sub>dn</sub> contour (measured in dBA) require noise attenuation in residential development.

**Noise Disturbance:** An alleged intrusive noise which violates an applicable standard, as set forth in the Los Angeles County Code (see Section 12.08.230, Noise disturbance, of the Los Angeles County Code).

**Noise Element:** One of the seven State-mandated elements of a local general plan. It assesses noise levels of highways and freeways, local arterials, railroads, airports, local industrial plants, and other ground stationary sources, and adopts goals, policies, and implementation programs to reduce the community's exposure to noise.

**Noise Sensitive Use:** Any use (i.e., residential development) or designated geographic area (i.e., hospital complex) where “intrusive noise” is incompatible with the conduct of the noise sensitive uses or constitutes a “noise disturbance” for residents or works. “Noise sensitive areas” are not specifically defined in the County Code. Typical noise-sensitive uses can include schools, day-care centers, hospitals, and other types of uses.

**Non-Attainment:** The condition of not achieving a desired or required level of performance. Frequently used in reference to air quality. A geographic area identified by the USEPA and/or the California Air Resources Board as not meeting either National or California Ambient Air Quality standards for a given pollutant.

**Non-Conforming Use:** A use that was valid when brought into existence, but by subsequent regulation becomes no longer conforming. "Non-conforming use" is a generic term and includes (1) non-conforming structures (by virtue of size, type of construction, location on land, or proximity to other structures), (2) non-conforming use of a conforming building, (3) non-conforming use of a non-conforming building, and (4) non-conforming use of land. Thus, any use lawfully existing on any piece of property that is inconsistent with a new or amended General Plan, and that in turn is a violation of a zoning ordinance amendment subsequently adopted in conformance with the General Plan, will be a non-conforming use. Typically, non-conforming uses are permitted to continue for a designated period of time, subject to certain restrictions.

**Non-Growth Area:** A geographic subarea used in Ventura County population forecasts to refer to an area where urban development is not expected to occur.

**Non-Point Source:** Air pollution sources that are not at individual, stationary locations (i.e., mobile source or area source).

**Non-Point Source Discharge:** Discharge from a diffuse pollution source (i.e., without a single point of origin or not introduced into a receiving stream from a specific outlet).

**Non-Storm Water Discharge:** Any discharge to a storm drain system or receiving water that is not composed entirely of storm water.

**Notice of Completion:** A brief notice filed with the Office of Planning and Research (OPR) by a Lead Agency as soon as it has completed a draft EIR, and is prepared to send out copies for review (State CEQA Guidelines, Section15372).

**Notice of Determination (NOD):** A brief notice to be filed by a public agency after it approves or determines to carry out a project which is subject to the requirements of CEQA (State CEQA Guidelines, Section15373). The filing of the NOD starts the statute of limitations period.

**Notice of Exemption:** A brief notice which may be filed by a public agency after it has decided to carry out or approve a project and has determined that the project is exempt from CEQA as being ministerial, categorically exempt, an emergency, or subject to another exemption from CEQA. Such a notice may also be filed by an applicant where such a determination has been made by a public agency which must approve the project (CEQA Guidelines, Section15374).

**Notice of Preparation:** A brief notice sent by a Lead Agency to notify responsible agencies, trustee agencies, and involved federal agencies that the Lead Agency plans to prepare an EIR for the project. The purpose of the notice is to solicit guidance from those agencies as to the scope and content of the environmental information to be included in the EIR. Public agencies are free to develop their own formats for this notice (State CEQA Guidelines, Section15375).

**Oak Woodland Conservation Act:** Passed by the California Legislature in 2001, the Act established the Oak Woodland Conservation Program to be administered by the Wildlife Conservation Board (WCB). The Oak Woodland Conservation Program was designed to provide \$10 million to help local jurisdictions protect and enhance their oak woodland resources. It offers landowners, conservation organizations, and cities and counties an opportunity to obtain funding for projects designed to conserve and restore California's oak woodlands, and authorizes the WCB to purchase oak woodland conservation easements and provide grants for land improvements and oak restoration efforts.

**Objective:** A description of a desired condition for a resource. A specific statement of desired future condition toward which the City or County will expend effort in the context of striving to achieve a broader goal. An objective should be achievable and, where possible, should be measurable and time-specific. The *California Government Code* (Section 65302) requires that general plans spell out the "objectives," principles, standards, and proposals of the general plan. "The addition of 100 units of affordable housing by 1995" is an example of an objective.

**Off-Site Noise-Sensitive Receptor:** Considered to be a single-family or multi-family residence, school, convalescent or acute care hospital, park or recreation area, and/or church.

**Office of Environmental Health Hazard Assessment (OEHHA):** A department within the California Environmental Protection Agency that is responsible for evaluating chemicals for adverse health impacts and establishing safe exposure levels. OEHHA also assists in performing health risk assessments and developing risk assessment procedures for air quality management purposes.

**Office Use:** The use of land by general business offices, medical and professional offices, administrative or headquarters offices for large wholesaling or manufacturing operations, and research and development.

**Ohm-cm:** In physics, ohm is a measure of resistivity. Resistivity is measured in ohm-centimeters (cm).

**Older Alluvium:** Soil or sediments deposited by a previously existing river or other running water. Alluvium is typically made up of a variety of materials, including fine particles of silt and clay and larger particles of sand and gravel.

**Open Space:** Land that has been left in its natural state and has not been developed with primary or accessory structures.

**Open Space Element:** One of the seven State-mandated elements of a local general plan. It contains an inventory of privately and publicly owned open-space lands, and adopted goals, policies, and implementation programs for the preservation, protection, and management of open space lands.

**Ordinance:** A law or regulation set forth and adopted by a governmental authority, usually a city or county.

**Organic Compounds:** A large group of chemical compounds containing mainly carbon, hydrogen, nitrogen, and oxygen. All living organisms are made up of organic compounds.

**Outdoor Advertising Structure:** Any device used or intended to direct attention to a business, profession, commodity, service, or entertainment conducted, sold, or offered elsewhere than upon the lot where such device is located.

**Outdoor Recreation Use:** A privately or publicly owned or operated use providing facilities for outdoor recreation activities.

**Outer Approach Zone:** Airspace in which an air-traffic controller initiates radar monitoring for incoming flights approaching an airport.

**Overcrowding:** As defined by the U.S. Census, a household with greater than 1.01 persons per room, excluding bathrooms, kitchens, hallways, and porches. Severe overcrowding is defined as households with greater than 1.51 persons per room.

**Overexcavate:** To excavate beyond a project footprint, or to a specific depth, as a means to remove soils exhibiting undesirable engineering characteristics.

**Overlay:** A land use designation on the land use map, or a zoning designation on a zoning map, that modifies the basic underlying designation in some specific manner.

**Overpayment:** The extent to which gross housing costs, including utility costs, exceed 30 percent of gross household income, based on data published by the U.S. Census Bureau. Severe overpayment, or cost burden, exists if gross housing costs exceed 50 percent of gross income.

**Oxides of Nitrogen:** A reddish-brown gas with an odor similar to bleach. The major source of this pollutant is the high temperature combustion of fossil fuels. Health effects include irritation and damage to lungs and lower resistance to respiratory infections.

**Ozone (O<sub>3</sub>):** A compound consisting of three oxygen atoms that is the primary constituent of smog. It is formed through chemical reactions in the atmosphere involving volatile organic compounds, nitrogen oxides, and sunlight. Ozone can irritate the lungs as well as damage to trees, crops, and materials. There is a natural layer of ozone in the upper atmosphere which shields the earth from harmful ultraviolet radiation. Ozone is a criteria pollutant.

**Ozone Precursors:** Chemicals such as non-methane hydrocarbons and oxides of nitrogen, occurring either naturally or as a result of human activities, which contribute to the formation of ozone, a major component of smog.

**PM:** Particulate matter (PM) pollution consists of very small liquid and solid particles floating in the air. These particles represent a concern to public health because the particles are small enough to be inhaled into the deepest part of the lung. There are two classifications of PM: PM<sub>10</sub> and PM<sub>2.5</sub>. PM<sub>10</sub> particles are less than 10 microns in diameter, and PM<sub>2.5</sub> particles are less than 2.5 microns in diameter.

**Paleoclimatic:** Relating to climate of some former period of geologic time.

**Paleoindian Period:** Approximately 12,000–10,500 Years Before Present (YBP).

**Paleontological Resource:** A geologic unit or formation from which fossils have previously been recovered, including unique or important fossils.

**Paleontological Site:** Any area or location containing a trace or impression, or the remains, of plants or animals from past ages.

**Palliative:** Tending or serving to relieve or lessen without curing; mitigate; alleviate.

**Palustrine:** A non-tidal marsh without flowing water.

**Parcel:** The basic unit of land entitlement. A designated area of land established by plat, subdivision, or otherwise legally defined and permitted to be used or built upon. A lot, or contiguous group of lots, in single ownership or under single control, usually considered a unit for purposes of development.

**Parcel Map:** A map depicting the establishment of up to four new lots by splitting a recorded lot. Parcel maps are subject to the California Subdivision Map Act and a city's subdivision regulations.

**Parks, Park Land, Parkland:** Open space lands whose primary purpose is recreation. Land that is publicly owned or controlled for the purpose of providing parks, recreation, or open space for public use.

**Parking Area, Public:** An open area, excluding a street or other public way, used for the parking of automobiles and available to the public, whether for free or for compensation.

**Parking Management:** An evolving TDM technique designed to obtain maximum utilization from a limited number of parking spaces. Can involve pricing and preferential treatment for high occupancy vehicles, non-peak period users, and short-term users.

**Parking Ratio:** The number of parking spaces provided per 1,000 square of floor area (e.g., 2:1 or "two per thousand").

**Parking, Shared:** A public or private parking area used jointly by two or more uses.

**Parking Space, Compact:** A parking space (usually 7.5 feet wide by 16 feet long when perpendicular to a driveway or aisle) permitted in some localities on the assumption that many modern cars are significantly smaller, and require less room, than a standard automobile. A standard parking space, when perpendicular to a driveway or aisle, is usually 8.5 feet wide by 18 feet long.

**Parkway:** An expressway or freeway designed for non-commercial traffic only; usually located within a strip of landscaped park or natural vegetation.

**Parkway Strip:** A piece of land located between the rear of a curb and the front of a sidewalk, usually used for planting low ground cover and/or street trees, also known as "planter strip."

**Particulate Matter:** Any material except uncombined water which exists in a finely divided form and is a liquid or solid at standard conditions. The size of particulate matter can vary from coarse, wind-blown dust particles to fine particle combustion products.

**Particulate Matter, Fine (PM<sub>2.5</sub>):** PM<sub>2.5</sub> is a mixture of very small particulates with an aerodynamic diameter equal to or less than 2.5 microns. PM<sub>2.5</sub> consists of particles directly emitted into the air and particulates formed in the air from the chemical transformation of gaseous pollutants. PM<sub>2.5</sub> particulates are emitted from activities such as industrial and residential combustion, and from vehicle exhaust. Particles 2.5 microns or smaller infiltrate the deepest portions of the lungs, increasing the risks of long-term disease, including chronic respiratory disease, cancer, and increased and premature death.

**Particulate Matter, Respirable (PM10):** PM10 is any particulate matter with an aerodynamic diameter equal to or less than 10 microns (about  $1/7$  the diameter of a single human hair). PM10 consists of particles directly emitted into the air and particulates formed in the air from the chemical transformation of gaseous pollutants. PM10 particulates are emitted from activities such as industrial and residential combustion, and from vehicle exhaust. PM10 causes adverse health effects, atmospheric visibility reduction. It is a criteria pollutant.

**Parts Per Million (ppm):** The number of weight or volume units of a minor constituent present within each one million units of the major constituent of a solution or mixture, such as salts in water.

**PC:** Passenger cars.

**PC/H:** Passenger cars per hour.

**PC/H/LN:** Passenger cars per hour per lane.

**Passenger Trips:** Relate to the volume of passenger service provided by public transportation—such as buses, trains, and aircraft.

**Passive Solar System:** system that distributes collected heat via direct transfer from a thermal mass rather than mechanical power. Passive systems rely on building design and materials to collect and store heat and to create natural ventilation for cooling.

**Peak Hour or Peak Period:** The one hour period during which the roadway carries the greatest number of vehicles. Traffic volumes are not constant throughout the day. Peak hours are the times during which volumes are significantly higher than others. Most areas have two peak hours—morning while people travel to work and late afternoon or evening as they leave work and return home. In some cases as third, though usually smaller, peak occurs during the middle of the day. As development intensifies and traffic volumes increase, the durations of the peaks are extended until eventually the peak hour becomes a peak period which may last for two or three hours. Peak period volumes are important as these are the times of day when the most severe congestion occurs, and intersections must be designed to accommodate these volumes if smooth traffic flow is to be maintained. The peak hour refers to the one-hour period during the a.m. peak period (typically 7 AM to 9 AM) and the one-hour period during the PM peak period (typically 3 PM to 6 PM) in which the greatest number of vehicle trips are generated by a given land use or are traveling on a given roadway.

**Percent Slope:** A common way of expressing the steepness of the slope of terrain, which is derived by dividing the change in elevation by the horizontal distance traversed. An increase of 20 feet elevation over a 100 foot distance is a 20 percent slope.

**Percent Variation in Travel Time:** The RTP defines this as the day-to-day change in travel times experienced by travelers. Variability results from accidents, weather, road closures, system problems, and other non-recurrent conditions.

**Perched Groundwater:** Groundwater supported by a zone of material of low permeability located above an underlying main body of groundwater with which it is not hydrostatically connected.

**Percolation:** The downward movement of water through the soil or alluvium to the groundwater table.

**Performance Standards:** Zoning regulations that permit uses based on a particular set of standards of operation rather than on particular type of use. Performance standards provide specific criteria limiting noise, air pollution, emissions, odors, vibration, dust, dirt, glare, heat, fire hazards, wastes, traffic impacts, and visual impact of a use.

**(Permanent) Open Space:** The area which will be preserved as natural open space lots, minor greenway lots, and landscape lots as identified on the VTTMs.

**Permeability (soil):** That quality of the soil or other geologic formations that enables it to transmit water or air.

**Permit:** The possession of a permit issued by the city, or where no permits are issued, the sanctioning of the activity by the jurisdiction as noted in a public record.

**Permittees:** The Permittees are the Los Angeles County cities and the County (collectively “the Co-Permittees”).

**Person:** Person includes any person, firm, association, organization, partnership, business, trust, corporation, limited liability company, company, district, city, county, city and county, town, the State, and any of the agencies or political subdivisions of such entities (State CEQA Guidelines, Section 15376).

**Person Trips:** Indicates the number of people, and are of interest in situations where there may be opportunities to accomplish more one-person trips with less vehicle trips—such as a carpool.

**Pesticide:** Any material used to control pests. Includes insecticides, herbicides, and rodenticides.

**Petroglyphs:** Small abraded pits.

**pH:** A measure of acidity or alkalinity of a material, liquid, or solid. It is measured on a scale of 0 to 14 with 7 representing a neutral state, 0 representing the most acid and 14 the alkaline.

**Photochemical Smog:** The atmospheric condition that results when reactive organic gases and nitrogen oxides emitted into the atmosphere react in the presence of sunlight to form other pollutants, such as oxidants.

**Photoionization Detector:** A portable vapor and gas detector that detects a variety of organic compounds.

**Photovoltaic:** The conversion of sunlight into a photovoltaic cell into electricity.

**Physiographic:** Physical geography of the Earth.

**Physiological responses:** An automatic instinctive reaction to a stimulus. Can include changes in pulse rate and blood pressure.

**Pivot Field:** A “pivot field” is a circular agricultural field with a centralized “pivot” irrigation system.

**Plan Line:** A precise line that establishes future rights-of-way along any portion of an existing or proposed street or highway and that is depicted on a map showing the streets and lot line or lines and the proposed right-of-way lines, and the distance thereof from the established centerline of the street or highway, or from existing or established property lines.

**Plane-parallel Shears:** This term describes a deformation of rock resulting from stresses that cause contiguous parts of a geologic body to slide in relation to each other in a direction parallel to their plane of contact (The American Geologic Institute 1984).

**Planned Community:** A large-scale development whose essential features are a definable boundary; a consistent, but not necessarily uniform, character; overall control during the development process by a single development entity; private ownership of recreation amenities; and enforcement of covenants, conditions, and restrictions by a master community association.

**Planned Unit Development (PUD):** A description of a proposed unified development, consisting at a minimum of a map and adopted ordinance setting forth the regulations governing, and the location and phasing of all proposed uses and improvements to be included in the development.

**Planning and Research, Governor's Office of (OPR):** A division of the Governor's Office responsible for coordinating State, regional, and local planning in California, including publishing guidelines for the preparation and content of city and county general plans.

**Planning Area:** The area directly addressed by the general plan. A city's planning area typically encompasses the city limits and potentially annexable land within its sphere of influence.

**Planning Commission:** A body, usually having five or seven members, created by a city or county in compliance with California law that requires the assignment of the planning functions of the city or county to a planning department, planning commission, hearing officers, and/or the legislative body itself, as deemed appropriate by the legislative body.

**Plans, Specifications, and Estimates (PS&E):** The bid documents, including general design, specifications, and estimated costs.



**Plant Community:** A group of plant species commonly occurring together in roughly similar proportions.

**Pleistocene Era:** A geologic epoch extending from approximately 1.8 million Years Before Present (YBP) through 14,000 YBP.

**Point Source:** Specific points of origin where pollutants are emitted into the atmosphere or water system such as from factory smokestacks or effluent discharge.

**Policy:** A specific statement of principle or of guiding actions that implies clear commitment but is not mandatory. A general direction that a governmental agency sets to follow, in order to meet its goals and objectives before undertaking an action program.

**Pollutant:** Any introduced gas, liquid, or solid that makes a resource unfit for its normal or usual purpose.

**Pollution:** The presence of matter or energy whose nature, location, or quantity produces undesired environmental effects.

**Pollution, Non-Point:** Sources for pollution that are less definable and usually cover broad areas of land, such as agricultural land with fertilizers that are carried from the land by runoff, or automobiles.

**Pollution, Point:** In reference to water quality, a discrete source from which pollution is generated before it enters receiving waters, such as a sewer outfall, a smokestack, or an industrial waste pipe.

**California Porter-Cologne Water Quality Control Act (Porter-Cologne Act):** A 1969 Act of the California Legislature designed to preserve, enhance and restore the quality of the State's water resources. The Act established the State Water Resources Control Board and nine Regional Water Quality Control Boards as the principal State agencies with the responsibility for controlling water quality in California. Under the Act, water quality policy was established and the discharges of pollutants from point and non-point sources were regulated.

**Potable Water:** Suitable and safe for drinking.

**Poverty Level:** As used by the U.S. Census, families, and unrelated individuals are classified as being above or below the poverty level based on a poverty index that provides a range of income cutoffs or "poverty thresholds" varying by size of family, number of children, and age of householder. The income cutoffs are updated each year to reflect the change in the Consumer Price Index.

**Precursor:** A chemical compound that leads to the formation of a pollutant. Reactive organic gases and nitrogen oxides are precursors of photochemical oxidants.

**Preservation:** As used in historic preservation, the process of sustaining the form and extent of a structure essentially as it exists. Preservation aims at halting further deterioration and providing structural stability but does not contemplate significant rebuilding.

**Preserve:** An area in which beneficial uses in their present condition are protected; for example, a nature preserve or an agricultural preserve. To keep safe from destruction or decay; to maintain or keep intact.

**Previously placed fill:** Fill material placed prior to the implementation of a proposed project, most often found in previously disturbed project sites.

**Prime Agricultural Land:** (1) Land used actively in the production of food, fiber, or livestock. (2) All land which qualifies for rating as Class I or Class II in the Soil Conservation Service land use compatibility classifications. (3) Land which qualifies for rating 80 through 100 in the Storie Index Rating (See Prime Farmland).

**Prime Farmland:** Lands with the best combination of physical and chemical features able to sustain long-term production of agricultural crops. The land must be supported by a developed irrigation water supply that is dependable and of adequate quality during growing season. The land must have been used for the production of irrigated crops at some time during the two update cycles prior to the mapping date (NRCS 2017a).

**Private Project:** A "private project" means a project which will be carried out by a person other than a governmental agency, but the project will need a discretionary approval from one or more governmental agencies for: (a) a contract or financial assistance, or (b) a ease, permit, license, certificate, or other entitlement for use (State CEQA Guidelines, Section 15377).

**Private Road/Private Street:** Privately owned (and usually privately maintained) motor vehicle access that is not dedicated as a public street. Typically the owner posts a sign indicating that the street is private property and limits traffic in some fashion. For density calculation purposes, some jurisdictions exclude private roads when establishing the total acreage of the site; however, aisles within and driveways serving private parking lots are not considered private roads.

**Professional Offices:** A use providing professional or consulting services in the fields of law, medicine, architecture, design, engineering, accounting, and similar professions, but not including financial institutions or real estate or insurance offices.

**Program:** An action, activity, or strategy carried out in response to adopted policy to achieve a specific goal or objective. Policies and programs establish the "who," "how" and "when" for carrying out the "what" and "where" of goals and objectives.

**Program EIR:** An EIR prepared on a series of actions that can be characterized as one large project. A program EIR generally establishes a framework for tiered or project-level environmental documents that are prepared in accordance with the overall program (See CEQA Guidelines, Section 15168[a]).

**Project:** “Project: means the whole of an action which has a potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment, and that is any of the following: (1) an activity directly undertaken by any public agency including but not limited to public works construction and related activities clearing or grading of land, improvements to existing public structures, enactment and amendment of zoning ordinances, and the adoption and amendment of local General Plans or elements thereof pursuant to Sections 65100–65700 of the *California Government Code*; (2) an activity undertaken by a person which is supported in whole or in part through public agency contacts, grants, subsidies, loans, or other forms of assistance from one or more public agencies; (3) an activity involving the issuance to a person of a lease, permit, license, certificate, or other entitlement for use by one or more public agencies. The definition of “project” does not include (1) proposals for legislation to be enacted by the State Legislature; (2) continuing administrative or maintenance activities, such as purchases for supplies, personnel-related actions, general policy and procedure making (except as they are applied to specific instances covered above); (3) the submittal of proposals to a vote of the people of the state or of a particular community; (4) the creation of government funding mechanisms or other government fiscal activities, which do not involve any commitment to any specific project which may result in a potentially significant physical impact on the environment. The term “project” refers to the activity which is being approved and which may be subject to several discretionary approvals by governmental agencies. The term “project” does not mean each separate governmental approval. Where the Lead Agency could describe the project as either the adoption of a particular regulation under subsection (a)(1) or as a development proposal which will be subject to several governmental approvals under subsections (a)(2) or (a)(3), the Lead Agency shall describe the project as the development proposal for the purpose of environmental analysis. This approach will implement the Lead Agency principle as described in Article 4 (State CEQA Guidelines, Section 15378).

**Project Description:** Describes the basic characteristics of the project including location, need for the project, project objectives, technical and environmental characteristics, project size and design, project phasing, and required permits. The level of detail provided in the project description varies according to the type of environmental document prepared.

**Project EIR:** An EIR that examines the impacts that would result from development of a specific project (See State CEQA Guidelines, Section 15161).

**Project Lot Area:** The total land area of a project after all required dedications or reservations for public improvements, including, but not limited to, streets, parks, schools, flood control channels, etc.

**Projectile Point:** An object affixed to a pole or stick of some kind, which has been fashioned for use as a weapon, out of stone, metal, bone, or other material.

**Prominent Landform or Ridgeline:** A visually prominent landform or ridgeline means any landform visible from the valley floor that forms a part of the skyline or is seen as a distinct edge against a backdrop of land at least 500 feet horizontally behind it.

**Prominent Visual Features:** As used in this EIR, features that are unique to the west Antelope Valley and/or are prominent in relation to their relative surroundings.

**Property Line:** The boundary line between two pieces of property ([www.thefreedictionary.com](http://www.thefreedictionary.com)).

**Proposed or Candidate Species:** A third species designation under the Endangered Species Act. A third status is that of "candidate species". Under this status, the U.S. Fish and Wildlife Service (USFWS) has concluded that listing of a species as Threatened or Endangered is warranted but immediate listing is precluded. Because Proposed Species may soon be listed as Threatened or Endangered, these species could become listed prior to or during implementation of a proposed development project.

**Pro Rata:** Refers to the proportionate distribution of the cost of something to something else or to some group, such as the cost of infrastructure improvements associated with new development apportioned to the users of the infrastructure on the basis of projected use.

**Pseudo-Static:** Earthen material under seismic stress but not presently in motion.

**Public Agency:** Public agency includes any State agency, board, or commission and any local or regional agency, as defined in these Guidelines. It does not include the courts of the State. This term does not include agencies of the federal government (State CEQA Guidelines, Section 15379).

**Public Facilities:** Institutional response to basic human needs, such as health, education, safety, recreation, and inspiration. Also, includes facilities and services such as, but not limited to, police, fire, libraries, parks, and flood control.

**Public Right-of-Way:** Any street, avenue, boulevard, highway, sidewalk, or alley or similar place which is owned or controlled by a governmental entity.

**Public Space:** Any real property or structures thereon which are owned or controlled by a governmental entity.

**Pump Station:** A complete pumping installation, including a storage box, pump or pumps, standby pumps, connecting pipes, electrical equipment, pump house, and outlet chamber.

**Quasi-public:** A use owned or operated by a non-profit, religious or charitable institution and providing educational, cultural, recreational, religious, or similar types of public programs.

**Quiescent:** Still

**Rare Species:** In accordance with the State CEQA Guidelines, a "Species" means a species or subspecies of animal or plant or a variety of plant. A Rare Species as one present in such small numbers throughout its range that it may become Endangered if its present environment worsens. The Rare Species designation applies only to California native plants.

**Re-Refined Oil:** Re-refined oil is recycled oil product (CIWMB 2006).

**Reactive Organic Compound (ROC)/Reactive Organic Gases (ROG):** A photochemically reactive chemical gas, composed of non-methane hydrocarbons, which may contribute to the formation of smog. Also sometimes referred to as Non-Methane Organic Gases (NMOGs).

**Recharge:** The physical process where water naturally percolates or sinks into a groundwater basin.

**Recharge Basin:** A surface facility, often a large pond, used to increase the infiltration of surface water into a groundwater basin.

**Reclamation:** The reuse of resources, usually those present in solid wastes or sewage.

**Recompaction:** The reconsolidation of disturbed earth.

**Recreation, Active:** A type of recreation or activity that requires the use of organized play areas including, but not limited to, softball, baseball, football and soccer fields, tennis and basketball courts, and various forms of children's play equipment.

**Recreation, Passive:** Type of recreation or activity that does not require the use of organized play areas.

**Recycle:** Per Section 40180 of the *California Public Resources Code*, the process of collecting, sorting, cleansing, treating, and reconstituting materials that would otherwise become solid waste, and returning them to the economic mainstream in the form of raw material for new, reused, or reconstituted products that meet the quality standards necessary to be used in the marketplace.

**Regional:** Pertaining to activities or economies at a scale greater than that of a single jurisdiction, and affecting a broad geographic area.

**Regional Housing Needs Assessment (RHNA):** The Regional Housing Needs Assessment (RHNA) is based on State projections of population growth and housing unit demand and assigns a share of the region's future housing need to each jurisdiction within the SCAG region. These housing need numbers serve as the basis for the update of each California city and county Housing Element.

**Regional Park:** A park typically 150–500 acres in size focusing on activities and natural features not included in most other types of parks and often based on a specific scenic or recreational opportunity.

**Regional Transportation Plan (RTP):** The RTP is created by the Metropolitan Planning Organization (MPO) or the regional planning commission.

**Registered Environmental Assessor:** The Registered Environmental Assessor (REA) Program, under the jurisdiction of the California Department of Toxic Substances Control, registers environmental compliance experts on a voluntary basis. Each registrant listed in

the REA registry has been evaluated by the REA program staff and found to possess suitable education and experience. An Environmental Site Assessment (ESA) performed by a Registered Environmental Assessor (REA) is your primary means to minimize liability from the “innocent landowner” defense.

**Regulation:** A rule or order prescribed for managing government.

**Remediate:** To mitigate a specific environmental impact.

**Reservoir:** A pond, lake, tank, basin, or other space either natural or created in whole or in part by the building of engineering structures.

**Residential Land Use:** Land designated in the city or county general plan and zoning ordinance for buildings consisting only of dwelling units. May be improved, vacant, or unimproved. Any parcel or area of land devoted to housing and ancillary uses.

**Residential Care Facility:** A facility that provides 24-hour care and supervision to its residents.

**Residential, Multiple Family:** Usually three or more dwelling units on a single site, which may be in the same or separate buildings.

**Residential, Single-family:** A single dwelling unit on a building site.

**Resistivity:** A measure of how strongly a material opposes the flow of electric current. Resistivity is measured in ohm-centimeters (cm).

**Resources, Non-renewable:** Refers to natural resources, such as fossil fuels and natural gas, which, once used, cannot be replaced and used again.

**Resource Sector:** An area judged to contain a significant deposit of construction-quality aggregate.

**Responsible Agency:** A public agency that proposes to carry out or approve a project, for which a Lead Agency is preparing or has prepared an EIR or Negative Declaration. For the purposes of CEQA, the term "Responsible Agency" includes all public agencies other than the Lead Agency which have discretionary approval power over the project (State CEQA Guidelines, Section 15381).

**Return Flow:** Irrigation water not consumed by evapotranspiration but returned to either ground or surface water. Also known as “return water”.

**Reverse:** A type of fault similar to a normal fault, except the footwall moves downward relative to the hanging wall.

**Reverse Commute:** The travel from the city center to suburban locations, moving counter to the primary or major volume of traffic flow.

**Reviewing Agencies:** Local, State, and federal agencies with jurisdiction over the project area or resources potentially affected by the project. Cities and counties are also considered reviewing agencies.

**Rezoning:** An amendment to the map and/or text of a zoning ordinance to effect a change in the nature, density, or intensity of uses allowed in a zoning district and/or on a designated parcel or land area.

**Rhyolite:** A usually light-colored, fine-grained extrusive igneous rock that is compositionally similar to granite.

**Richter Scale:** A logarithmic scale developed in 1935–1936 by Dr. Charles F. Richter and Dr. Beno Gutenberg to measure earthquake magnitude by the amount of energy released, as opposed to earthquake intensity as determined by local effects on people, structures, and earth materials. A measure of the size or energy release of an earthquake at its source. The scale is logarithmic; the wave amplitude of each number on the scale is ten times greater than that of the previous whole number.

**Rideshare:** A travel mode other than driving alone, such as buses, rail transit, carpools, and vanpools.

**Ridgeline:** A line connecting the highest points along a ridge and separating drainage basins or small-scale drainage systems from one another.

**Right-Lateral:** Movement of a strike-slip fault where, if an observer were standing on one side of the fault, the opposite side would move to the right.

**Right-of-Way (ROW):** That portion of property which is dedicated or over which an easement is granted for public streets, utilities, or alleys.

**Rilling:** An erosion process which forms numerous small shallow channels.

**Riparian Lands:** Riparian lands are comprised of the vegetative and wildlife areas adjacent to perennial and intermittent streams. Riparian areas are delineated by the existence of plant species normally found near freshwater.

**Rippability:** A measure of an earthen material's ability to be excavated with conventional excavation equipment.

**Risk Assessment:** The qualitative and quantitative evaluation of the risk posed to human health and/or the environment by the actual or potential presence and/or use of specific pollutants.

**Risk of Upset:** The risk associated with potential explosions, fires, or release of hazardous substances in the event of an accident or natural disaster.

**Road Deck:** The part of the bridge structure on which the road is constructed.

**Runoff:** That portion of rain or snow that does not percolate into the ground and is discharged into streams instead.

**Road Deck:** The part of a bridge structure which the road is constructed on.

**Roadway Capacity:** The RTP defines roadway capacity as vehicles per hour per lane (vphpl) by type of facility.

**Safe Drinking Water Act:** The Act (*California Health and Safety Code*, Sections 116350–116405) is intended to protect public health by regulating the nation’s public drinking water supply and authorizes the United States Environmental Protection Agency (USEPA) to set national standards for drinking water to protect against both naturally occurring and man-made contaminants.

**Safe Drinking Water Bond Act (2006) (Proposition 84):** Passed by voters in 2006, the Act authorized the State to issue \$5.4 billion in bonds for a wide variety of projects related to water safety, rivers, beaches, levees, watersheds, and parks and forests.

**Safety Element:** One of the seven State-mandated elements of the general plan. It establishes the policies and programs to protect the community from risks associated with seismic, geologic, flood, and wildfire hazards.

**Sanitary Landfill:** The controlled placement of refuse within a limited area, followed by compaction and covering with a suitable thickness of earth and other containment material.

**Sanitary Sewer:** A system of subterranean conduits that carries refuse liquids or waste matter to a plant where the sewage is treated, as contrasted with storm drainage systems (that carry surface water) and septic tanks or leech fields (that hold refuse liquids and waste matter on the site). Underground pipes that carry off only domestic or industrial waste, not storm water.

**Santa Clarita Valley Consolidated Traffic Model:** A model jointly developed by Los Angeles County and the City of Santa Clarita.

**Scale:** Refers to the geographic area and data resolution under examination in an assessment or planning effort.

**Scarified:** To break up the surface of (topsoil or pavement) ([www.dictionary.com](http://www.dictionary.com)).

**Scarp:** A transition zone between different geologic features that involves a sharp elevation differential, characterized by a cliff or steep slope. Can include a line of cliffs formed by the faulting or fracturing of the Earth’s crust.

**Scenic Highway Corridor:** The area outside a highway right-of-way that is generally visible to persons traveling on the highway.

**Scenic Highway/Scenic Route:** A highway, road, drive, or street that, in addition to its transportation function, provides opportunities for the enjoyment of natural and man-made



scenic resources and access or direct views to areas or scenes of exceptional beauty or historic or cultural interest. The aesthetic values of scenic routes often are protected and enhanced by regulations governing the development of property or the placement of outdoor advertising.

**Scrubber:** An air pollution control device that uses a high energy liquid spray to remove aerosol and gaseous pollutants from an air stream. The gases are removed either by absorption or chemical reaction.

**Secondary Maximum Contaminant Level (SMCL):** Standards set for public water systems with respect to levels of contaminants that do not cause adverse health effects but can impact the color and odor of water.

**Secondary Treatment:** Generally, a level of treatment that produces 85 percent removal efficiencies for biological oxygen demand and suspended solids. Usually carried out through the use of trickling filters or by the activated sludge process.

**Section 106:** Provision in National Historic Preservation Act that requires federal agencies to consider effects of proposed undertakings on properties listed or eligible for listing in the National Register of Historic Places.

**Section 4(d):** A section of the Federal Endangered Species Act (FESA) that allows special rules to apply to a species listed as Threatened. Can specify the conditions allowing incidental take.

**Section 2081:** A section of the California Endangered Species Act (CESA) that governs the take of listed Endangered species.

**Section 4(f):** Provision in U.S. Department of Transportation Act that prohibits federal approval or funding of transportation projects that require “use” of any historic site unless (1) there is “no feasible and prudent alternative to the project” and (2) the project includes “all possible planning to minimize harm”.

**Section 10(a):** A section of the federal ESA that governs issuance of a permit to allow incidental take of a listed Endangered species.

**Sediment:** Organic or inorganic material that is carried by or is suspended in water and that settles out to form deposits in the storm drain system or receiving waters.

**Sedimentation:** Process by which material suspended in water is deposited in a body of water.

**Seiche:** A free or standing-wave oscillation of the surface of water in an enclosed or semi-enclosed basin (such as a lake, bay, or harbor). It is generally caused by local changes in atmospheric pressure, aided by winds, tidal currents and small earthquakes.

**Seismic:** Caused by or subject to earthquakes or earth vibrations.

**Seismic Hazards Mapping Act:** Legislation acted by the California legislature in April of 1997. Unlike the Alquist-Priolo Earthquake Fault Zoning Act, the Seismic Hazards Mapping Act addresses non-surface fault rupture earthquake hazards, including liquefaction and seismically induced landslides. The act requires the creation and publication of maps showing areas where such impacts could occur.

**Seismically induced settlement:** The densification of soils resulting from seismic motion. During strong ground-shaking, soil grains may become more tightly packed due to the collapse of voids or pore spaces, resulting in a reduction in the thickness of the soil column.

**Seismicity:** The frequency or magnitude of earthquake activity in a given area.

**Senescence:** Growing old; aging ([www.dictionary.com](http://www.dictionary.com)).

**Sensitive Receptors:** Sensitive receptors are people or institutions with people that are particularly susceptible to illness from environmental pollution, such as the elderly, very young children, people already weakened by illness (e.g., asthmatics), and persons engaged in strenuous exercise.

**Septic System:** A sewage-treatment system that includes a settling tank through which liquid sewage flows and in which solid sewage settles and is decomposed by bacteria in the absence of oxygen. Septic systems are often used for individual-home waste disposal where an urban sewer system is not available.

**Setback:** The horizontal distance between the property line and any structure.

**Settlement:** (1) The drop in elevation of a ground surface caused by settling or compacting. (2) The gradual downward movement of an engineered structure due to compaction. *Differential* settlement is uneven settlement, where one part of a structure settles more or at a different rate than another part.

**Shall:** In accordance with Section 15005 of the State CEQA Guidelines, “shall” or “must” identifies a mandatory element which all public agencies are required to follow.

**Shatter:** A splintered or fragmented condition.

**Shears:** The deformation of a rock in response to compressive stress resulting in the formation of particular textures.

**Shopping Center:** A group of commercial establishments, planned, developed, owned, or managed as a unit, with common off-street parking provided on the site.

**Short-Term Noise:** Noise from a temporary noise source that would occur for a limited period of time such that a substantive reduction in the quality of the receptor’s environment is not realized.

**Should:** In accordance with Section 15005 of the State CEQA Guidelines, “should” identifies guidance provided by the Secretary for Resources based on policy considerations contained

in CEQA, in the legislative history of the statute, or in federal court decisions which California courts can be expected to follow. Public agencies are advised to follow this guidance in the absence of compelling, countervailing considerations.

**Significant Ecological Area:** First identified in the County of Los Angeles General Plan of 1976, SEAs are areas that contain unique, dwindling, or other rare plant and animal resources that need to be more specifically studied for the purpose of public education, research, and other non-disruptive outdoor uses.

**Significant Impact or Significant Effect on the Environment:** As defined by the State CEQA Guidelines, a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant. The lead agency will determine whether a project may have a significant effect on the environment based on substantial evidence in light of the whole record (State CEQA Guidelines, Section 15382).

**Siltation:** The accumulating deposition of eroded material; the gradual filling in of streams and other bodies of water with sand, silt, and clay.

**Single Noise Event Level (SEL):** The cumulative (not average) sound exposure during a particular noise event, integrated into a one-second time frame.

**Single-family Dwelling, Attached:** A dwelling unit occupied or intended for occupancy by only one household that is structurally connected with at least one other such dwelling unit. Single-family attached units are typically defined by school districts as units that share a common wall and are not for rental purposes.

**Single-family Dwelling, Detached:** A dwelling unit occupied or intended for occupancy by only one household that is structurally independent from any other such dwelling unit or structure intended for residential or other use.

**Single-Family Housing:** A conventionally built house consisting of a single dwelling unit occupied by one household.

**Single Occupant Vehicle (SOV):** One person per vehicle.

**Single Room Occupancy (SRO):** A single room, typically with a sink and closet, but which requires the occupant to share a communal bathroom, shower, and kitchen.

**Site:** A parcel of land used or intended for one use or a group of uses and having frontage on a public or an approved private street. A lot.

**Site Acceleration:** Site acceleration during a seismic event is measured as a percent of gravity, or g. For instance, 0.76g is 76 percent of the force of gravity.

**Sky Glow (Light pollution):** An adverse effect of manmade light. It is often used to denote urban sky glow (brightening of the night sky due to man-made lighting) but also includes glare (intense and blinding light), light trespass (light falling where it is not wanted or needed; spill light), visual clutter, and other adverse effects of lighting (IDA 2005). In many cases, sky glow is visible from great distances, particularly in evenings when there is moisture in the air.

**Sleep Interference:** The capacity for noise to hamper normal sleep patterns.

**Slide:** A slide is a down slope movement of a soil or rock mass occurring dominantly on shallower slopes at surfaces of rupture or on relatively thin zones of intense shear strain. The displaced mass often slides beyond the toe of the surface rupture covering the original ground surface of the slope. Slides consist of two main types: rotational and translational. Rotational slides move along a surface of rupture that is curved and concave. Translational slides move along a planar or undulating surface of rupture

**Slope:** Land gradient described as the vertical rise divided by the horizontal run, and expressed in percent.

**Slope Face:** The slopes located directly below, or leading up to, the crest of a significant ridgeline or prominent landform.

**Slope Steepness:** The relationship (the ratio) between the change in elevation (rise) and the horizontal distance (run) over which that change in elevation occurs. The percent of steepness of any given slope is determined by dividing the rise by the run on the natural slope of land, multiplied by 100.

**Sloughing/Sloughage:** Shallow slides of loose or crumbling material.

**Slump:** Loosely consolidated materials or rock layers that move a short distance down a slope leaving a concave scarp, or eroded face.

**Smart Growth:** A movement in urban and transportation planning that concentrates density within central core areas of urban development. Smart Growth advocates compact, transit-oriented, walkable, bicycle-friendly land uses, including mixed-use development with a range of housing choices. It also advocates preservation of open space and many other environmental amenities.

**Smog:** A combination of smoke and other particulates, ozone, hydrocarbons, nitrogen oxides, and other chemically reactive compounds which, under certain conditions of weather and sunlight, may result in a murky brown haze that causes adverse health effects. The primary source of smog in California is motor vehicles.

**Solar System, Active:** A system using a mechanical device, such as a pump or a fan, and energy in addition to solar energy to transport a conductive medium (air or water) between a solar collector and the interior of a building for the purpose of heating or cooling.

**Solar System, Passive:** A system that uses direct heat transfer from thermal mass instead of mechanical power to distribute collected heat. Passive systems rely on building design and materials to collect and store heat and to create natural ventilation for cooling.

**Solid Waste:** Any non-hazardous garbage, refuse or sludge, which is primarily solid but may also include portions of liquid, semi-solid or contained gaseous material resulting from residential, industrial, commercial, agricultural, mining operations, and community activities.

**Source Reduction:** Per Section 40196 of the *California Public Resources Code*, “source reduction” means any action which causes a net reduction in the generation of solid waste. Source reduction includes, but is not limited to, reducing the use of nonrecyclable materials, replacing disposable materials and products with reusable materials and products, reducing packaging, reducing the amount of yard wastes generated, establishing garbage rate structures with incentives to reduce waste tonnage generated, and increasing the efficiency of the use of paper, cardboard, glass, metal, plastic, and other materials.

**Source Reduction and Recycling Element (SRRE):** Plans prepared by all jurisdictions in accordance with the *California Public Resources Code*, Section 41000 et seq. (cities) and Section 41300 et seq. (counties). The SRRE sets forth a jurisdiction's basic strategy for management of solid waste generated within its borders, with emphasis on implementation of source reduction, recycling, and composting programs. The SRRE should also identify the amount of landfill and/or transformation capacity necessary to dispose of solid waste that cannot be reduced at the source, recycled, or composted. It is one of several solid waste planning documents required by the Integrated Waste Management Agency.

**South Coast Air Basin (SoCAB):** A geographic area defined by the San Jacinto Mountains to the east, the San Bernardino Mountains to the north, and the Pacific Ocean to the west and south. The SoCAB is under the jurisdiction of the South Coast Air Quality Management District.

**South Coast Air Quality Management District (SCAQMD):** The agency responsible for protecting public health and welfare through the administration of federal and State air quality laws, regulations, and policies in the South Coast Air Basin.

**Southern California Association of Governments (SCAG):** The organization, known in federal law as a Council of Governments or Metropolitan Planning Organization. As the designated Metropolitan Planning Organization, Southern California Association of Governments (SCAG) represents the counties of Imperial, Riverside, San Bernardino, Orange, Los Angeles, and Ventura, and the cities within these six counties. SCAG is mandated by the federal government to research and prepare plans for transportation, growth management, hazardous waste management, and air quality. Additional mandates exist at the State level.

**Special Animal:** A species of interest to the California Natural Diversity Database.

**Species of Local Concern:** A species that has no official status with the resource agencies, but is being watched because, in the region, there is a unique population.

**Specific Plan:** A legal tool authorized by Section 65450 et seq. of the *California Government Code* for the systematic implementation of the general plan for a defined portion of a community's planning area. A specific plan must specify in detail the land uses, public and private facilities needed to support the land uses, phasing of development, standards for the conservation, development, and use of natural resources, and a program of implementation measures, including financing measures. The Office of Planning and Research's *The Planners Guide to Specific Plans* provides direction and references to planning practitioners for the development of specific plans.

**Speech interference:** The capacity for noise to prevent intelligible oral communication.

**Speed:** a rate of motion; experienced by travelers regardless of mode.

**Sphere of Influence:** A plan for the probable physical boundaries and service area for a local agency, as determined by the Local Agency Formation Commission. Typically, a sphere of influence is the territory that a city or district is expected to annex. Therefore, spheres of influence are usually larger in area than the actual boundaries of a city or district, although they can be the same as the city or district boundaries.

**Spillover:** Spillover occurs when light goes over its intended range (eSchoolToday 2017).

**Spread:** A spread is a sudden lateral movement of a cohesive rock or soil mass along softer underlying material generally composed of homogenous clays or cohesionless fill. Spread includes a general subsidence of fractures of the mass of cohesive material into the softer underlying material. This type of landslide is often triggered by seismic activity.

**Stabilization fill:** Placement of compacted earthen material along a slope face to mitigate surficial slope failures, such as raveling, erosion, and/or rockfalls.

**Stacking:** The process of vehicles forming a line or queue. If the stacking extends into the through-lanes, delays and unsafe conditions become prevalent.

**Standard Urban Stormwater Mitigation Plan (SUSMP):** A document which identifies practicable policies to ensure to the maximum extent practicable that development does not increase pollutant loads from a project site and considers urban runoff flow rates, velocities and durations. The SUSMP addresses only land development and capital improvement projects and is focused on project design requirements and related post-construction requirements, not on the construction process itself.

**State Agency:** State agency means a governmental agency in the executive branch of the State Government or an entity which operates under the direction and control of an agency in the executive branch of State Government and is funded primarily by the State Treasury (State CEQA Guidelines, Section 15383).

**State Historic Preservation Officer (SHPO):** Official appointed or designated, pursuant to the National Historic Preservation Act, to administer a State's historic preservation program.

**State Implementation Plan (SIP):** A plan prepared by each State, and subject to U.S. Environmental Protection Agency (USEPA) approval, which describes existing air quality conditions and identifies actions and programs to be undertaken by the State and its subdivisions to attain and maintain National Ambient Air Quality Standards. A SIP is a compilation of all of a State's air quality plans and rules that have been approved by the federal USEPA. In California, air districts prepare non-attainment plans that are included in the State's SIP.

**Statement of Overriding Considerations:** A statement indicating that even though a project would result in one or more unavoidable adverse impacts, specific economic, social or other stated benefits are sufficient to warrant project approval.

**State Transportation Improvement Plan (STIP):** A capital improvement program of transportation projects funded with revenues from the State Highway Account and other sources.

**State Water Project (SWP):** An aqueduct system that delivers water from northern California to central and southern California.

**Static:** Not prone to seismic forces, motion; still.

**Stationary Source:** A source of air pollution that is not mobile. Any building, structure, facility, or installation which emits or may emit any affected pollutant directly or as a fugitive emission. Building, structure, facility, or installation means any pollutant-emitting activities, including activities located in California coastal waters adjacent to the District boundaries, which (1) belong to the same industrial grouping and (2) are located on one or more contiguous or adjacent properties (except for activities located in coastal waters) and (3) are under the same or common ownership, operation, or control or which are owned or operated by entities which are under common control.

**Statute of Limitations:** The time period within which a lawsuit may be filed or other legal action to challenge a CEQA document and approval.

**Statutory Exemptions:** Exemptions from CEQA granted by the Legislature (See State CEQA Guidelines, Sections 15260–15285).

**Storie Index:** A numerical system (0p100) rating, the degree to which a particular soil can grow plants or produce crops, based on four factors: soil profile, surface texture, slope, and soil limitations.

**Storm Drain Inlet:** A drainage structure that collects surface runoff and conveys it to an underground storm drain system.

**Storm Runoff:** Surplus surface water generated by rainfall that does not seep into the Earth but flows overland to flowing or stagnant bodies of water.

**Storm Water:** Storm water means storm water runoff, snow melt runoff, and surface runoff and drainage.

**Storm Water Drainage System:** Streets, gutters, inlets, conduits, natural or artificial drains, channels and watercourses, or other facilities that are owned, operated, maintained, and used for the purpose of collecting, storing, transporting, or disposing of storm water.

**Storm Water Quality Management Program (SQMP):** A document which summarizes the measures to be taken to comply with the NPDES Permit and reduce the discharges of pollutants in storm water to the maximum extent practicable.

**Streetscapes:** Landscaped areas adjacent to public or private streets to buffer adjacent developments which may serve as a means for reducing noise impact.

**Structure:** Anything, including a building, located on the ground in a permanent location or attached to something having a permanent location on the ground.

**Stream:** A body of water that flows at least periodically or intermittently through a bed or channel that has banks and supports fish or other aquatic life.

**Street Cross-Section:** A term used to describe the total number of lanes on a street. For instance, a street that has two lanes of northbound traffic, two lanes of southbound traffic, and a refuge lane is commonly referred to as a five-lane cross-section.

**Strike-Slip:** a fault in which the primary displacement is horizontal and parallel to the direction of the fault plane.

**Structure:** Anything constructed or erected which requires a fixed location on the ground, or is attached to something having a fixed location on the ground (Section 22.08.190 S. of the Los Angeles County Code).

**Subdivision:** The division of a lot, tract, or parcel of land into two or more lots, tracts, parcels, or other division of land for lease, sale, or financing, in accordance with the Subdivision Map Act (*California Government Code*, Section 66410 et seq.). The lots can either improved or unimproved, and be separately conveyed by sale or lease, and which can be altered or developed.

**Subdivision Development Plan:** Specific development plans for an unapproved tentative map, including, but not limited to: plot plans, building elevations, grading plans, and landscape plans applicable to individual lots within a tentative map.

**Subdivision Map Act:** Division 2 (Sections 66410 et seq.) of the *California Government Code*, this act vests in local legislative bodies the regulation and control of the design and improvement of subdivisions, including the requirement for tentative and final maps.

**Subregional:** Pertaining to a portion of a region.

**Subsidence:** Sinking of the land surface due to a number of factors, of which groundwater extraction is one; the gradual settling or sinking of an area with little or no horizontal motion.



**Subsidize:** To assist by payment of a sum of money or by the granting of terms or favors that reduce the need for monetary expenditures. Housing subsidies may take the forms of mortgage interest deductions or tax credits from federal and/or State income taxes, sale or lease at less than market value of land to be used for the construction of housing, payments to supplement a minimum affordable rent, and the like.

**Sustainable Yield:** The average amount of water that can be pumped from an aquifer on an annual basis without affecting its long-term capacity.

**Substantial Adverse Effect:** The loss or harm of a magnitude which, based on current scientific data and knowledge, would (1) substantially diminish population numbers of a species or distribution of a habitat type within the region or (2) eliminate the functions and values of a biological resource in the region.

**Substantial Adverse Change:** Demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired (*California Public Resources Code*, Section 5020.1[q]).

**Sulfate:** A salt of sulfuric acid. Many examples of sulfates are known, and many of these are highly soluble in water.

**Sulfur Dioxide (SO<sub>2</sub>):** A strong smelling, colorless gas that is formed by the combustion of fossil fuels. Power plants, which may use coal or oil high in sulfur content, can be major sources of SO<sub>2</sub>. SO<sub>2</sub> and other sulfur oxides contribute to the problem of acid deposition. SO<sub>2</sub> is a criteria air pollutant.

**Sulfur Oxides:** Pungent, colorless gases (sulfates are solids) formed primarily by the combustion of sulfur-containing fossil fuels, especially coal and oil. Considered major air pollutants, sulfur oxides may impact human health and damage vegetation.

**Sump:** a pit, well, or the like in which water or other liquid is collected ([www.dictionary.com](http://www.dictionary.com)).

**Surcharging:** The placement of fill to a specified height above grade.

**Surficial landslide:** A landslide involving only top layers of earthen material.

**Surficial unit/deposit:** Deposits of loose sediment on the surface above underlying bedrock and can include previously placed fill, topsoil, colluvium, alluvium, and landslide debris.

**Sustainability:** Community use of natural resources in a way that does not jeopardize the ability of future generations to live and prosper.

**Sustainable Development:** Development that maintains or enhances economic opportunity and community well-being while protecting and restoring the natural environment upon which people and economies depend. Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs.

**Substantial Evidence:** Substantial evidence as used in these guidelines means enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached. Whether a fair argument can be made that the project may have a significant effect on the environment is to be determined by examining the whole record before the lead agency. Argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly erroneous or inaccurate, or evidence of social or economic impacts which do not contribute to or are not caused by physical impacts on the environment does not constitute substantial evidence. Substantial evidence shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts (State CEQA Guidelines, Section 15384).

**Sulfur Dioxide (SO<sub>2</sub>):** A colorless, extremely irritating gas or liquid. Sulfur dioxide enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. There are National Ambient Air Quality Standards and California Air Quality Standards for sulfur dioxide.

**Sump:** In drainage, any low area that does not permit the escape of water by gravity flow.

**Surface Water:** Water in lakes, streams or rivers, as distinct from subsurface groundwater.

**Surface Water Runoff:** Precipitation, snow melt, or irrigation water in excess of what can infiltrate the soil surface and be stored in small surface depressions.

**Swale:** An elongated or depressed landform within a landscaped area, which is designed to carry storm or other runoff.

**Table A Amount:** The maximum contractual quantity of water that an SWP Contractor can request each year.

**Take:** Under the Federal Endangered Species Act (FESA), it means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or to attempt to engage in any such conduct. In the context of the California Endangered Species Act (CESA) means to hunt, pursue, kill, or capture a listed species, as well as any other actions that may result in adverse impacts when attempting to take individuals of a listed species. The CESA definition of "Take" is more inclusive than the FESA definition.

**Taking:** A real estate term traditionally used to mean acquisition by eminent domain but broadened by the U.S. Supreme Court to mean any government action that denies economically viable use of property.

**Tax-Increment Financing District:** A special district created from a redevelopment area in which the future growth in property tax revenues generated is used to finance the redevelopment program itself. In most cases, redevelopment agencies issue bonds against this property tax increment to pay for public investments inside the redevelopment area.

**Temporal Attribution:** Assessment of time.

**Temporary Construction Site Best Management Practices (BMPs):** BMPs that are only temporarily required to address a short-term storm water contamination threat.

**Telecommuting:** An arrangement in which a worker is at home or in a location other than the primary place of work, and communicates with the workplace and conducts work via wireless or telephone lines, using modems, fax machines, or other electronic devices in conjunction with computers.

**Temporary Noise:** Noise from a noise source that is not permanent. A temporary noise source can be considered long-term, as audible noise level increases at the same receptor that occur for several years.

**Tentative Map:** The initial map setting forth in detail a proposed land subdivision, which must comply with the city's or county's subdivision and zoning regulations and the State Subdivision Map Act. The subdivision of land depicted on the tentative map does not take effect until approval and recordation of the Final Map.

**Tertiary Treatment:** The treatment of wastewater beyond the secondary or biological stage. Normally implies the removal of nutrients, such as phosphorous and nitrogen, and a high percentage of suspended solids.

**Therm:** The amount of energy necessary to raise 100,000 pounds of water one degree Fahrenheit.

**Thermal Mass:** Large quantities of heavy or dense material with a high heat capacity, used in solar buildings to absorb heat, which is then stored and re-radiated as needed for heating and cooling.

**Thousand Square Feet (TSF):** Used in quantifying non-residential land uses, and refers to building floor area.

**Threatened Species:** The State of California considers a Threatened species to be one present in such small numbers throughout its range that it is likely to become an Endangered Species in the near future in the absence of special protection or management. The CESA authorizes the CDFW to issue permits authorizing incidental take of Threatened and Endangered Species.

**Threshold of Significance:** Criteria for each environmental issue area to assist with determinations of significance of project impacts.

**Title 24 of the California Code of Regulations:** Title 24 is part of the California Buildings Standards Code, the building regulations of California. Part 6 is the Energy Code.

**Tonnes:** Metric tons.

**Topographic Map:** A map showing the various topographic features of a given area, such as hills, valleys, mountains, slope of land surfaces, usually by means of contours or lines connecting points of equal elevation.

**Topography:** The physical shape of the ground surface. Configuration of a surface, including its relief and the position of natural and man-made features.

**Topple:** A topple is a forward rotation of a mass of soil or rock out of a steep slope at a hinge or pivot point below the center of gravity of the displaced mass. Topples usually involve the overturn of interacting columns or blocks at or near a vertical face and may lead to falls or slides of the displaced mass. Movement of material during a topple ranges from extremely slow to extremely rapid.

**Topsoil:** The upper layer of soil, usually the top 2 to 8 inches.

**Total Dissolved Solids (TDS):** A quantitative measure of the residual minerals dissolved in water that remains after evaporation of a solution. Usually expressed in milligrams per liter or parts per million.

**Total Maximum Daily Load (TMDL):** An estimate of the total quantity of pollutants (from all sources: point, non-point, and natural) that may be allowed into waters without exceeding applicable water quality criteria.

**Total Organic Gases (TOG):** Gaseous organic compounds, including reactive organic gases and the relatively unreactive organic gases such as methane.

**Total Suspended Particulate (TSP):** Particles of solid or liquid matter—such as soot, dust, aerosols, fumes, and mist—up to approximately 30 microns in size.

**Townhouse; Townhome:** A one-family dwelling in a row of at least three such units in which each unit has its own front and rear access to the outside, no unit is located over another unit, and each unit is separated from any other unit by one or more common and fire-resistant walls. Townhouses usually have separate utilities; however, in some condominium situations, common areas are serviced by utilities purchased by a homeowners association on behalf of all townhouse members of the association.

**Toxic Air Contaminant (TACs):** Airborne chemical compounds determined by the U.S. Environmental Protection Agency (USEPA) and the California Environmental Protection Agency (CalEPA), including the Office of Environmental Health Hazard Assessment and the California Air Resources Board, to pose a present or potential threat to public health. Air pollutants (excluding ozone, carbon monoxide, PM10, sulfur dioxide, and nitrogen dioxide) that may reasonably be anticipated to cause cancer, developmental effects, reproductive dysfunctions, neurological disorders, heritable gene mutations, or other serious or irreversible acute or chronic health effects in humans. Toxic air pollutants are considered under a different regulatory process (*California Health and Safety Code*, Sections 39650 et seq.) than pollutants subject to California Ambient Air Quality Standards. Health effects to TACs may occur at extremely low levels, and it is typically difficult to identify levels of exposure which do not produce adverse health effects.

**Traffic Calming:** The process of designing streets or adding design elements to tame fast traffic and address unsafe traffic conditions. Design elements include, for example, speed humps, narrowed streets, added traffic circle.

**Traffic Model:** A mathematical representation of traffic movement within an area or region based on observed relationships between the kind and intensity of development in specific areas. Many traffic models operate on the theory that trips are produced by persons living in residential areas and are attracted by various non-residential land uses.

**Transit:** The conveyance of persons or goods from one place to another by means of a local, public transportation system.

**Transit Capacity:** The RTP defines this as the seating capacity utilized by mode.

**Transit-dependent:** Refers to persons unable to operate automobiles or other motorized vehicles, or those who do not own motorized vehicles. Transit-dependent citizens must rely on transit, para-transit, or owners of private vehicles for transportation. Transit-dependent citizens include the young, the handicapped, the elderly, the poor, and those with prior violations in motor vehicle laws.

**Transit-Oriented Development (TOD):** A mixed-use community within an average 2,000-foot walking distance of a transit stop and core commercial area. TODs mix residential, retail, office, and public uses in a walkable environment, making it convenient for residents and employees to travel by transit, bicycle, foot, or car.

**Transit, Public:** A system of regularly-scheduled buses and/or trains available to the public on a fee-per-ride basis. Also called “Mass Transit.”

**Transition Zone:** Controlled airspace extending upward from 700 or more feet above the ground wherein procedures for aircraft approach have been designated. The transition zone lies closer to an airport than the outer approach zone and outside of the inner approach zone.

**Translational Slide:** A mass that moves down and outward along a relatively planar surface and has little rotational movement or backward tilting.

**Transportation Analysis Zone (TAZ):** A geographic area that identifies land uses and associated trips that is used for making land use projections and performing traffic modeling.

**Transportation Control Measures (TCMs):** Air pollution control measures in the Air Quality Management Plan that are directed to reducing air emissions by reducing vehicle miles traveled, vehicle idling, or traffic congestion. Federal and State law specifies requirements for TCMs. Steps taken by a locality to adjust traffic patterns (e.g., bus lanes, right turn on red) or reduce vehicle use (ridesharing, high-occupancy vehicle lanes) to reduce vehicular emissions of air pollutants.

**Transportation Demand Management (TDM):** A strategy for reducing demand on the road system by reducing the number of vehicles using the roadways and/or increasing the number of persons per vehicle. TDM attempts to reduce the number of persons who drive alone on the roadway during the commute period and to increase the number in carpools, vanpools, buses and trains, walking, and biking. TDM can be an element of Transportation Systems Management. Strategies to change travel behavior in order to increase the efficiency of the transportation system and achieve specific objectives such as reduced traffic

congestion, road and parking cost savings, increased safety, improved mobility for non-drivers, energy conservation and pollution emission reductions.

**Transportation Equity Act of the 21<sup>st</sup> Century (TEA 21):** TEA 21 was enacted June 9, 1998, as Public Law 105-178. TEA-21 authorizes and funds the federal surface transportation programs for highways, highway safety, and transit for the 6-year period of 1998-2003. The TEA 21 Restoration Act, enacted July 22, 1998, provided technical corrections to the original law.

**Transportation Systems Management (TSM):** A comprehensive strategy developed to address the problems caused by additional development, increasing trips, and a shortfall in transportation capacity. Transportation Systems Management focuses on more efficiently utilizing existing highway and transit systems rather than expanding them. TSM measures are characterized by their low cost and quick implementation time frame, such as computerized traffic signals, metered freeway ramps, and one-way streets.

**Trash:** Any human-derived materials including paper, plastics, metals, glass, and cloth.

**Travel route:** A landscape feature (such as a ridgeline, drainage, canyon, or riparian strip) within a larger open space that is used frequently by animals to facilitate movement and to provide access to necessary resources.

**Trip:** The trip is the basic measurement used to describe transportation volumes. A one-way journey that proceeds from an origin to a destination via a single mode of transportation; the smallest unit of movement considered in transportation studies. Each trip has one “production end” (or origin, often from home, but not always), and one “attraction end” (destination). A trip represents travel between a single origin and a single destination, and each trip is made up of two trip ends. (e.g., traveling from home to the grocery store with no stops in between is one trip, and it is made up of a home trip end and a grocery store trip end.)

**Trip Assignment:** The allocation of vehicle trips to available routes between locations in a traffic study area.

**Trip End:** Every trip has two ends—an origin and a destination. Conversely, every origin or destination generates two trip ends—one arriving and one leaving. For example, traveling from home to work and back involves two trips—home to work and work to home, and four trip ends—home as the origin and home as the destination. Quantification of trip ends is useful in describing the contribution of specific land uses to traffic volumes. A trip generation measure which represents the total trips entering and leaving a location. (e.g., a building that generates 100 daily trip ends has 50 vehicles entering the site and 50 vehicles leaving the site each day.)

**Trip Generation:** The number of vehicle trip ends associated with (i.e., produced by) a particular land use or traffic study site. A trip end is defined as a single vehicle movement. Roundtrips consist of two trip ends.

**Trophic:** Of or involving the feeding habits or food relationship of different organisms in a food chain.

**Trustee Agency:** A State agency having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the state of California. Trustee agencies include the California Department of Fish and Wildlife, State Lands Commission, the State Department of Parks and Recreation, and the University of California (with regard to sites within the Natural Land and Water Reserves System) (State CEQA Guidelines, Section 15386).

**Tsunami:** A sea wave produced by large-scale, short-duration disturbance of the ocean floor such as from subsidence, an earthquake, or a volcanic eruption.

**Tuffaceous:** Rock formed as a deposit from springs or streams.

**Tuff beds:** Clusters of consolidated rocks of any size ejected from a volcano. Tuff is a general term for all consolidated pyroclastic rocks, meaning rocks formed of unworked solid material of any size ejected from a volcano.

**Turbidity:** The cloudiness or haziness of a fluid caused by individual particles (suspended solids) that are generally invisible to the naked eye. The measurement of turbidity is a key test of water quality.

**Turn Lane:** A lane devoted to vehicles making a turning movement to go in a different direction. Turn lanes are necessary to ensure the free-flow of traffic in the through lanes by providing a separate area/lane for turning traffic to slow down and complete the turning maneuver without impeding the through traffic.

**Undercutting:** Excavation at the base of an unstable slope to allow for stabilization measures.

**Underground Storage Tank (UST):** Refers to tanks used to store gasoline underground.

**Unifacial:** Flaked in such a way as to produce a cutting edge that is sharp on one side only.

**Uniform Building Code (UBC):** A national, standard building code that sets forth minimum standards for construction, published by the International Conference of Building Officials (ICBO).

**Uniform Housing Code (UHC):** State housing regulations governing the condition of habitable structures with regard to health and safety standards, and which provide for the conservation and rehabilitation of housing in accordance with the Uniform Building Code (UBC).

**United States Environmental Protection Agency (USEPA):** The federal agency with primary responsibility setting of policy and guidelines and carrying out legal mandates for the protection of natural interests in environmental resources, including the Clean Water

Act, Clean Air Act, Safe Drinking Water Act, and the Resource Conservation and Recovery Act. California is included within USEPA Region IX, headquartered in San Francisco.

**Unique archaeological resource:** An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

**Unique Farmland:** Lands used for the production of specific high-value food and fiber crops, such as citrus, tree nuts, olives, cranberries, and other fruits and vegetables. It has the special combination of soil quality, growing season, moisture supply, temperature, humidity, air drainage, elevation, and aspect needed for the soil to economically produce sustainable high yields of these crops when properly managed. The water supply is dependable and of adequate quality. Nearness to markets is an additional consideration. Unique farmland is not based on national criteria. It commonly is in areas where there is a special microclimate, such as the wine country in California (NRCS 2017a).

**Unit:** A “unit” is defined as a structure or foundation on which uses associated with development are placed. Uses may include and are not limited to residential, industrial, commercial, construction, institutional, public administration purposes, railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage treatment plants, water control structures, and other development purposes. Highways, railroads, and other transportation facilities are mapped as part of this unit if they are part of a surrounding urban area.

**Urban:** Of, relating to, characteristic of, or constituting a city. Urban areas are generally characterized by moderate and higher density residential development (i.e., three or more dwelling units per acre), commercial development, and industrial development, and the availability of public services required for that development, specifically central water and sewer, an extensive road network, public transit, and other such services (e.g., safety and emergency response). Development not providing such services may be “non-urban” or “rural.” CEQA defines “urbanized area” as an area that has a population density of at least 1,000 persons per square mile (*California Public Resources Code*, Section 21080.14[b]).

**Urban and Built-Up Land:** Lands occupied by residential, industrial, commercial, and institutional land; construction sites; public administrative sites; railroad yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment plants; water control structures and spillways; other land used for such purposes; small parks (less than 10 acres) within urban and built-up areas; and highways, railroads, and other transportation facilities if they are surrounded by urban areas. Also included are tracts of less than 10 acres that do not meet the above definition but are completely surrounded by Urban and Built-up land (NRCS 2017c).



**Urban Design:** The attempt to give form, in terms of both beauty and function, to selected urban areas or to whole cities. Urban design is concerned with the location, mass, and design of various urban components and combines elements of urban planning, architecture, and landscape architecture.

**Urbanized Area:** Urbanized area means a central city or a group of contiguous cities with a population of 50,000 or more, together with adjacent densely populated areas having a population density of at least 1,000 persons per square mile. A Lead Agency shall determine whether a particular area meets the criteria in this section either by examining the area or by referring to a map prepared by the U.S. Bureau of the Census which designates the area as urbanized. Use of the term “urbanized area” in Section 15182 is limited to areas mapped and designated as urbanized by the U.S. Bureau of the Census. (State CEQA Guidelines, Section 15387).

**Use Permit:** The discretionary and conditional review of an activity or function or operation on a site or in a building or facility.

**Utility Corridors:** Rights-of-way or easements for utility lines on either publicly or privately owned property.

**Variance:** An adjustment in regulations. Variances are based on discretionary decisions and may be granted to allow deviations from ordinance regulations governing such development factors such as setbacks, height, lot coverage, lot area and width, signs, off-street parking, landscaping, and wall, fencing, and screening standards. Variances may not be granted to authorize a use or activity which is not otherwise expressly authorized by the zone regulations governing the property. A variance usually is granted only upon demonstration of hardship based on the peculiarity of the property in relation to other properties in the same zone district.

**Vegetated buffers:** Strips of natural vegetation along wetlands and waterways designed to mimic natural systems, slow down surface runoff, capture storm water to improve infiltration, and filter out contaminants. In addition to protecting surface waters, vegetated buffers can improve groundwater supplies by promoting recharge and filtering contaminants.

**Vehicle Miles Traveled (VMT):** The total number of vehicle miles traveled over a specified length of time (e.g., daily, monthly, or yearly) or over a specified road or transportation corridor.

**Vehicle Trip:** Vehicle trip describes the number of vehicles traveling from point to point.

**Vehicle Trip Ends:** A single or one-direction vehicle movement with either the origin or destination inside a traffic study site.

**Vehicles Per Day (VPD):** Similar to ADT, but more typically applied to trip generation (i.e., the amount of traffic generated by a given amount of land use).

**Vehicles Per Hour (VPH):** Used for roadway volumes (counts or forecasts) and trip generation estimates. Measures the number of vehicles in a one hour period, typically the AM or PM peak hour.

**Vernalis Adaptive Management Plan (VAMP):** An agreement between multiple water agencies to maintain targeted stream flows for 31 days each spring, typically mid-May through mid-April. The purpose of VAMP is to help salmon smolt migrate downstream.

**Very Low Income Household:** A household with an annual income usually no greater than 50 percent of the area median family income adjusted by household size, as determined by a survey of incomes conducted by a city or a county, or in the absence of such a survey, based on the latest available eligibility limits established by the U.S. Department of Housing and Urban Development (HUD) for the Section 8 housing program.

**Vesting Tentative Tract Map:** A map which meets the requirements of subdivision (a) and Section 66452 of the *California Government Code*.

**Vibration:** Ground and structure oscillations due to low frequency sound-waves. Vibration is measured either in Hertz (oscillations in pressure resulting from low frequency sound waves) or in inches per second (physical motion of structures). Los Angeles County Code prohibits the operation of any device that creates vibration velocity levels of more than 0.01 inch per second (in/sec) over the frequency range of 1 to 100 Hertz (Hz) at or beyond the property boundary of the source if on private property, or at 150 feet from the source if on a public space or public right-of-way.

**View Corridor:** The line of sight—identified as to height, width, and distance—of an observer looking toward an object of significance to the community (e.g., ridgeline, river, historic building, etc.); the route that directs the viewers' attention.

**Viewpoint:** A location from which a site is visible; a specific location from which a view perspective is taken.

**Viewshed:** The surface area that is visible from a given viewpoint or series of viewpoints. It is also the area from which that viewpoint or series of viewpoints may be seen (a collection of viewpoints). The viewshed aids in identifying the views that could be affected by the proposed action. A viewshed is a broader perspective of a geographic area and incorporates both close-range and long-range elements.

**Volatile:** Any substance that evaporates readily.

**Volatile Organic Compound (VOC):** Carbon-containing compounds that evaporate into the air, except for specific exempt compounds found to be non-photochemically reactive and thus not participating in smog formation. VOCs contribute to the formation of smog and/or may themselves be toxic. VOCs often have an odor; some examples include gasoline, alcohol, and solvents used in paints. VOC is synonymous with reactive organic gases and reactive organic compounds.

**Volume-to-Capacity Ratio (V/C):** In reference to public services or transportation, ratio of peak hour use to capacity. A measure of the operating capacity of a roadway or intersection, in terms of the number of vehicles passing through, divided by the number of vehicles that theoretically could pass through when the roadway or intersection is operating at its designed capacity. Abbreviated as "V/C". At a V/C ratio of 1.0, the roadway or intersection is operating at capacity. If the ratio is less than 1.0, the traffic facility has additional capacity. Although ratios slightly greater than 1.0 are possible, it is more likely that the peak hour will elongate into a "peak period." In evaluating the performance of a roadway, V/C ratios should be considered together with the letter grade system, which is more of a qualitative assessment based heavily on speeds and travel time. This is typically used to describe the percentage of capacity utilized by existing or projected traffic on a segment of an arterial or intersection. (e.g., a roadway with a V/C of 0.60 has 60 percent of the total available capacity being used by traffic.)

**Warehousing Use:** A use engaged in storage, wholesale, and distribution of manufactured products, supplies, and equipment, excluding bulk storage of materials that are inflammable or explosive or that present hazards or conditions commonly recognized as offensive.

**Waste Stream:** Any and all waste that has been generated and is being processed toward permanent disposition.

**Wastewater:** Water that has been previously used by a municipality, industry, or agriculture and has suffered a loss of quality as a result of use.

**Wastewater Reclamation:** Treatment and management of municipal, industrial, or agricultural wastewater to produce water of suitable quality for additional beneficial uses.

**Water Quality Basin:** A storm water detention facility that holds water for a period of time and that provides natural treatment of storm water runoff (through vegetation) in compliance with Standard Urban Stormwater Management Plan (SUSMP) requirements.

**Water Quality Criteria:** A policy identifying beneficial uses for a particular receiving water body (e.g., wildlife habitat, agricultural supply, fishing), along with the water quality criteria necessary to support those uses. This can include the identification of specific levels of constituents, such as lead, suspended sediment, and fecal coliform bacteria, that represent the quality of water that support a particular use.

**Water Reclamation Facility:** A site at which wastewater is cleaned using biological and chemical processes so that it can be returned to the environment to augment the natural systems. It can include both aquifer and stream enhancement.

**Water Recycling Act of 1991:** Legislation, (*California Water Code*, Sections 13575–13583), that established a statewide water recycling goal. As defined by the Act, recycled water is wastewater that has been treated to a quality that allows the water to be used again.

**Watercourse:** Natural or once natural flowing (perennially or intermittently) water including rivers, streams, and creeks. Includes natural waterways that have been

channelized, but does not include manmade channels, ditches, and underground drainage and sewage systems.

**Waters of the State:** Any surface water or groundwater, including saline waters, within the boundaries of the state (as defined by the Porter-Cologne Act).

**Waters of the U.S.:** "Waters of the U.S." can be divided into three categories: territorial seas, tidal waters, or non-tidal waters. The term "waters of the U.S." is defined by the *Code of Federal Regulations* (CFR, Title 33, Navigation and Navigable Waters; Part 328, Definition of waters of the United States; §328.3, Definitions) and includes (1) all waters that have, are, or may be used in interstate or foreign commerce (including sightseeing or hunting); (2) all interstate waters including interstate wetlands; (3) all other where the use, degradation, or destruction of which could affect interstate or foreign commerce; (4) all impoundments of waters otherwise defined as "waters of the U.S." under the definition; (5) all tributaries of waters identified above; (6) the territorial seas; and (7) all wetlands adjacent to waters (other than waters that are themselves wetlands) identified above.

**Watershed:** The land area that drains into a stream. The watershed for a major river may encompass a number of smaller watersheds that ultimately combine at a common point (SWRCB 2011).

**Weaving:** The process of exiting a site and merging across multiple lanes "with traffic" to reach an intersection and go in a different direction.

**Weekday:** Any day, Monday through Friday, which is not a legal holiday.

**Wetlands:** An area at least periodically wet or flooded; where the water table stands at or above the land surface (bogs and marshes). Also those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

**Whole of an Action:** An action that may result in either a direct or reasonably foreseeable indirect physical change in the environment (See State CEQA Guidelines, Section 15378).

**Wildlife Corridor:** A natural corridor, such as an undeveloped ravine, that is frequently used by wildlife to travel from one area to another.

**Wildlife Crossing:** A small, narrow area, relatively short in length and generally constricted in nature, that allows wildlife to pass under or through an obstacle or barrier that otherwise hinders or prevents movement.

**Williamson Act:** Known formally as the "California Land Conservation Act of 1965", it was designed as an incentive to retain prime agricultural land and open space in agricultural use, thereby slowing its conversion to urban and suburban development. The program entails a 10-year contract between the city or county and an owner of land whereby the land is taxed on the basis of its agricultural use rather than the market value. The land becomes subject to

certain enforceable restrictions, and certain conditions need to be met prior to approval of an agreement.

**Williamson Act Lands:** Lands preserved for agricultural production. Lands under Williamson Act contracts are assessed according to their agricultural use value rather than as potentially developable lands.

**Windrow:** A line of trees to reduce the force of a prevailing wind.

**Xeriscape:** Environmental design of residential and park land using various methods for minimizing the need for water use ([www.dictionary.com](http://www.dictionary.com)).

**Years Before Present (YBP):** “Before Present” assumes that 1950 is “present,” so in this case 10,000 YBP would be 8,050.

**Zero Lot Line:** A detached single family unit distinguished by the location of one exterior wall on a side property line.

**Zone:** A specifically delineated area or district in a municipality within which regulations and requirements uniformly govern the use, placement, spacing and size of land and buildings.

**Zoning:** The division of a municipality by legislative regulations into areas or zones for the purpose of regulating land use, types of buildings, required yards and setbacks, parking, and other prerequisites to development. Zones are generally shown on a map and the text of the zoning ordinance specifies requirements for each zoning category. A program that implements policies of the General Plan.

**Zoning Map:** Section 65851 of the *California Government Code* permits a legislative body to divide a county, a city, or portions thereof, into zones of the number, shape, and area it deems best suited to carry out the purposes of the zoning ordinance. These zones are delineated on a map or maps, called the Zoning Map.

**Zoning Ordinance:** A law dividing all land in the city into zones that specifies uses permitted and standards required in each zone.

## 12.1 REFERENCES

- American Geological Institute, The. (Bates, R.L. and J. Jackson, Eds.). 1984. *Dictionary of Geological Terms* (3<sup>rd</sup> Edition). New York, NY: Doubleday.
- California Air Resources Board (CARB). 2017 (May, access date). Glossary of Air Pollution Terms. Sacramento, CA: CARB. <http://arb.ca.gov/html/gloss.htm>.
- California Integrated Waste Management Board (CIWMB). 2006 (June). The Facts about Re-Refined Oil. Sacramento, CA: CIWMB.
- California Natural Resources Agency (CNRA). 2014. Frequently Asked Questions about CEQA. Sacramento, CA: CNRA. <http://resources.ca.gov/ceqa/more/faq.html>.
- Cal Space Virtual Museum. 2002. Glossary of Terms. San Diego, CA: UCSD. [http://earthguide.ucsd.edu/virtualmuseum/Glossary\\_Astro/gloss\\_a-f.shtml](http://earthguide.ucsd.edu/virtualmuseum/Glossary_Astro/gloss_a-f.shtml).
- ENVIRON International Corporation (ENVIRON). 2009 (June). *Centennial Supplemental Air Quality Analysis*. Emeryville, CA: ENVIRON.
- eSchoolToday. 2017 (May, access date). What Are the Types of Light Pollution? <http://eschooltoday.com/pollution/light-pollution/types-of-light-pollution.html>.
- International Dark-Sky Association (IDA). 2005 (January). Poster Paper: Light Pollution, Another Threat to the Environment (Information Sheet #21). Tucson, AZ: IDA.
- Los Angeles, County of. 2015 (June, last updated). *Los Angeles County, California – Code of Ordinances*. Tallahassee, FL: Municode Corp for the County.
- . 2014 (December). 2014 Draft Hillside Management Area Ordinance. Los Angeles, CA: the County. [http://planning.lacounty.gov/assets/upl/sea/hma\\_revised-draft-feir-201412.pdf](http://planning.lacounty.gov/assets/upl/sea/hma_revised-draft-feir-201412.pdf).
- Placeworks. 2017. *The Centennial Specific Plan*. Santa Ana, CA: Placeworks.
- State Water Resources Control Board (SWRCB). 2011 (February 16, last updated). Water Words Dictionary – W. Sacramento, CA: SWRCB. [https://waterboards.ca.gov/publications\\_forms/available\\_documents/water\\_words/words\\_w.pdf](https://waterboards.ca.gov/publications_forms/available_documents/water_words/words_w.pdf).
- U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS). 2017a (May, access date). Prime Farmlands Definitions: Prime & Other Farmlands Definitions. Washington, D.C.: NRCS. [http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/pr/soils/?cid=nrcs141p2\\_037285](http://www.nrcs.usda.gov/wps/portal/nrcs/detailfull/pr/soils/?cid=nrcs141p2_037285).
- . 2017b (May, access date). Range and Pasture. Washington, D.C.: NRCS. <http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/rangepasture/>.

- . 2017c (May, access date. Acres of Large Urban Build-Up Land. Washington, D.C.: NRCS. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/pr/programs/easements/?cid=nrcs143\\_013853](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/pr/programs/easements/?cid=nrcs143_013853).